Stakeholder engagement in digital service creation

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Abstract

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The object of this thesis is to improve communications process within Finnair between digital development unit and its closest business units. Digital Platform has been built and is operated by agile principles. Business units that are closest to Digital Platform have a long history as a project and line-management organizations.

Agile framework has built-in notion of openness in communications, transparency, documentation and decision making. Development units and teams, such as Finnair digital Platform are operating within these principles. Aim of this thesis was to run series of agile experiments that were targeting to improve openness and transparency in communications between Digital Platform and its closest business units about the work prioritization and status of ongoing development work.

Activities for this thesis work were carried out between April-December 2019 and I participated in planning and executing them as a Finnair employee. The level of engagement and transparency in communications was measured with pre-survey and post survey. Between surveys Digital Platform run a number of agile experiments that were partially new and partially were enhancing existing ways of working.

Experiments focused on visualizing work by using both online channels and physical wall spaces in the office building. New demo-sessions were added and demo content was shared for all interested business units. Decision making processes were opened up and development priorities were discussed and shared widely before items were prioritized for development.

Experiments had slight impact on the survey responses. Physical events received positive feedback and they were seen as important channels for information sharing. Online tools that were given substantial weigh as experiments were not creating transparency and were not used as a source for information. Focus in the feedback shifted also from requesting report to understanding how process of work prioritizations functions in Digital Platform.

Keywords
Agile software development, Business stakeholder engagement, Transparency

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1 Introduction

Software development has been widely impacted by agile and lean methodologies during the last decades. The foundations of Lean methodologies are in automotive industry where they were introduced to minimize the amount of non-productive work and processes without sacrificing productivity (Krafick 1998, 6). Early adaptations of Lean were focusing mainly on process and supply chain improvements and lean was adapted mainly on industry and production level. Agile development frameworks were introduced in software development in 1990's and they were gained wider attention from 2000 onwards.

In software development agile frameworks such as Scrum and Kanban have been getting more popular and they have been replacing traditional project models such as waterfall projects. Agile development processes change the ways of working dramatically compared to traditional project management models.

Agile methodologies promote short iterative development cycles that aims at short delivery times and fast return of investment. Short development cycles enable starting of development faster and usually with less specifications compared to traditional project models, where product or service requires excessive planning before development is started. The aim of short development cycles is to cut the amount of work that is not bringing value for the user of the product or service. At the end of each cycle aim is to deliver usable software of product increment. Shorter cycles do not require as much planning done ahead and the direction of development can be altered after every development cycle if required.

When organizations begin to adapt agile methodologies they are usually adapted from bottom to top, especially in case of larger companies or enterprises. This is because adapting agile methods disrupts with the ways organizations traditionally function. Because of added disruption agile methods are tested and adapted in team or department level before making it a company or enterprise wide way to operate business. Successful adaptation of Lean ideology still requires management and CX level commitment and is unlikely to succeed without it. (Byrne 2013, 3.)

When teams or departments make a shift from project or line organization to agile software development or product organization they re-organize the ways they work. Re-organization is applied from planning and designing to team composition and to management of work.

Organizing work between agile teams and traditional business organization can cause issues that are related to co-work, prioritization of work and information sharing between

development platform and stakeholders, who represent the rest of the organization. At enterprise level scaled agile frameworks such as Large Scale Scrum (LeSS) and Scaled Agile Framework (SAFe) has been adapted to solve these issues when agile models are being scaled company wide. (Conboy & Carroll, 2019, 2)

Finnair Digital Platform (later Digital Platform) is a software development organization that focuses on digital service creation for Finnair end customers. Development is done in teams that focus on single customer endpoint. Team composition allows teams to design, develop, implement and maintain the products and services they are working with. Work is organized using agile frameworks such as Scrum and Kanban. Digital Platform and the end products it develops has multiple interest groups and business stakeholders inside Finnair corporation. Majority of Finnair departments are operated as line organizations or as product organizations including Digital Platforms most important stakeholder departments that are Customer relations, commercial department and Transformation & IT.

This Master's thesis is a case study about platform level transparency towards stakeholders in Finnair. Digital Platform is an agile organization whereas organizations that represent platforms stakeholders are functioning in project organizations. Transparency is one of the key elements in agile development. In this context transparency means openness in development processes and sharing of information and facts to everyone involved in the work.

During the thesis work I was working as a Scrum Master in Digital Platform and I was starting starting a process to improve platform level transparency and engagement towards business stakeholders. Process aims in finding ways to share information and knowledge openly about decision making processes and about planned and ongoing development within the development teams.

2 Objectives

2.1 Outcomes

Outcome of this thesis is an improved communications and engagement process for Finnair Digital Platform development teams and management to increase transparency in software development, decision making processes towards stakeholders. Current processes are developed around Agile and Lean principles and improvements are planned to be built within the scope of these frameworks.

Outcome of the thesis work includes improvements that are implemented in Digital Platform processes and that can be scaled across teams. Effectiveness of experiments are evaluated by survey for stakeholders. Thesis will also include a suggestion for further steps to improve transparency and communications.

2.2 Research questions

How to enable and promote transparency in software development process and in decision making to enhance communication and engagement between development and various stakeholders in a platform-based organization?

How to engage stakeholders in new service creation throughout the development when the stakeholders have history in working in traditional project mode?

2.3 Scope

Scope of the thesis work is restricted to the improvements done by Finnair Digital Platform to increase transparency and engagement in work prioritization, software development and decision making towards business stakeholders and interest groups That represent Finnair Commercial department, Customer Services and Transformation & IT.

Focus is on finding ways to communicate development backlogs and decision making and progress in software development and how to engage stakeholders to these processes.

3 Review of related work

Literature review and review of related work discusses history of lean and agile practices and adaptation of both methodologies in software development during the last two decades.

Software development is a complex activity that involves numerous tasks and requirements with high degree of variability. Development process includes often uncertainty and decisions are based on assumptions and best guesses. This all is then executed by people using variety of platforms and different programming languages. Nerur states that from the beginning of modern computing sciences these problems have been approached with rationalized, engineering based mindset, which builds up form hard system thinking and assumes that problems are fully specifiable and that there is a predictable optimal solution for every problem. Because of this assumption programming and later software development projects were managed with heavy upfront design and planning that tried to predict and solve future issues and even eliminate the sources and different variations during the process by continuously measuring and refining development processes during the development life cycle. (Nerur, Mahapatra & Mangalaraj 2005, 74.)

Traditional system development and software development are guided by life cycle models of which waterfall model is most commonly used. According to Nerur life cycle model relies on upfront planning by specifying the required task and desired outcomes that development requires. Roles to perform these tasks are assigned during planning and most of the communication during the project is done with project documentation that is extensively created during development process. Customer has an important role during specification building but is not engaged deeply in development processes after this phase. System development also aims in finding highly optimized and repeatable processes that can be used further during the project. (Nerur et al. 2005, 74.)

Software development or project that is plan-driven and process oriented may face difficulties even when small amount of changes is required to original structure of the project or product. When constant change is present and the requirements of end users and customers can't be predicted or planned upfront, Agile methodologies, that are able to respond to the inevitable change are gaining popularity as frameworks for software development (Lindvall & Basili 2002, 197).
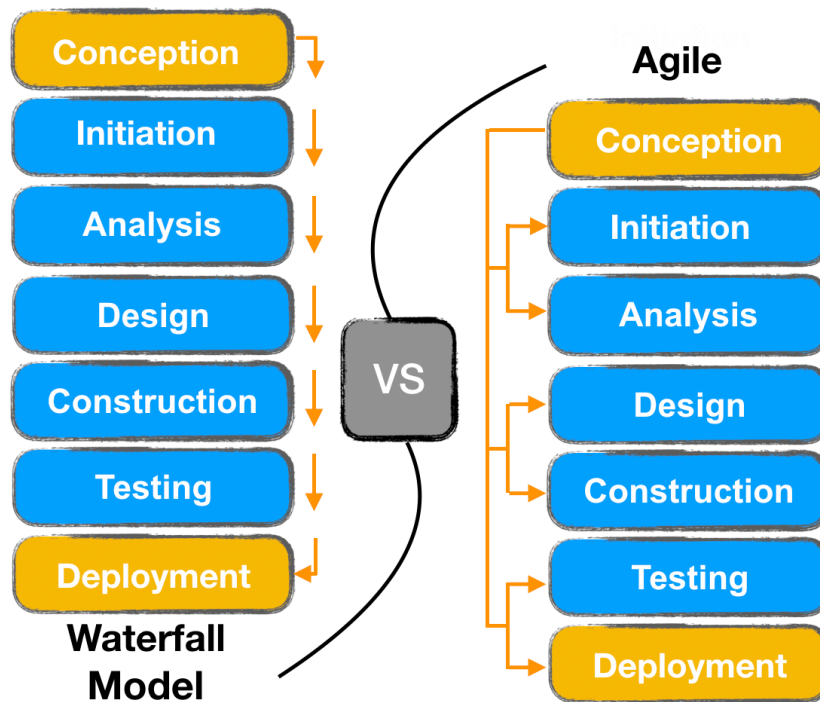
Agile development methodologies that have foundations in Lean manufacturing processes approaches unpredictability of software development process by relying on short iterative cycles of development that are driven by people and their creativity instead of processes. Development cycles are driven by product features that are developed on basis of rapid

feedback and change, continuous integration of new increments into the system under development (Nerur et al. 2005, 75).

Agile methodologies incorporate iterative cycles where software or product increment is designed and developed on basis of customer or business requirements within a team that has all the required capabilities to plan, design, develop and release into production (and usually also maintain) new software, product or product increment. Short iterative cycles of development allow to release functioning code in an early phase of development. (Highsmith & Cockburn 2001, 2.) This serves the purpose of early phase feedback from users and release of minimum viable product versions of product to speed up early launch of software to customers or end users that enables early return of investment.

Short iterative development cycles offer also another clear advantage compared to process-like development models. Based on customer or business feedback the course of the development can be adjusted if necessary. Changes can be made between development cycles if requirements are adjusted or feedback proves changes to be necessary or new information about external requirements is available. (Highsmith & Cockburn 2001, 2.)

Another significant difference between lifecycle based structured models and agile methodologies is the focus on customer and to value creation. This means that the emphasis on development is in bringing value to the customer whereas actions that do not serve this purpose are considered as non-value providing activities and therefore non- relevant. This affects communication, documentation, information sharing during in the development phase but it also changes how development work is approached: instead of developing and designing the exact product that was planned in an early phase of development agile development methods focuses in solving the problem or issue customer has in a best possible efficient way, that might not be even available before development work has started and end users have reviewed different models available. This is also an outcome of agile methodology approach that prioritizes working software over excessive documentation. (Cockburn & Highsmith 2001, 2-3.)

Picture 1. Comparison between waterfall model and agile software methodologies (modified from Lotz, 2018)

3.1 Lean manufacturing process

Agile development methodologies were affected by Lean manufacturing process. Lean manufacturing process was first introduced in Japanese automotive industry and its origins are in post second world war Toyota manufacturing and management process improvements. Toyota's improved manufacturing process was referred as Toyota Production System (TPS). TPS was found on a main principle of continuous improvement. Continuous improvement was based on eliminating waste from the manufacturing process through participation of all employees. (TPS 2000, 6.) Term waste refers to everything that does not bring value into the manufacturing process.

TPS was discussed in western management literature from 1970's onwards and term Lean was later introduced by Krafick in 1988 in his paper about lean manufacturing systems. (Krafick 1988).

Early adaptations of lean were focusing mainly on process and supply chain improvements and lean was adapted mainly on industry and production level. In 1996 James P.Womack and Daniel T. Jones published an article: "Lean thinking: Banish the waste and create Wealth In Your Corporation". Article linked term Lean to Toyota Production system and popularized the use of the term. In Lean thinking Womack and Jones introduced five principles of lean which are: identify value, map the value stream, create flow, establish pull and seek perfection. According to Byrne making Lean a synonym for TPS or its main

principle "just-in-time" was an important step, because it helped people to realize that Lean could be adapted in any type of company or business, not just for manufacturing. (Byrne 2013, 3)

In "Lean Thinking" Womack and Jones were presenting Lean implementation principles by using various examples of industry processes. Besides industrial production processes they discuss generic principles for implementing Lean to any type of production process. One of the key principles discussed is visualization of workflows with the purpose of sharing information. Information sharing is stated as a principle that will not vary within application of Lean: "Everyone involved must be able to see and understand every aspect of the operation and its status all the time". (Womack & Jones 1996, 61.) Visualization of work and capability to share information is still one of the main targets of Lean approach.

Art Byrne describes Lean strategy as an approach that is focusing continuously on value adding activities of the company or organization. According to Byrne building a successful Lean turnaround requires following three management principles, which are using Lean as the strategy, leading transformation from the top and focusing on transforming the people (Byrne 2013, 3-7)

One of the industries that has adopted Lean thinking Is software development. Foundations of Lean in software development are in Agile alliance which was started in 2001 when seventeen people representing different areas of software development gathered together to find an alternative to current way of heavy weight document driven software development processes. As a result of this meeting was Agile manifesto, which described alternative values for software development (Agile manifesto 2001).

These values were:

- Individuals and interactions over processes and tools
- Working software over comprehensive documentation
- Customer collaboration over contract negotiation
- Responding to change over following a plan

Agile manifesto released twelve principles that were based on four core values. These principles stressed result-oriented development that focuses on customer satisfaction and aims at delivering software and value for customer frequently. Working software and simplicity of the work done (minimizing waste by maximizing the work not done) is seen essential. Teams and teamwork and participation between business and development is seen a key factor to success. Self-organizing teams are seen as the source for the. Best architecture, requirements and designs. (Agile manifesto 2001.)

Twelve principles of agile manifesto are described below:

- Our highest priority is to satisfy the customer through early and continuous delivery of valuable software
- Welcome changing requirements, even late in. development. Agile processes harness change for. The customer's competitive advantage
- Deliver working software frequently, from a couple weeks to a couple of months, with a preference to shorter timescale.
- Businesspeople and developers must work together daily throughout the project
- Build projects around motivated individuals. Give them the environment and support their needs and trust them to get the job done.
- The most efficient and effective method of conveying information to and with the development team is face-to-face conversation.
- Working software is primary measure for progress
- Agile processes promote sustainable development, the sponsors, the developers, and users should be able to maintain constant pace indefinitely.
- Continuous attention to technical excellence and good design enhances agility
- Simplicity - the art of maximizing the work not done is essential
- The best architectures, requirements, and designs emerge from self-organizing teams.
- At regular intervals, the team reflects on how to become more effective, the tunes and adjusts its behavior accordingly

As we can see most of the Agile manifesto principles has lots in common with Lean manufacturing and lean thinking principle. Agile principles are customer driven and result oriented as are Lean principles. Continuous improvement of lean can be associated to most of the Agile Principles: continuous delivery, delivery of functioning software to measure progress, attention to technical excellence, simplicity and elimination of waste. Both Lean and Agile are also people centric. Lean and TPS emphasizes individuals as members of a team who all need to participate for the process to be successful (TPS 2000, 8). Agile manifesto principles point to teamwork, cross-functionality and to face-to-face- communication.

Agile manifesto describes values and principles of working especially in area of software development. There are various software development methodologies that are taking Agile principles to more concrete level and can be used as a framework to manage complex developing projects. Two most widely used Agile methodologies are Scrum and Kanban which are both also used for Finnair Digital Platform development.

Finnair Digital Platform efficiency improvements, shorter lead times, transparency as one key element in decision making and improved stakeholder input.

3.2 Scrum

Scrum process was introduced in 1986 by two Japanese business experts Hirotaka Takeuchi and Ikujiro Nonaka when their article "New New Product Development Game" was published in the Harvard Business Review. Article discussed new development approach for commercial product development that would increase speed and flexibility of development. Takeuchi and Nonaka approached product development from a team perspective where team as a "holistic" unit would be able to deliver the whole product (Sims & Johnson 2011 pp. 66). Holistic method was described as a game of rugby where ball gets passed within the team as it moves as an unit up the field (Scwhaber & Beedle 2002, 1) First attempts to use Scrum in software development were done by Ken Schwaber and Jeff Sutherland in early 1990's and Scrum process was formalized in 1995. Methodology was developed to be used as framework to manage complex software development projects in an efficient way. (Schwaber & Sutherland 2017, 3; Sims & Johnson 2011 29,66.)

Scrum was introduced as a response to traditional software project management frameworks, such as waterfall method that brakes planning, testing and development into separate steps inside a development project. There was clearly room for improvements since traditional methodologies were failing to deliver projects on time and on budget. According to Standish Group report in 1995 only 16% of enterprise software development projects were on time and on budget. Surveys stated that reasons behind failures were lack of user involvement and incompleteness of requirements (Sims & Johnsons 2011, 28). Complexity of software development was too high to be managed with defined processes. Instead there was a need for adaptive frameworks such as scrum (Sims & Johnson 2011, 68).

Scrum in software development is a product management and product development framework for delivering, developing and sustaining complex products. Scrum employs an iterative and incremental approach to optimize predictability and control risk during development (Schwaber & Sutherland 2017, 4). Scrum implements an empirical approach for project management that is based in process control theory which according to Schwaber "provides and exercises control through frequent inspection and adaptation for processes that imperfectly defined and generate unpredictable and unrepeatable outputs". (Schwaber & Beedle 2002, 25). Empirical approach is the opposite of defined process control approach, that requires high level of well-defined inputs and is able to repeat the process with same end results repeatedly. Empirical approach was adapted since software development projects include high level of complexity and unpredictability and all the elements

of the process are not completely understood in the beginning of the project (Schwaber & Beedle 2002, 24). According to Schwaber this is reason why Scrum is adaptive, quick and self-organizing (Schwaber & Beedle 2002, 1). Scrum aims in wasting software developers time as little as possible. This is achieved by doing development in short iterative cycles (Schwaber & Beedle, 2002, 120).

In the centrum of the Scrum is a small group of people that have the capability of design, develop, release, operate and sustains software and products. Scrum team has members with different capabilities and different roles. Roles in a scrum team are Product Owner, Scrum Master and a Team Member. Scrum teams are self-organized and are free to accomplish set targets in a way that is suitable for them, adapting to the circumstances, technologies and organizational structures as best they can. (Schwaber & Beedle 2002, 50.)

Scrum is run as a one month or shorter time-boxed development cycles during which usable or potentially releasable products increments are being created. These cycles called sprints can wary between four and one weeks, but the length of the sprint should be pre-determined to avoid increase of the development scope. Sprint contains Scrum events that include design and planning of the sprint, daily meetings, sprint review and the retrospective of the sprint. Pre-determined events aim in one hand creating regularity and on other the hand minimizes need for unplanned action and meetings (Schwaber & Sutherland 2017, 8).

Scrum as a framework leaves room for implementation. Framework lists events but it does not tell one single way how they should be done. Implementation is dependent on team composition and the experience and maturity of the team. Teams might vary in sizes and might include remote participants or several locations. Teams also have different ways of organizing themselves and Scrum is open for this as long as core principles and values of Scrum are followed.

Scrum is founded on empirical process control theory that asserts that knowledge comes from experience and making decisions based on what is already known (Schwaber & Sutherland 2017, 4). Scrum acknowledges core values and qualities that are commitment, courage, focus, openness and respect. Commitment means that Scrum provides authority and autonomy for the team to meet the commitments. Focus is related to committed work: all efforts should be focused to the task team has committed. Openness guarantees visibility of the work to everyone. Respect is related to teamwork and team dynamics. Courage drives people to commit, to be open and to expect respect from others. (Schwaber & Beedle 2002, 147-154.) Scrum relies heavily on transparency. Significant aspects of the work and process are visible for everyone in the organization. Planned work, sprint goals and sprint outcomes are made transparent (Schwaber & Sutherland 2017, 16).

Picture 2. Illustration of Scrum sprint cadence (for example Schwaber & Beedle, 2002; Schwaber & Sutherland, 2017)

3.3. Adapting Agile development models

Agile process adaptation targets to change processes, people, tools and management in the company. Most companies that are transforming to agile development methodologies have history and background as process- oriented project organization. According to Nerur change that impacts processes the most is movement from process-centric models to feature driven and people-centric approach. (Nerur, Mahapatra & Mangalaraj 2005, 76.) This means movement from pre-planned and document- oriented development to feature driven people-centric way of working that sets user and customer at the center of the development and tries to create features and solutions that serves the user most.

Changes on management and on culture affect most the decision-making processes within the company. Decision making during the development is on subject matter experts instead of management. This means that the customer and people working within the development make the most of the decisions that affect the end product instead. This means that project manager-type of single decision-making power does not anymore exist in the management. This is also a shift from command and control to leadership and collaboration where development teams need to have significant autonomy on decision making. (Nerur et al. 2005, 76.)

Besides changes in management switch from project to agile methodologies affect also development teams. Agile development relies on teamwork, including the cooperation between customers and development teams. Teams need to be cross-functional and have required capabilities to design, develop, publish and maintain new features or product increments. Recent studies show that agile development benefits from self-organizing teams where individuals have both personal responsibilities and responsibilities as a team (Almeida 2017, 5).

3.4 Challenges in adapting agile processes

Transformation and challenges faced when organizations move from project organization to agile development has been covered thoroughly by studies over last two decades. Most of the studies approaches the problem from people related management and organizational perspective and from more technical process and capability-oriented perspective.

According to Lindvall three most important factors in adopting agile processes successfully are culture of the organization to enable adaptation of Agile, people with right competencies and autonomy on decision making and communication within the team members. These factors are also interdependent. (Lindvall & Basili 2002, 205.) Cooperative organizational culture is seen as a success factor and hierarchical culture as failure factory for agile transformation (Tanner & Willingh 2014, 698). Cooperative organizational culture supports open communication between teams and management and creates atmosphere where people are able to challenge information and decisions made previously within the project or organization. Stakeholder buy-in is another key success-factor for adapting agile processes. Tanner and Willingh discusses the importance of long-term stakeholder cooperation in Agile process (Tanner & Willingh 2014, 699).

Culture of the organization must give up control and allow development teams to make decisions independently regarding the project. Organizations need to support good communication between team members, which is best enabled with physical co-location of people. Feedback from business and stakeholders is also crucial form of communication for Agile to be successful in an organization.

Fernando Almeida approached problematics of Agile migration in his 2017 study by comparing different studies that had analyzed the issues organizations face when they transfer from process-organizations to agile organizations and change their development paradigms. Recent studies have two main approaches to the problematics of implementing agile methodologies in corporate environments: The scientific studies that adopt qualitative and quantitative methods to identify difficulties that companies face in their agile transformation and studies that are more opinion oriented and share the experiences of IT companies in their processes. (Almeida 2017, 39.) Almeida identifies main dimensions of challenges for Agile transformation and analyses most cited studies from two main categories. By using literature review Almeida analyses how studies place themselves on the dimension of challenges chart.

Almeida presents four different dimensions of challenges for Agile transformation that are People, Organization and management, Processes and Tools. According to Almeida Cen-

tral challenge of the migration process is the people. Organization and management fol-
lows as the second most important dimension whereas processes and tools are seen as
support challenges. (Almeida 2017, 41.)
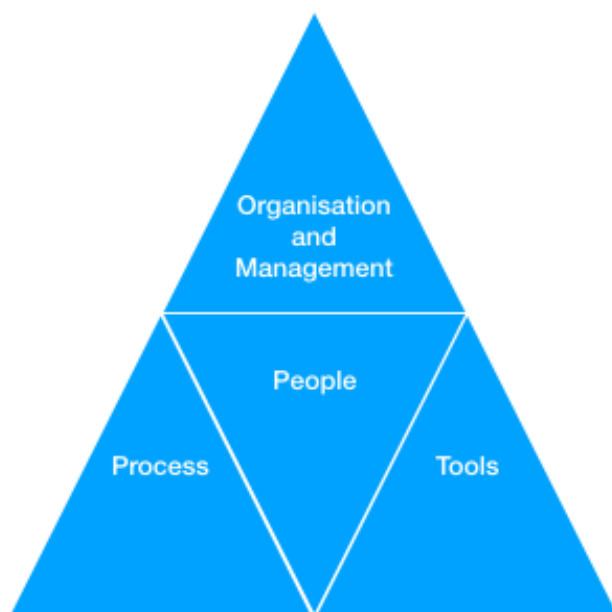
Picture 3. Dimensions of challenges (modified from Almeida, 2017)

From organization and management dimensions Almeida points out that Agile transition
affects the whole structure of the company including development teams, departments
and management. He continues saying that Agile processes requires great participation in
the process throughout company and places knowledge sharing as a key element of suc-
cess for Agile transition. Almeida raises also the challenge of organizational culture in
adopting Agile methods. Former project culture and tradition of working as a project or-
ganization can cause issues for Agile development (Almeida 2017, 42).

In analysis of "People" dimension one of the key findings is involvement of stakeholders
and correct identification of user needs throughout the development process. Stakeholder
involvement was further divided into" collaborative work" and "customer follow up". Collab-
orative work means involvement in the decision-making process and in the development
work prioritization and customer follow-up mean identification of user needs and detecting
permanent challenges of users. (Almeida 2017, 43.)

From "Process" dimension most important findings were importance of identifying require-
ments for the end products and formation cross-team dependencies when several teams
are working on a single project. Issues with requirements appear typically when business
or stakeholder involvement is low in the early phases of development. Cross-team de-

pendencies emerge typically when many teams are working together with the same release. Formation of Full-stack development teams helps to cope with cross-team dependencies. (Almeida 2017, 44.) Full stack teams have internal capabilities to develop, release and maintain features and thus are not that dependent on external sources.

According to Almeida "Tools" -dimension is not one of the most discussed topics in the literature. He raises the risk of Technical complexity and integration of system as challenges in Agile transformation. (Almeida 2017, 43.) These are common issues in any complex development project regardless of framework that is used to maintain the work. From tools perspective continuous integration and continuous delivery (CI/CD) play an important role as it enables highly automated testing and integration and launch of new builds when new features are delivered.

Finnair digital services development teams are well on their way with agile transformation and development. Teams are established and they have a strong competence in their main development areas. Teams are capable of designing, developing, releasing and maintaining software including new features, fixes to existing ones as well as creating all new software and services from the scratch. Teams are using unified platforms and development tools.

4 Scrum at Finnair Digital Platform development

Finnair Digital Platform has currently total of nine development teams who all use Scrum as a development framework. Teams are full stack teams that operate on same physical office space. Remote work is possible but physical presence is encouraged. Teams are operated individually, but they share the same sprint and development cycles. Digital Platform operates on three-month cycles where common development is guided, and cross team functionalities are been build. These Cycles are planned three months ahead and content and priority of development is confirmed before each development cycle in an event called "Agile Planning day". Agile planning days involve all the members of development teams, managers and business stakeholders who are involved in the forthcoming development work. Purpose of the event is to make selection process of forthcoming quarterly development as transparent and efficient as possible by gathering approximately 100 people together in the same space during the day.

At Finnair Digital Platform openness and transparency is encouraged in several ways. Starting from a team level all the teams and developers share their code in company GitHub. Everyone has access to Git and code can be commented and reused if wanted.

Teams use Trello and Jira (online task management tools) to manage backlog items and work during sprint. Most of the Trello and Jira boards are accessible to other teams, managers and business stakeholders. Daily scrums and sprint demo sessions are open to everyone who is interested of following team accomplishments. Also process and other documentation is shared online for everyone involved in the projects, also including management and business stakeholders.

Transparency between teams is ensured by weekly status update meetings where representatives of the teams and management goes through features that have been started to work with and features that are finalized and deployed to production. This session is held on an open office area and progress is visualized on a physical storyboard. In this event team representatives, usually Scrum Master or Product Owner can also flag if there are any external dependencies or obstacles that are keeping team from finishing tasks or if they need support from other teams to finalize features. At the same session large scale features called epics are gone through. Their progress and dependencies are followed, and obstacles and dependencies are flagged by participants. These events are open to everyone and all parties interested can participate in this follow up- session where team and platform level development work is been followed.

Demonstrating of product increments has an important role in promoting openness and transparency in Scrum. Teams at Digital Platform are free to arrange demo sessions where latest product increments or new features are presented to any parties interested.

Team organized demo sessions are usually held when team has developed and launched new features. Therefor teams do not necessarily hold demos every other week.

Besides team demos Digital Platform holds quarterly demos where all the teams present their quarterly progress in two-hour event. This event is held in a large open space that accommodates roughly hundred people. Event is also available also via online channels. In this session each team presents team specific progress from the previous three-month period. Presentation can be live presentation, recorded video or power point presentation. Besides presentation quarterly demo includes statistics and greeting presented by Digital Platform management

Information is shared also via different digital channels. Most of technical related discussions are held in Slack, which is both application and web-based tool for information and content sharing. Digital Platform Slack has different topic related channels where questions can be asked and information and content is shared. Access to a specific channel is granted by invitation from existing member and most managers and stakeholders has the access to general channels where non-technical issues are being discussed.

Information is shared also outside Digital Platforms to other business areas with monthly business updates and bulletins. Focus on communication is kept intentionally on open digital channels and live meetings, not on tailored reporting.

5 Methodology

Research strategy for thesis work is a case study of Finnair Digital Platform workarounds in relation to different business units inside Finnair. Business units are Commercial, Transformation & IT and Customer Experience.

Research was done by gathering data from different business units by using online survey. Survey was sent to 42 stakeholders that represented three different business units that were Commercial, Transformation & IT and Customer Experience.

Research design is an approach that can be used to ensure that data that is collected is usable for the research. Research design answers the questions of what kind data should be collected and how it should be collected in order to get answers for research questions When research aims at explaining causal relationships between variables, there are two main categories of research designs to be applied: experimental research and descriptive research. In descriptive research data is collected without researcher interfering actively to the values of variables. In experimental research value of one or several variables is altered to detect if change in variable affects other variables. Experimental research allows the demonstration of causal relationship. (Taanila 2019, 4.)

Collected data can be quantitative or qualitative. Separation between quantitative and qualitative data is valid because different methods are applied to gather different datatypes. Quantitative data is usually collected by surveys or with measurements or by analyzing existing Data. Quantitative data is usually presented in numeric format. Qualitative data is usually gathered with interviews or by observation or by analyzing existing textual content or media feeds. (Taanila 2019, 1.)

Qualitative data can also be used as a source of information about larger populations. Qualitative investigations, including methods from ethnographical studies and sociology can be used to form deep understanding of population or subjects. However, surveys are favored to gather data from large populations, since researchers have control over the measurement, sampling and analysis of the data. (Groves, Couper, Singer, Tourangeau, Lepkowski & Fowler 2009, 32-33.)

Conversely surveys are affected by events of the real world and environment where surveys are conducted. Outcomes of surveys is affected by the selection of the sample group, contacting of the sample group in case people are reluctant to respond, evaluation and testing of questions, method for collecting answers, checking of data-accuracy and correction of identified errors in the survey.(Groves et al. 2009, 33.)

According to Taanila use of quantitative and qualitative data do not have to be dramatic. Information collected with both methodologies can be used parallelly and qualitative data

can also be analyzed by using quantitative methods (taxonomies, percent distributions). Data can be collected by using single survey and qualitative methods with open questions simultaneously with quantitative questions. (Taanila 2019, 1.)

Surveys can also be done as interviews, via phone or as online surveys using email or online forms. Online survey has its pros and cons. Online surveys take usually less time to answer compared to traditional surveys and they can be answered whenever suitable. This is also a downside for an online survey: respondent can't target any questions for interviewee during survey if there are any. The benefit of online surveys is that respondents are more likely answer to sensitive or delicate issues compared to interviews (Brace 2013, 32-33).

6 Survey

Modern day surveys are based on development of standardized questions, Development of sampling methods and development of data collection methods. Standardization of questions help in measuring same things from each interviewee on each round of surveys. It is also related to effectiveness of question: streamlined questions with scaled set of answers are able to accomplish same results as lengthy set of paired comparisons. (Groves et al. 2009,5.)

Groves describes surveys as a methodology with following characteristics:

1.Information is gathered primarily by asking people questions.

2.Information is collected either by having interviewers ask questions and record answers or by having people read or hear questions and record their own answers.

3.Information is collected from only a subset of the population to be described - a sample-rather than from all members

According to Sapsford:

> A survey is common and widely used tool for collecting information from research group. To be able to answer researched questions surveys need to involve systematic observation or systematic interview and standardized questions. Systematic approach refers to defining precisely what needs to be observed. Standardization aims at consistency in answers: all participants of the research group are addressed same questions in a similar way. (Sapsford 2008, 7.)

Sampling of population plays important role in conducting surveys in a reliable and efficient way. Sampling methods were developed heavily during early 1900's and during World War II when surveys were used to gain information about unemployment and people's willingness to buy war bonds in United States. Two main sampling methods, probability sampling and area probability sampling were introduced as a part of research methodologies and probability sample is still used as standard for sampling large audiences in governmental statistical survey. (Groves et al. 2009, 6.)

Data collection methods has evolved from gathering information by talking to as many people as possible to mailed paper questionnaires and surveys done via telephone. However, invention and spread of computers has had most effect on surveys and collection methods. From early phase computers were used to analyze gathered data, next computers were used for checking raw data from clerical errors and latest they have been involved in the data-collection step itself. Fastest spreading computer-based application is use of web-surveys. (Groves et al. 2009, 7.)

Surveys can be implemented in different ways: they can be conducted by the researcher or representatives can answer surveys by themselves. Surveys can be done as group surveys or as personal surveys (Aaltola, 2010, 103).

Forming of survey questions bears an important role for the research to be successful. When forming an individual question researcher should evaluate will information received by the question give answers to research questions. Question should be designed in a way that it gives information in efficient and trustworthy manner and received information is usefull for the research (Taanila 2019, 21).

Data for the survey can be collected from the whole population (full study), from randomly selected sample of the population or from the sample of the population. Study of the whole population is rarely feasible in practice. This is main reason why randomly selected sample from the population is often used to draw conclusions of the whole population. Sample of the population rarely gives reliable results and thus it is not as often for surveys. (Virtuaali AMK, 2020.)

Surveys are made using structured and unstructured questions. Structured questions, that are also referred as closed ended questions. Closed ended questions should be formed in a way that answers either rule away other questions or are non-exclusive in relation to other questions. (Taanila 2019, 22.)

6.1 Forming of survey

Survey was formed to measure how stakeholders representing three different business units see Digital Platform's ways of working and how representatives value our current efforts and practices to engage stakeholders in planning and prioritizing work and how information is shared about Digital Platform ongoing development and prioritization processes for forthcoming work.

Survey respondent were selected to represent equally all three business units and were send both to people representing top management of business unit and to persons that are on day-to-day contact with Digital Platform development teams.

Survey questions were formed in two separate workshops together with development team scrum masters and our managers. I was facilitating the meetings and provided first version of the question for our team to start working with. These workshops were held in May 2019. Survey included total of 11 questions, which of 5 where closed ended Likert scale questions, one question was boolean and five questions were open-ended. Survey was answered with respondent names and this was stated in the questionnaire form. All questions except for last feedback question was marked and mandatory and respondents

had to give a reply for all of them. Closed ended questions scale was explained in the introduction of the survey.

Survey questions was sent to 42 people representing all three key business units towards Finnair Digital Platform: Commercial, Transformation & IT (later referred as T&IT) and Customer Experience (later referred as CX). Respondents included executive and managerial representatives from each business unit. Survey was implemented as an online survey and it was done with standard web-survey tool, Microsoft Forms. Link to surveys was send by me from company email address with following briefing:

"Dear all,

Digital Platform is continuously working to improve our ways of communicating and of information sharing towards you.

As a part of this process we are sending you a short questionnaire about your visibility to Digital Platform development.

Based on your responses we are making improvements on our processes. Questionnaire will close on 30.5.2019 23:30.

Thanks for your time,

Antti Nivala"

Survey was submitted to respondents on 24.5.2019 and respondents were given a one-week timeframe for their replies. Deadline for the replies was postponed until 7.6.2019 to receive enough coverage from each of three business unit representatives.

New email notification was sent 29.5.2019 to each respondent that had not replied to questionnaire. During postponed second week of the survey, I approached people with direct messages using company online communication tools Slack and Microsoft teams. In Direct messages I reminded people to answer the questionnaire.

By the end of second week survey received total of twenty-four responses, eight from Commercial, nine from T&IT and seven from CX.

6.2 Survey questions

Survey was posted with following forewords and explanations that were visible when survey form was opened.

 "Digital Platform teams are developing Finnair end customer related digital channels. The purpose of this survey is to gain information of the ways stakeholders search and receive

information about Digital Platform development and to improve transparency between development teams and stakeholders.

This questionnaire consists of closed ended and open-ended questions that measure current state of transparency. Closed ended questions are answered on scale 1 -5 (1=I strongly disagree, 2= I disagree, 3= Neutral, 4= I agree, 5 = I strongly agree)"

All questions except for last feedback question was marked and mandatory and respondents had to give a reply for all of them. Closed ended questions scale was explained in the introduction of the survey.

Survey questions are presented in this chapter below.

It is important for me to know what Digital Platform teams are currently working on

First survey question was "It is important for me to know what Digital Platform teams are currently working on. (1= I strongly disagree, 5= I strongly agree)"

Question was a closed ended question and answers were given on scale from 1 to 5. This question aimed to measure how important stakeholders representing different business units see current development work. Question was intentionally presented as a wide scope and unspecific question to see how respondents rate development work generally and to give a baseline for other questions to compare.

Why is this information important/not important

Second question was an open-ended question: "Why is this information important/not important?" This question was related directly to first question and it aimed at finding variety in reasons why business representatives needs to be engaged in development processes and what kind information stakeholders are interested or are not interested in.

I know which epics and touchpoint specific features Digital Platform teams are currently working on (design or development)

Third question was closed ended question: "I know which epics and touchpoint specific features Digital Platform teams are currently working on (design or development). (1= I strongly disagree, 5= I strongly agree)" that targeted to measure how well respondents are informed about ongoing development work that is currently done by development teams.

In the question current development work is divided into design and development to highlight that that teams are working also with user interface, software usability and architectural designs to enable development of future features and functionalities.

How do you get this information currently?

Fourth question: "How do you get this information currently?" was related to third question and it asked the source for information was multi-choice question with fixed values and free text- field.

Fixed values were: Jira (an online project management tool for software development, use widely at Finnair), Trello (an web-based list making application, widely used inside Finnair Digital Platform), Physical Epic and Feature walls at our office, Discussion and other (Free text- field)

Question used purposely "get information" instead of "receive information" to keep the tone of the question neutral.

I find up to date feature status from Trello/Jira

Fifth question: "I find up to date feature status from Trello/Jira. (1= I strongly disagree, 5= I strongly agree)" was targeted to measure how well our online reporting tools serve the purpose of informing business stakeholders of development teams current work.

This question is in place because Digital Platform development teams are using the tools internally in everyday development work and in internal communication.

I know which Epics are proposed for development for next six months

Sixth question: "I know which Epics are proposed for development for next six months. (1= I strongly disagree, 5= I strongly agree)" aimed at finding out how much stakeholders have information about Digital Platform future work on roadmap level.

This question aimed to measure how effective Digital Platform is in sharing information about our planning processes for stakeholders.

I understand how epics are selected for development for each agile cycle

Seventh question: "I understand how epics are selected for development for each agile cycle. (1= I strongly disagree, 5= I strongly agree)" aimed at finding out how much stake-holders have information about Digital Platform work prioritization.

This question aimed to measure how effective Digital Platform is in sharing information about our work prioritization processes for stakeholders.

I have participated in quarterly demos or team demos during past 6 months

Eight question: "I have participated in quarterly demos or team demos during past 6 months" was a boolean yes/no- question that aimed at measuring the level of participation

for development team demo-sessions which are bi- weekly and quarterly hold session where each team share information about current work status and demo ready for production status product increments or new features and functionalities.

Question aimed also to verify dependencies between participation in demos and having knowledge of Current status of development work (question no.3).

How would you like to get information from Digital Platform current development?

Ninth question: "How would you like to get information from Digital Platform current development?"- was an open-ended question that asked respondents to name personal preferences for getting information.

Scrum amongst other Agile development methodologies tries to minimize the amount of unproductive work, also in information sharing and reporting. Hence the question was formed with a neutral tone to avoid requests for personalized reports.

What ideas/expectations you have to improve transparency?

Tenth question: "What ideas/expectations you have to improve transparency?" Asked respondents to name their expectations and propose new ways to improve engagement and information sharing.

Open feedback

Eleventh question was an open feedback where respondents were able to freely comment on the subject.

7 First survey

After survey was closed results were available and could be imported to excel. Results in-cluded name of each respondent and time of response. Name of the respondent was used for two purposes: to identify each respondents business unit and to identify possible differences in responses inside each business area.

In following chapters survey results are analyzed.

7.1 It is important for me to know what Digital Platform teams are currently working on

First question "It is important for me to know what Digital Platform teams are currently working on" scored high results from all respondents and there was only little variance in results between responses business units. Question targeted in measuring how important business stakeholders view knowledge and information of Digital Platforms ongoing devel-opment and design work. High score on question gave a strong signal that there is a need to communicate digital Platform development work towards business units

Average score for question was 4,7. There was some differences between departments, Commercial scored 4,7 while CX scored 4,5 and T&IT scored 4,7.
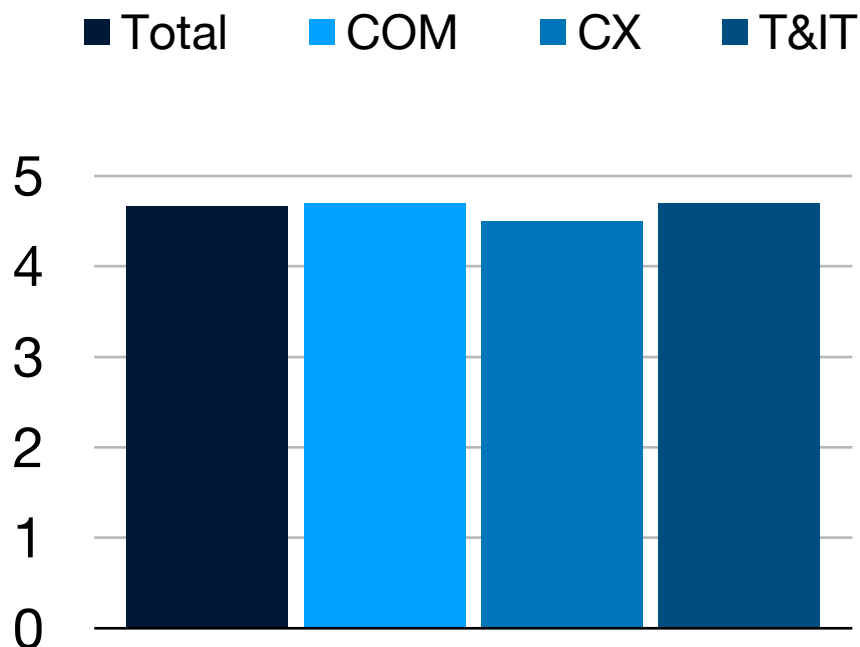
Picture 4. Results for question number 1. by business units

7.2 Why is this information important/not important

Second question was an open-ended question that asked why information in first question was important or was not important from the respondent's point of view.

There were many similarities between responses that enabled to group the response to three different categories. First category was based on business impact of development work or product increment work that is done by development teams.

Second category was related to planning of work and how work is prioritized.

Third category of responses had cooperation and collaboration between development teams and business units as a common denominator.

Most of the responses in first category stressed the importance of digital platform development as the main source of new feature development for stakeholders to meet market requirements or to release new functionalities. Examples of the response category: "Our team is responsible of the eCommerce revenue and it's important to know that the development aligns with the business". "Work of Digital Platform has the highest impact on mine and our team's KPIs and my work is really highly depended on Digital Platform's work. So that I would know what is expected to come out and when. Also, if something is delayed that might have an impact either to product releases and/or future prioritization/ resourcing." And "How Digital Platform strategy realizes and how CX/revenue is being implement through digital touch points."

Second category stated information about current development to be important because of prioritization reasons. Example responses of this category: "Know what's coming in the pipeline", "The items have big impact on business should be prioritized", "Understand prioritization, reasons for it and backlog".

Third group of responses stated the importance of knowledge from development work from cooperation point of view: "Important to know are there possibilities for collaboration around bigger themes such as personalization and experimentation. Also good to know where the platform is developing as we are developing Finnair Shop". "It is relevant to know what other teams are working on to be able to identify if there are possibly something that many teams are working on at the same time: It is also relevant to know what others have planned to avoid overlapping situations." "I need to know if some development work is also needed for third parties and our department." "It would be actually more useful to know what are Digital Platform teams planning on working in near future as there might be items we (data team) could have a joint benefit in working together more. Either by identifying new data sources for wider use within Finnair or providing data & analytics for DP teams to use."

CX business unit responses had slightly different reasoning towards prioritization of work compared to other business units. Here are some examples response from CX respondents: "It's important when it impacts customers (and therefore customer service)". "Developing (planning and implementation) the operative processes, roles, employee tools require strong alignment with Digital Platform plans in customer touchpoints. We would know when we can expect the features suggested. we would have facts about how the DP bandwidth is now /this year used. Transparency in prioritization criteria is needed. Balance with self-service tools (easing the operative processes) and revenue generating features needs to be clearer and better. Better transparency would remove the time wasted by multiple people in asking around. Frustration of not knowing and not having a steady source of up-to-date info would be less of a problem." "It's important when it impacts customers (and therefore customer service)."

Categorization of responses did not follow strictly business unit boundaries. Answers in three categories were given from all four business units apart from two answers from customer experience that raised the development and launch of new features as issue that impacts customers and generates contacts and requests for Finnair Customer services.

7.3 I know which epics and touchpoint specific features Digital Platform teams are currently working on (design or development).

Third question asked respondents do they know what development or design items teams are currently working on. Question aimed to measure is there a gap between the importance of knowing what is currently been developed and what is actually been developed by teams that are relevant to stakeholders.

Results between how important respondents see information and how well they know what Digital Platform currently works with are quite different from each other. When question number 1 scored average of 4,7 question 3 scored average of 3,1. There were some difference in answers between departments, Commercial scored 3,4 and T&IT 3,3 when CX scored only 2,7. Commercial and T&IT respondents answers were between neutral and agree when CX answers were between neutral and disagree.

Total ■ COM ■ CX ■ T&IT
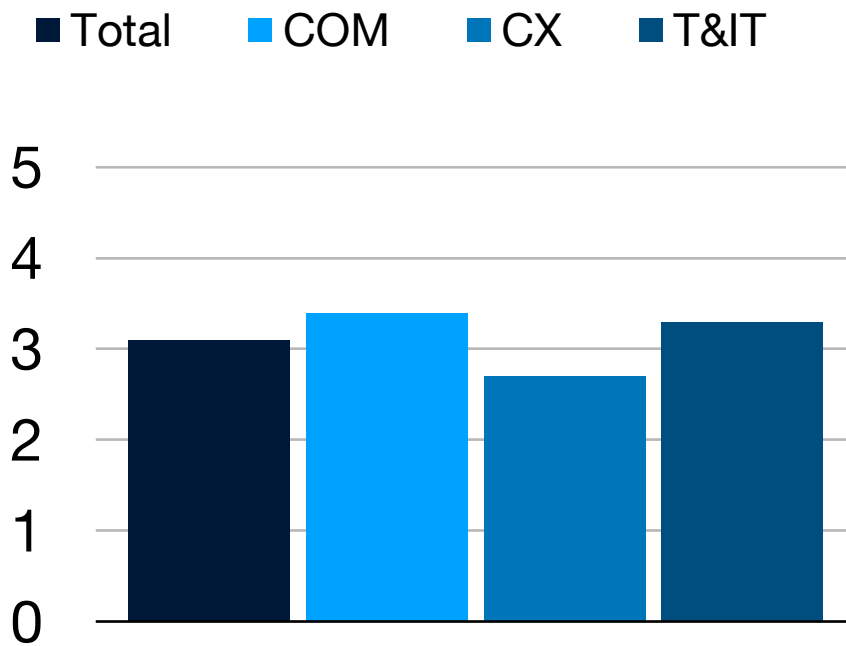
Picture 5. Results for question 3 by departments

7.4 How do you get this information currently?

Question number four asked how respondents get information about current development and design work that Digital Platform teams are currently working with.

Question was multiple selection question with possibility to enter free text when value "Other" was selected.

Values that could be selected were "Jira", "Trello", "Physical epic and feature wall", "Discussion" and "Other".

Jira and Trello are online tools that are used at Finnair Digital Platform to communicate and reports software development both inside development teams and to external stakeholders. Both tools are widely used in in software development on global scale.

Based on the answers there was great variance in how well online tools reached stakeholders in communicating what features and functionalities are currently been developed in Digital Platform. Jira served only three of the respondents for this purpose whereas Trello was source of information for ten respondents. Jira is a reporting and job management tool that is used widely in Finnair. Trello is used by majority of the teams in Finnair Digital Platform, but some of the biggest teams (measured by team size and business impact) use Jira actively.

🔵 Jira	3
🟠 Trello	10
🟢 Physical epic and feature walls...	6
🔴 Discussion	20
🟣 Muu	9

Picture 6. Answers for question 4.

Physical epic and feature wall is a hallway at Finnair HOTT building where ongoing work is visualized on two physical walls and walls are maintained weekly to reflect the development work that teams are currently doing, Epic and feature walls have been on place for two years and they aim at giving full visual coverage on what features all of the teams are working on without the need to seek information via multiple different online tool views. All people that responded on survey should be aware of the wall and about the purpose it serves. Despite the history of physical wall, they served only six of the respondents as a source of information.

Discussion was named as the most popular form of getting information from current development by 20 respondents naming it as a source of information.

Other was named as a source of information by 9 respondents. Five responses stated "meetings" or "regular meetings" as a source of information and one response were given for "reports", "named person", "Agile planning day" and "Design sprint".

7.5 I find up to date feature status from Trello/Jira.

Question number five is related to previous questions and is targeting to find out how well online tools are serving the purpose of information sharing of ongoing development and design work for external business stakeholders.

Average score for question was 2,5. There was some differences between departments, Commercial scored 2,9 while CX scored 2,2 and T&IT scored 2,7. For Commercial and T&IT online tools were viewed as neutral source of information while for CX respondents online tools were not seen as a useful source of information for current development and design work.
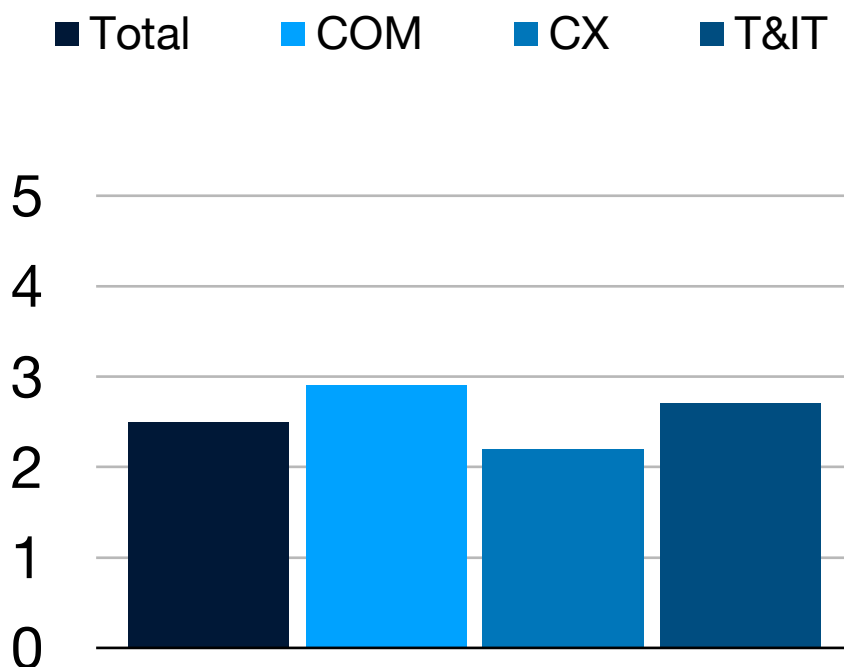
Picture 7. Responses for question 5.

7.6 I know which Epics are proposed for development for next six months

Question number six is about respondents having information about future plans of epic development for the following six months. Epics at Finnair are described as development items that define large, but concrete deliverables to certain business objective and they require typically cross team-development

Epics are usually large or complex features or new functionalities that require planning, cost analysis and designs forehand. Before epics are presented for development for agile cycle they have already gone through design and planning phases during previous agile cycle. After design epics will enter development phase based on the priority order of the feature or functionality.

Average score for question was 2,8. There was some differences between departments, Commercial scored 2,6 while CX scored 2,7 and T&IT scored 3,2. Difference between departments can be explained by T&IT representatives being more involved in the process where priority of the epics is discussed before the start of new agile cycle.
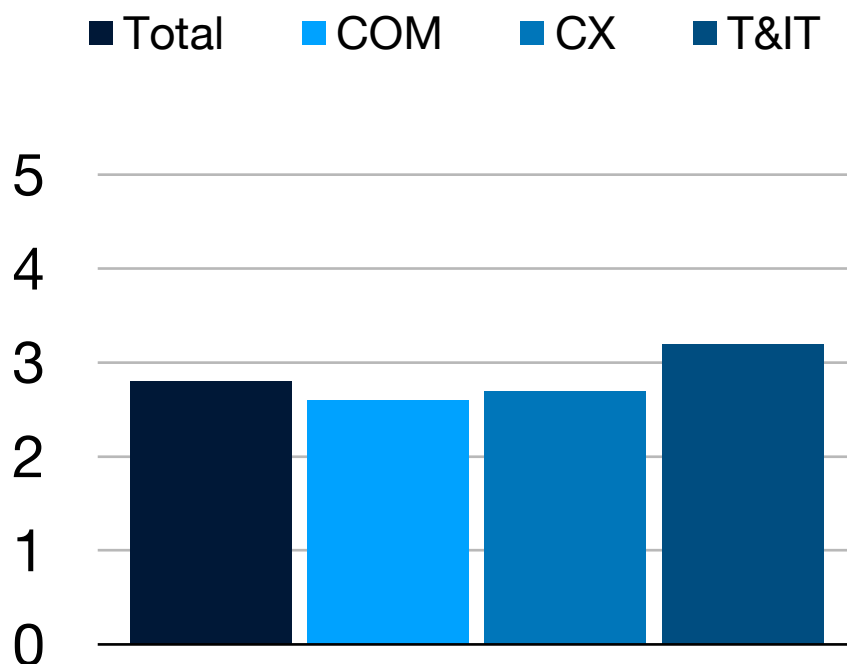
Picture 8. Responses for question 6.

7.7 I understand how epics are selected for development for each agile cycle

Question number seven asked respondents if they know how development items are selected for each three-month agile cycle. Epics and development items go through preparation, concepting and design phases before they enter as development items for development systoles that are called "agile cycles". Idea behind these roughly three-month development cycles is to have well prepared and prioritized items under development for fixed time period.

This will give teams possibility to focus on prioritized items and also sets a standard for the maturity of specifications of new features and functionalities. It also aims at blocking ad-hoc development work to be added for development during ongoing development cycle and is transparent towards all stakeholders, since only prioritized development items will be worked with during development cycles

Average score for question was 3,0. There was some differences between departments, Commercial scored 2,3 while CX scored 2,8 and T&IT scored 4,2. Difference between departments can be explained by T&IT representatives being more involved in extended

team meetings where part of the prioritization is done before planning each agile cycle development content.
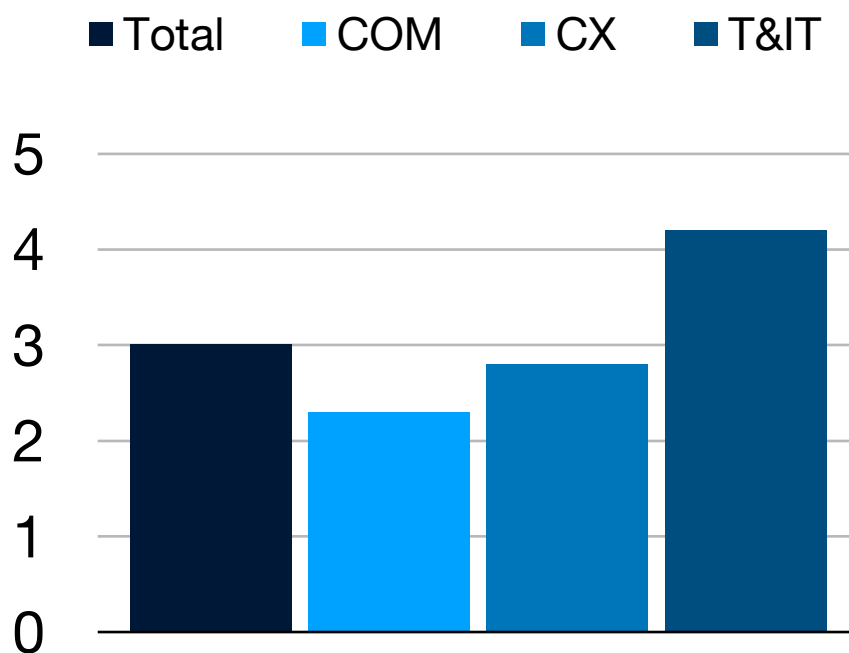
Picture 9. Responses to question number 7

7.8 I have participated in quarterly demos or team demos during past 6 months

Eight question "I have participated in quarterly demos or team demos during past 6 months" targeted at finding how actively stakeholders attend to demos that are arranged quarterly to demo the work of all Digital Platform teams and bi-weekly for f.com related teams or individual teams.

Out of 24 respondents 21 had participated in demos and 3 had not participated during last 6 months.

In agile software development and especially within Scrum demo sessions has an important role as a medium for information about ongoing development and design work. Everyone can participate in demos sessions to receive information about the stages of ongoing development work done by each team and also to comment and to raise questions about the design or development work done.

Digital Platform holds demos in two different formats: as bi- weekly sprint demos and quarterly demos. Sprint demos are arranged individually by each development team to demo work that has been completed by the team during previous two-week development sprint. Quarterly demos are held at the end of each three-month agile cycle and there

each of the seven development teams demo the highlights and deliverables from previous three-month development period.

Team demos tend to be interactive sessions between development teams and stakeholders where audience usually comments and evaluates the output of development teams previous sprint. The idea of sprint demos is to evaluate team outputs and receive comments from business and other participants in order to approve or change direction of recent development.

Quarterly demos are more established sessions that are targeted for larger audience. Aim of the sessions is to highlight the achievements of each teams and also to view how much of the estimated work that was taken into development and design by the teams has been accomplished.

7.9 How would you like to get information from Digital Platform current development?

Ninth question: "How would you like to get information from Digital Platform current development?" was an open-ended question that targeted to find out how stakeholders want to have information about current development. Emphasis to the question was to find are there any common ways amongst respondents to get information besides personalized reports and weekly bulletins that are widely used in many of the business units in Finnair.

Many of the respondents had a desire for push- type of reporting that would serve needs of each stakeholder. This is anyhow a hard target to achieve since forming reports for individual purposes is quite time-consuming and from development team perspective information can be shared more efficiently.

Common sessions for sharing information were already in place in form of bi-weekly team demos quarterly demos and weekly scrum of scrums.

Emphasis of information sharing about the prioritization and of on ongoing development has been on epic- development and this was visible in responses. Many of the respondents raised the need to know how touchpoint-specific work is prioritized and how development and design is progressing during agile cycles.

The need to unify the visibility in digital channels was also raised to make them more unified and more efficient for users. Some of the respondents criticized digital channels because of the effort they require from stakeholders or because there was no access to all the channels.

7.10 What ideas you have to improve collaboration with Digital Platform?

Tenth question: "What ideas you have to improve collaboration with Digital Platform?" was also an open-ended question and it aimed at getting direct information how to improve transparency in ways digital platform is working.

Below is a summary of the responses form question 10.

- More clear ownership for development items from platform teams. Clear roles and responsibilities between PO and Business.

- Having visibility to epics that are selected to APD in advance

- Opening up reasons behind prioritization e.g. business, compliancy.

- More direct information sharing and collaboration between business units

Currently actions discussed in these findings are handled in following way: from stakeholder perspective ownership of development items and responsibility for delivering new functionalities or product increments in Finnair's current development process is on Product Owners (PO's). They are working as a single point of contacts between business stakeholders and development teams and they can affect prioritization of ongoing development. Clear roles and responsibilities between PO's and business comes from the influence of PO's in prioritizing touchpoint specific work together with stakeholders and prioritizing feature development during sprints.

Final priority of epic development is formed roughly month before agile planning day when proposal of epics is published. This work is done by Digital Platform management team together with business unit managers. Prioritization is formed in basis of impact and cost analysis where urgency, effort, cost, profit, compliance issues and cost of delay is taken into consideration when epics are proposed for development. Also, ongoing work and possible epics from previous agile planning days might be listed as candidates for development if impact of them is still high enough.

Co-operation between business units has an impact in how Digital Platform development and design work is prioritized: business units are using same development resources to drive often conflicting targets. Decision making behind prioritization could be more open to promote transparency in the process itself.

8 Findings and outcomes based on first survey

This section goes through the findings that were done on base of analysis and concrete actions that were taken on basis of the findings. Actions were planned as experiments that were introduced and maintained and later continued if they were seen to fulfill the purpose they were planned to do.

Before discussing the responses with larger audience responses were firs summarized and anonymized so they could be discussed within larger audience. Two sessions were arranged and results where first discussed and later analyzed together with Finnair Digital Platform management team including relevant Product owners, Scrum masters, lead developers and lead designers. First session was held week after closing the survey and second session was arranged on 29th August 2019. After this session results were further analyzed, and findings were done on basis of analysis.

Findings were discussed and viewed in the context of agile principles which stresses the importance of Individuals and interactions over processes and tools and working software over comprehensive documentation. Aim was not to improve stakeholder engagement and transparency by creating tailored reports to match each stakeholder individual needs, but we wanted to enhance Digital Platforms existing ways of communication and sharing of information in efficient way.

Next section goes through main findings and introduces the planned experiments.

8.1 Analysis of the results

Question number three asked respondents if they know which epics and touchpoint specific features Digital Platform teams are currently working on (design or development). Average value of responses for this question was 3,1. Question was about ongoing development or design of single team features or epics that are larger items that require two or more teams to develop.

Question number four was related to third question and asked how respondents get the information about ongoing work. Online tools Jira and Trello were used by thirteen of the respondents. Physical Epic and feature walls were seen usable by six of the respondents. Majority of the respondents had selected discussion as the main source of information.

In open feedback few of the respondents mentioned that team-specific feature development does not have same visibility as epic development and could be enhanced from stakeholder perspective. Respondents also asked for reporting to gain information about development statuses. Few of the respondents mentioned that the current "discussion" mode for information sharing is too heavy for both product owners and stakeholders.

Information about ongoing work is available through several channels and events, including both physical and online channels and different events. Touchpoint specific features are selected to development mostly during agile planning day where capacity is allocated for development items based on priority order.

Once features are selected into Agile cycles and they are developed information is available on physical Scrum boards that cover both epic development and team specific features. These boards are reviewed every Tuesday by Digital Platform management and team representatives. Sessions are open and welcome everyone to join for information about ongoing development.

Demo sessions function also as channels for information sharing. On these sessions people can review finished features or designs that are waiting to be implemented on the next phase. At the time of the survey Digital Platform teams were arranging bi-weekly team-specific demos where teams where presenting their sprint outcomes. Aim of these sessions was to share the status of the development work after each sprint publicly. Team demos where often cancelled and only two out of seven teams held these open for public-sessions regularly.

Quarterly demos are held at the end of each Agile cycle. In this session each team shows KPI's and main development items that have been finalized during the last three-month agile cycle. Both epic related and team specific items are presented.

Fifth question was about the use and usefulness of online tools Trello/Jira that are tools for organizing and communicating work and are used to guide and to visualize work done during the sprints. Majority of the teams use Trello while three larger teams were using Jira at the time of survey. All teams had granted access to their boards for relevant stakeholders. Two of the teams maintained also online roadmap that reflected past- and ongoing development items on a high-level. This question scored average of 2,5 points and based on responses people did not see online-tools as a usefull source of information for this purpose.

Question number six asked if respondents know which epics are proposed for development for during next cycle. This question received average of 2,8 points. Epic prioritization is done mainly by Digital Platform management team and it is discussed within extended team in monthly meetings. From responses we could see that respondents representing Commercial and CX- units gave lower points compared to T&IT respondents.

Information of epic prioritization is available for stakeholders through extended team material that is used for preparing development items for agile cycles. Information is also visible through physical boards, where all planned development and design items are listed

from previous cycles including items that were proposed for development but did not receive any development capacity. Proposed epics are also discussed in epic clinics. Epic clinics are sessions where owners of the epics- typically product owners present the main points, dependencies and KPI's of upcoming development or design work.

Seventh question was about epic selection for development for each agile cycle. This question scored average of 3,0 with significant variance in responses between representatives from different departments. Average for Commercial respondents was 2,3 and for CX respondents 2,6. T&IT respondents gave average of 4,2. This question showed biggest variance in answers between business units. Commercial and Customer experience respondents did not agree with the question setting whereas T&IT representatives agreed with it. The difference between departments can be explained with few variables. First Finnair Digital services development is a part of T&IT organization and information of ways of working and agile principles are common for representatives of T&IT. Secondly Finnair Digital Platform has created the concept of Agile planning day and it facilitates and develops the concept even further. By the time of questionnaire Digital Platform had run its ninth Agile planning day so it would be assumed that the stakeholders participating to it would be familiar with the basic concept of resource planning.

Eight question asked about participation to Demo- session including quarterly Platform demos or touchpoint specific demos during the last six months. Out of 24 respondents 21 had participated in demos and 3 had not participated. Demos had reached majority of the audience and when they are consistent and well organized, they will also work as an efficient medium of information sharing.

Ninth question was an open-ended question that asked respondents how they would like to get information from Digital Platform ongoing development.

Below is a summary of the responses for ninth question including few individual responses

- Nine of the respondents mentioned weekly, bi-weekly or monthly push- update from each of the teams in e-mail or teams form

- Five of the respondents raised common sessions for all teams that could be run bi-weekly or monthly.

- Four of the respondents mentioned lack of information about work that is ongoing outside Digital Platform epic development e.g. team specific development and need to improve this.

- Three of the respondents mentioned need for unified way of using digital channels (Trello, Jira) between teams and two of these mentioned the need to get this information from common place.

"Some concise, casual, visual, easy-to-understand conclusion what's in the pipeline. No more meetings or presentations."

"I am not sure what would work but the current discussion mode is quite heavy for POs"

"Simple visualization (power points for example). Going through the JIRA boards is inefficient and confusing."

Many of the responses raised the need for push updates. As the information about ongoing development is already available it was not seen feasible to introduce any new sources of information but to utilize existing sources more efficiently.

Four respondent mentioned common sessions as a possible source of information. Feedback was also given about the lack of information available about team specific development which are producing important capabilities to some of the stakeholders even they are not the highest priority items on platform level.

Current use of digital channels Trello and Jira received feedback from different use between teams. Also, usability of current digital channels as a source of information was questioned.

After analyzing findings and comparing them with Digital Platform current tools and ways of working project group came up with set of experiments that were partially new and partially enhancing existing ways of working and were targeting in better communication, information sharing and stakeholder engagement in Digital Platform Agile processes.

8.2 Findings and experiments

Based on comparison between existing capabilities of information sharing in Digital Platform and analysis of survey responses four different categories of actions were formed. Categorization was based on stakeholder responses and on Digital Platform existing capabilities and on Agile principles on transparency.

Each category includes both existing and new actions that aimed in better sharing of knowledge by enhancing current ways of working or by adding new channels to share information of processes and statuses of development. These action items were introduced to extended team in August 2019 before implementing any of the new experiments.

First category of experiments was named "Transparency instead of reporting". Name of the category itself is a statement in promoting and enhancing both agile principles and Digital Platform current ways of working. Aim was to use existing capabilities in an efficient way in order to avoid tailoring personal development team status reports to each business unit.

First action taken under this category was enhanced online visibility for stakeholders through epic backlog and touchpoint roadmap. Epic backlog is an existing trello board that has information about planned and ongoing epic development in Digital Platform. Invitations for online tool were sent by e-mail to stakeholders that were working closely enough to development teams but did still not have visibility for the board. This was done to increase the knowledge of planned epics for stakeholders.

Touchpoint roadmaps are digital Trello boards that has high-level information about development status of previous, ongoing and future cycle development-items and they were introduced as a new way of sharing information. Aim of roadmaps was to enable similar and consistent view of what each team is doing on a single slide for stakeholders. Members of the boards were also gone through to ensure that everyone who should have visibility for the boards has it.

Second item was physical epic and feature wall. This was also an existing item that we wanted to be used more efficiently. Concrete measure to enhance the use of physical walls was to start monthly extended team stakeholder from physical walls and to discuss the progress of epics and development items with stakeholders in an environment that visualizes work. Epic wall structure was changed to include also other business critical development items that were high in priority for business. This change was done for agile planning day #10 that was held in November 2019.

Third item in this category was demo sessions that were also an existing item. As a new experiment teams arranged joint bi-weekly f.com demo to demonstrate released items after every development sprint. This bi-weekly one-hour session included demos from all seven development teams. Demos started in late September 2019 and they were held as open session that welcomed all interested parties to join. Invitations were sent to everyone in Digital Platform and to relevant stakeholders. Invitation was sent with following explanation of the demo content:

"Welcome to the finnair.com demo!

This is a generic invite to our demo- sessions. Save the timeslot in your calendar and see you on the 6th floor Creative Lounge every 2 weeks.
Please forward the invitation to whomever you deem necessary to attend the demo session."

Fourth item in promoting transparency was publishing information about new releases also to Finnair Yammer channel. Yammer is a rather popular Microsoft hosted social networking channel for corporate use. Information was previously published only in online

communication channel called Slack, which is widely used inside Digi Platform but not widely used in other Finnair business units.

Second category of actions was labeled as Collaborative approach to highlight importance of direct contact and collaboration between different business units when prioritizing, planning or designing future development.

First item on this category was agile planning day, which will be continued as a primary event for quarterly resource planning.

Second item on this category was epic clinics that are existing events and are held prior to agile planning day. Epic clinics allow stakeholders to discuss development items, namely epics before agile planning day. It is an information sharing event which can also affect the priority of the epics. Aim was to promote clinics even further and to make them established part of agile cycle planning.

Third item was epic retrospectives that are held for selected epics and are aiming to discuss the epic development after epics were completed. Aim of the action was to make visible and discuss about previous development and possible enablers and obstacles during the development and by doing so bringing team closer with stakeholders.

Last item on this category was continuous team co-operation with stakeholders. For this item there were no new practices presented, rather the aim was to highlight the need for continuous co-operation between development teams and representatives of business.

Third category of actions was "2-way transparency" which emphasized importance of information sharing between Digital Platform and business stakeholders. Main purpose of action items in this category was to share information between both parties and also to the direction of development teams.

First action of this category was extended team meetings between business unit- management and Digital Platform management. Extended team does project portfolio management and is meeting on a monthly basis. Extended team plans the priority of future development and also discusses phases of ongoing development. Extended team meetings are an existing concept, but it was changed to be started from physical epic and team walls to better visualize the state of ongoing development to management of customer experience and commercial business units.

Discussion around epic- and team walls created also a concrete outcome to the visualization of work prioritization. Members of business management stated that they do not want to limit the content of epics to epic definition (large development item with substantial commercial, customer experience or legislative value and that involves two or more devel-

opment teams) but instead they wanted to visualize progress of any business- critical development regardless if meets the criteria of an epic. For this reason, epic prioritization was changed for Agile planning day #10 where single team development entities and design-and concepting items were also visualized in one single list of development items. This was done to increase transparency in prioritization of the work by visualizing all the work that development teams were planning to do during next three-month cycle.

On previous planning days team specific development items, regardless of business value were planned after epic-development. Also design-and concepting items were given capacity after epics, if any was left at the end of the day.

Second item in this category was visibility request for long term business priorities from commercial and customer experience- business units. Target for this was to get information of business unit mid-term plans to enable development teams to align their planning with other business units proactively. This item was discussed in an extended team meeting and help was requested to gain visibility to commercial and customer experience priorities. On basis of this there was no single action taken, but business units were requested to open up and discuss their priorities with development teams.

Third item in this category was sharing of extended team meeting materials inside business units. Reason behind this action was in the questionnaire results that showed that management who attended in extended team meeting regularly and teams they represented scored higher points in questions 3, 6 and 7 that measured knowledge about Digital Platform ongoing development work and prioritization processes. Aim of this item was to share information of extended team meetings actively also for those teams in commercial and customer experience units whose managers were not attending to extended team meetings. This item was taken into action by Digital Platform managers who themselves participate regularly in extended team meetings.

Fourth item in this category was a proposal for bi-yearly meeting where business representatives would share information of their mid-term plans. Proposed format for this action was breakfast meeting where business unit representatives could share their plans with designers, architects, developers and product owners instead of discussing only with representatives of familiar development teams.

Fourth category of action items was reporting. Reports were seen as important channels for information sharing and in promoting transparency by many of the respondents. Reports in this category were all existing reports and no new reports were added for this purpose. Reports were Digital Platform monthly report to executive board (EB) about high level KPI's and budget, more detailed bi- weekly flash report to EB about ongoing development and more detailed KPI's. Third report was actually a collection of Monthly reports

and KPI's to different stakeholders and business units. Because of Digital Platform ways of working we did not want to generate any new personalized reports but instead we wanted to use visualization of our work progress and our existing digital tools more efficiently.

Outside these actions there has been other activities to promote transparency in planning and prioritization. After APD #9 in August prioritization of design and concepting items was changed and at APD #10 design- and concepting items were presented in single prioritized list with epics and team-specific development items. This was done for two reasons: first to simplify the list of items that are being worked on during next development cycle and to set all work on priority order and secondly to ensure that capacity is directed to most important items regardless of how the work is labeled (Epics, team specific, concepting, design etc.).

Setting all work to one list in priority order is difficult but extremely important. When all work is in priority order capacity can be directed to the item that is higher in priority regardless of what team is originally supposed to work with the development item. This capacity allocation to highest priority items has been done within few development items during last two agile planning days. Teams are able to channel capacity directly to highest priority items and there is no need to overbook resources in order to get the lower priority design-

Transparency instead of reporting	Collaborative approach	2-way transparency	Reporting
Online visibility through epic backlog and touchpoint roadmaps (rights for all groups)	Agile planning day for quarterly planning	Extended team meetings	Monthly report to EB including high-level KPI's and main launches
Physical agile cycle epic wall and team wall	Epic Cliniques to get familiar with upcoming epics	Help needed: Visibility to CX & COM priorities (need help!)	Bi-weekly EB flash reports
Digital Platform quarterly demos Finnair.com and payment platform bi-weekly demos Team demos	Retrospectives for selected epics	Sharing of extended team meeting material to stakeholders(Jussi&Suvi)	Monthly Digi platform reports & KPI's
Info about new releases in yammer	Continuous team co-op with stakeholders	Proposal: Business stakeholder 1-2 y plan breakfast (twice a year)	

Chart 1. Actions to improve transparency and stakeholder engagement

Outside these actions there has been other activities to promote transparency in planning and prioritization. After APD #9 in August prioritization of design and concepting items was changed and at APD #10 design- and concepting items were presented in single prioritized list with epics and team-specific development items. This was done for two reasons: firs to simplify the list of items that are being worked on during next development cycle and to set all work on priority order. Secondly to ensure that capacity is directed to

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Breakfast sessions have been done twice before agile planning days to share detailed information about development team plans. For these sessions all stakeholders are invited to meet development teams and to discuss proposals for agile cycles. In these meetings each of the teams are presenting their high-level proposal for next planning cycle including epic development, team specific development and concepting and design items in priority order. In these sessions stakeholders are invited to discuss with all the development teams and are also encouraged to question the priority of the planned development items. So far these sessions have been in place two times prior to agile planning days and they have received positive feedback from both business and development teams.

9 Second survey

Second round of survey was sent to stakeholders in early December 2019. Survey was sent to same group of people than the first survey, excluding few respondents who were not anymore working with Finnair. Questionnaire was sent to 42 people and 24 persons responded to it. Out of the 24 respondents 14 had also answered to the first questionnaire. All three business units were represented also in the second questionnaire.

In second questionnaire 11 of the respondents were from commercial unit, 9 from customer experience and 4 respondents represented IT. All units had respondents that participated in both round of surveys.

Second questionnaire went through slight changes compared to the first questionnaire. Introduction was kept the same, as was the evaluation scale.

In the second survey question number six was removed (I know which Epics are proposed for development for next six months) because this was seen as somewhat duplicate information with question number seven (I understand how epics are selected for development for each agile cycle). This was done because of process of proposing new Epic development was changed during the follow up-period when the prioritization of epic development was changed into prioritized list of development and design, regardless if it is epic or not.

Remaining question "I understand how epics are selected for development for each agile cycle" is directed to existing process more clearly and covers also the removed question.

Open questions "How would you like to get information from Digital Platform current development?" and Open feedback were removed on basis of feedback from Digital Platform management. Aim was to get the open format feedback collected into one concrete response instead of three slightly overlapping feedback inputs.

Following chapter goes through the responses of the second survey and compares results between surveys.

9.1 It is important for me to know what Digital Platform teams are currently working on

First question "It is important for me to know what Digital Platform teams are currently working on." scored again high overall result with only slight drop compared to first round. There were no significant differences between departments, Customer experience giving highest value 4,9 followed by T&IT 4,5 and Commercial 4,5 average. Basis on the responses all respondents valued information highly.

Comparison between the average values of those respondents who participated in both rounds of survey show similar results: There was a slight growth in average responses from 4,7 to 4,9.

All respondents in all units still valued highly information about Digital Platform ongoing development work, so the need for the information about Digital Platform processes was still valid.

Results for the question in previous survey were an average score of 4,7. There were some differences between departments, Commercial scored 4,7 while Customer experience scored 4,5 and T&IT scored 4,7.
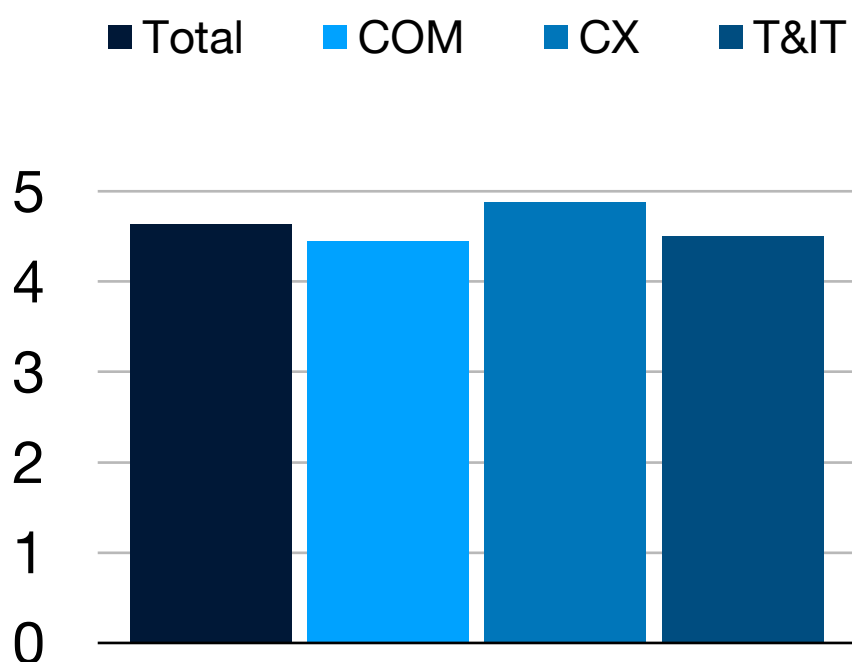
Picture 10. Results for follow up survey question 1.

9.2 Why is it important to know what Digital Platform development is working on

Second question was an open-ended question that asked why it is important to know what Digital Platform development is working on.

Responses in first survey could be grouped to three different categories which were responses based on business impact of development work or product increment work that is done by development teams, responses related to planning and prioritization of work and lastly responses that had cooperation and collaboration between functionalities and business units as a common denominator.

Responses in the second round were not as focused in similar categories as they were in first survey, although business impact, common priority and cooperation and collaboration could be found from the answers as well.

Besides above categories six of the responses mentioned customer facing impacts of Digital Platform development. Three from customer service perspective and three from direct customer impact.

Two of the responses mentioned development bandwidth and lack of transparency for quarterly deliverables of Digital Platform. There was also requirement to know clearly are releases on time in order to be able to synchronize releases with marketing campaigns and other initiatives that are targeted directly for customers.

Support of the same strategical goals was also mentioned in three responses. Digital Platform outputs should be in line with corporation wide strategical initiatives.

There were also responses that stated that it is not in their direct interest to know what development work is ongoing, since their focus is bit off from Digital Platform work at the moment.

Comparison between first round and second round of survey shows that basic needs to know what Digital Platform is developing remains the same. Business needs to know when there is capability to develop features and functions that support business and marketing to meet the set targets. In the second survey there was more direct feedback towards developing capacity and development bandwidth. This discussion is closely related to prioritization of work and the visibility of that process since majority of the consumer facing digital services are developed and implemented by Digital Platform teams.

9.3 I know which epics and touchpoint specific features Digital Platform teams are currently working on

Third question asked respondents if they know which development or design work teams are currently working on including both epics and touchpoint specific development. Question aimed to measure if there is a gap between the importance of knowing what is currently been developed and what is actually been developed by teams that are relevant to stakeholders.

Average score for question was 2,8 and there was an 0.3 drop in average value compared to first round of survey. Differences between business units were minor: Commercial respondents averaged 2,7, Customer experience 2,9 and T&IT 3,0. Compared to first survey Commercial responses average dropped 0,7points, whereas CX responses gained 0,2 point and T&IT again dropped 0,3 points.

What can be the reason behind this? The work done in the form of experiences during summer and autumn was mostly focusing on sharing of information about current status of development and design work done in Digital Platform. Introduction of f.com demos together with quarterly demos served this purpose with enhanced use of digital channels Trello and Jira. Extended meetings were also started from physical walls where ongoing work progress is visualized. Further questions will look into usage of Trello and Jira and in demo participation perhaps to explain the decline in results for this question.

When only the responses from the respondents who were participating in both surveys is taken into consideration (14 out of 24 respondents) the average score moved up from first survey 2,4 to second survey 3,2 which is a substantial rise in average responses. From this perspective the experiments that were carried out to increase sharing of knowledge can be said to be successful.

In first round average score for question was 3,1. There was some differences between departments, Commercial scored 3,4 while Customer experience scored 2,7 and T&IT scored 3,3.
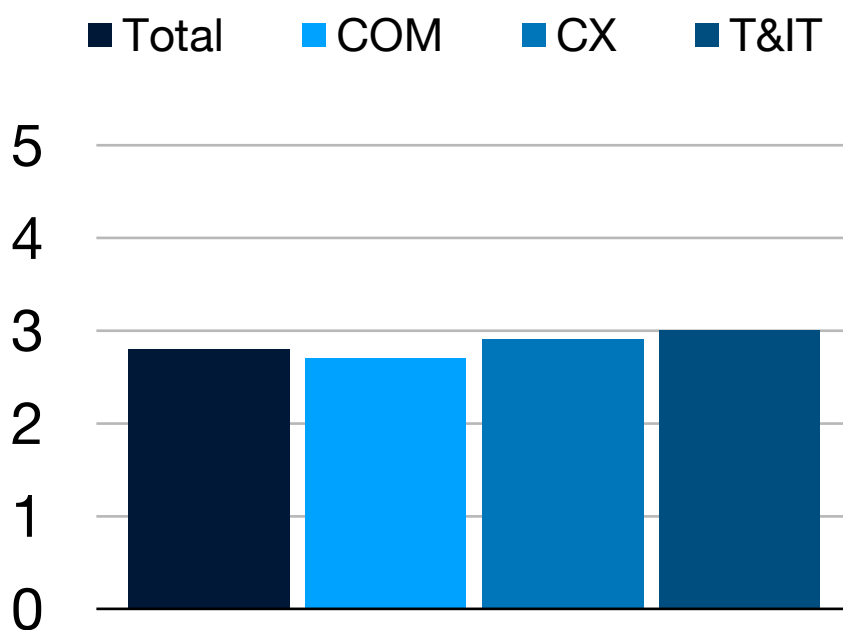
Picture 11. Results for follow up survey question 3.

9.4 How do you get this information currently?

Question number four was related directly to previous question and asked respondents how they get the information about feature development.

Respondents were given same selection of choices as on first questionnaire.

Answers divided following way:

🔵 Jira	1
🟠 Trello	4
🟢 Physical epic and feature walls...	7
🔴 Discussion	18
🟣 Muu	9

Picture 12. Results for follow up survey question 4.

Most substantial change had occurred in the use of online tools as the source of information. Number of respondents using Jira dropped from 4 to 1 and number of respondents using Trello from 10 to 4. For this group of participants online tools were not popularly used.

Number of respondents using physical epic and feature wall stayed roughly on the same level, there was an increase of one from 6 to 7 in this category.

Discussion as a source of information had a slight drop from 20 to 18 respondents.

In category "other", agile planning day was mentioned as a source of information six times, whereas in first survey it was mentioned once. Other channels for information in this category were management meetings.

Changes in the way respondents get information from Digital Platform development were substantial between surveys and they were partially opposite to the to the actions that were taken between surveys. Especially promotion of online channels as a source of information was not efficient in activating stakeholders to use Trello or Jira.

On the other hand, discussions that were seen as a heavy process for information sharing during first survey had a smaller role at the time of second survey.

Physical walls kept their status as a source of information by gaining one user during follow up-period.

It is also notable that demo sessions were not mentioned as the source of information for the status of current development, even when bi-weekly demo sessions and quarterly demos were held on regular basis during fall 2019 and session had a steady audience that included people from all business units.

9.5 I find up to date feature status from Trello/Jira

Question number five was asking how well online tools Jira and Trello are serving the purpose of information sharing about the status of ongoing development and design work to external business stakeholders.

Average score for question was 2,4 that was 0,1 compared to first survey. There were some differences in responses between departments. Commercial scored 2,9 while Customer experience scored 2,1 and T&IT scored 2,5. There were minor changes in average scores compared to first survey, CX average had a 0,1 whereas average scores of Commercial and IT had no changes between surveys.

There are some interesting findings in the results, even though the actions taken to promote online tools as the source of information where not successful. The connection between questions number five and four seems not to be straightforward. In fifth question five of the respondents gave relatively high scores (average of 4,4) about the use of Jira and trello but same respondents did not mention Online tools as the source of information in the previous fourth question. Based on responses these respondents find info about development work can be found relatively easily from Trello or Jira, but they do not use online tools as the source of information.

Five respondents who mentioned online tools as the source of information in question number four gave relatively low scores for question number five about the usefulness of online tools, average of 2,4. These respondents where using online tools but they did not find up to date information easily.

During the follow-up period one of the key enablers for promoting transparency and better communication was the use of online tools, because all Digital Platform personnel use them on organizing and visualizing daily work. Problem with online ticketing tools might be that development tasks are formed with different criteria and with varying granularity between teams. Items and tasks in sprint boards and backlogs are also describing work typically on very detailed level and it is hard to formulate a view of current status of development if tools are viewed occasionally. Another challenge is that there are as many online boards as there are development teams and follow up of an epic, which is potentially developed by multiple teams is challenging only by viewing boards by different teams

Problem of too detailed level of information was approached by creating simplified high-level roadmaps that visualized ongoing and completed development work on three-month phases that were aligned with Digital Platform agile cycles. Roadmaps were completed by all teams in Nov-Dec 2019 and they were accessible by anyone with Finnair Trello access rights. These boards were created by development teams individually and stakeholders were informed about them, but this happened at the end of follow up-period.

Digital Platform also renewed access right to Trello in order to give access to all Finnair employees with Finnair AD-account. This update was done in late 2019 and large group of stakeholders were informed about renewed access policy and more people were informed about the possibility to review development work through online tools.
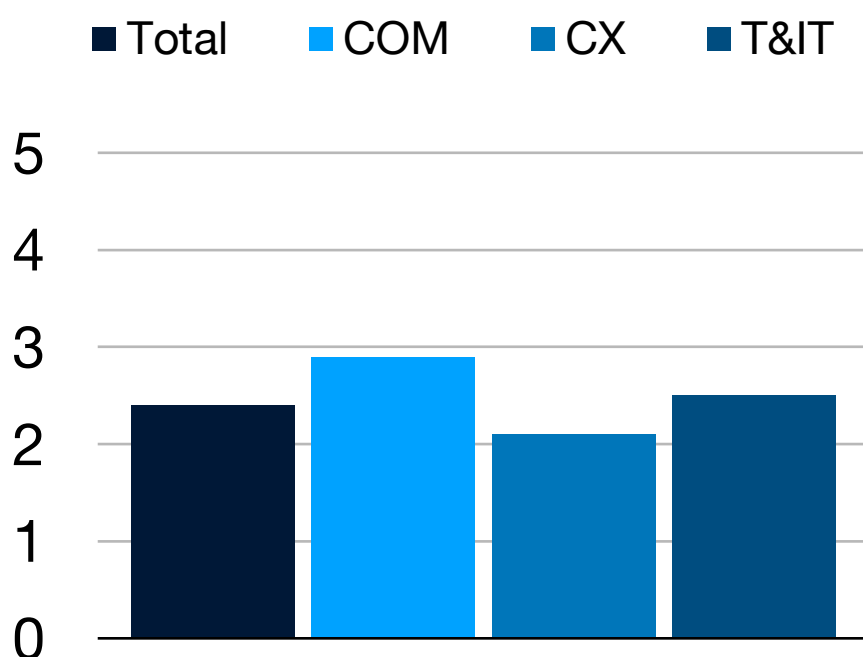
Picture 13. Results for follow up survey question 5.

9.6 I understand how epics are selected for development for each agile cycle

Question number six asked respondents if they know how development items are selected for each three-month development cycle. Average of all responses was again 3,0 and there was no change in average value of responses between surveys.

Average score of all responses does not reflect the changes that has occurred in results within business units. Commercial had significant raise of 0,8 units up to 3,1 in average score. CX had only a slight upward change of 0,1 units with average of 2,9. On the other hand IT average score dropped 0,9 units from 4,2 to 3,2. Changes in averages within business units made result more homogeneous compared to previous survey.

Between surveys two agile planning days were organized, number nine that was held in August 2019 and number ten that was held in November 2019. These sessions gathered similar audience of stakeholders and business representatives than the previous planning days but some changes and improvements were put in for both planning day. APD 9 was prepared after summer break and because of general busyness there was no epic clinics for stakeholders to comment on plans and high level KPI's before planning day. This means that the prioritized list of epics was discussed within extended team which is a forum for decision making between business unit management and Digital Platform management. New development items that had not been introduced in earlier planning days were not discussed with most of the stakeholders outside Digital Platform before the actual planning event.

For APD 10 there were some changes that were put in place to increase transparency and openness in information sharing. Based on the discussion within extended team the list of prioritized epics was changed to include all business-critical development items whether they were epics or important enough features developed by individual team. Design items including UX and architectural work were also included in the list of prioritized items and were dealt as equally with all the other work. During previous planning days capacity was first dealt for epics, secondly for design and planning items and latest for team specific development.

Epic clinics were also held prior to APD 10 and all development items were introduced by product owners. Introductions included short description of the solution, main KPI's and business or other impacts. Invitations to these sessions were send out for various stakeholders and good discussion was taken in these two sessions about the priority and impact of selected development items.

Efforts that were done between surveys to promote the process of work prioritization and selection of development work were somewhat successful. Respondents from Commercial and CX business units gave significantly higher score compared to first survey round. What could then explain the drop in average score if IT unit? IT unit consists of multiple organizations and the respondents in the latter survey were not in as close co-operation with Digital Platform processes as the respondent from IT unit were in the first round of survey.
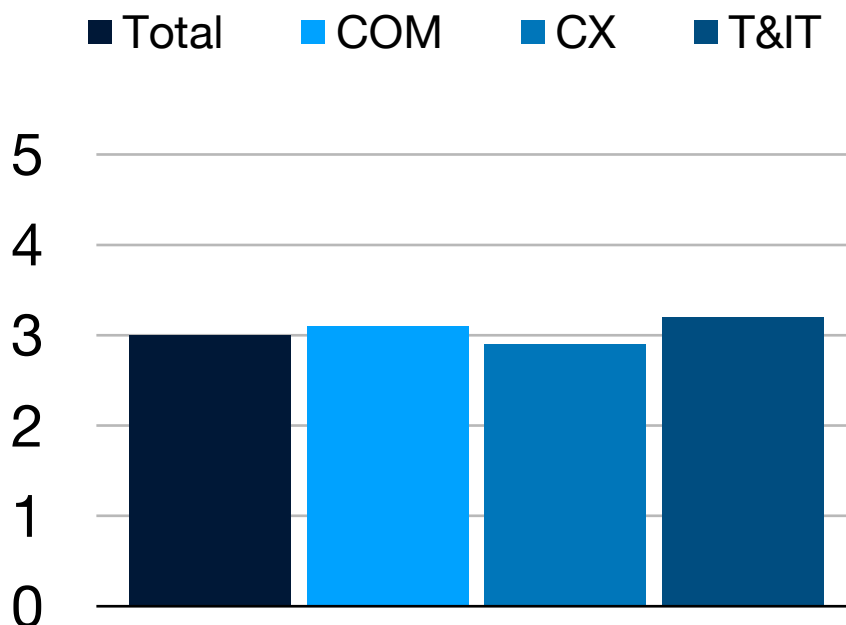
Picture 14. Results for follow up survey question 6.

9.7. I have participated in quarterly demos or team demos during past 6 months

Question number seven asked again whether respondents have participated in quarterly demos or team demos during the past 6 months. Out of twenty-four respondents six had not participated in quarterly demos or in team demos. This was a drop compared to previous survey, where only three from the 24 respondents had not attended demos.

During the follow-up period Digital Platform held two quarterly demos and six bi-weekly F.com demos. Quarterly demos Include all Digital Platform development teams whereas F.com demos exclude IFE team (Inflight entertainment). On top of generic events Mobile app-team and IFE team arranged public bi-weekly demos where they present their teams progress in design and in development. When we take into account the number of demos that were arranged during fall 2019 result is bit surprising that number of respondents that participated in demos decreased between surveys.

If demos are evaluated only by the number of people attending them the experiment can be seen to be successful. I attended all demos and number of people participating in bi-weekly demos was around 35-45 persons and in quarterly demos around 60-70 persons when both online and offline participants are counted. People were also actively involving by commenting and asking details about developed items and features and the schedules of future releases. Participation and activity gave different message about the success of demos compared to the number of respondents who had participated in them. One of the

respondents who had not participated in demos wrote to open feedback that in future she needs to prioritize demos over other work so she can attend them regularly.

9.8. What ideas you have to improve collaboration with Digital Platform

Eight question in the second survey combined questions "What ideas/expectations you have to improve transparency" and open feedback- question from first questionnaire and combined them into one open-ended question that worked also as an open feedback. This target worked pretty well and question received variety of answers that included both feedback and concrete actions to improve collaboration between business and Digital Platform.

Four of the responses highlighted the need to connect business decision making and prioritization of development work closer together. One of the responses requested development prioritized stronger by using business impact as prioritization criteria. One response called out for common forum between business and development to manage and prioritize smaller development items that still has business impact but that get pushed easily back when items are prioritized.

Five of the responses discussed online tools Jira and Trello and the ways they are used within Digital Platform. From these responses two were requesting access to specific views in online tools. Apparently Digital Platform had not succeeded to granting access for all interested parties to all views and tables for online tools. One of the responses stated that it is time consuming to search for information for specific features by using online tools. One of the responses called for streamlined views that are arranged and prioritized using similar criteria. Last online-tool related response called out for single platform to be used within all business units, not only in Digital Platform.

Two of the responses highlighted the lack of information available about touchpoint specific development and how to get this work prioritized when development work is planned and prioritized in Digital Platform.

One of the responses called out for two-way communication between business and Digital Platform. Dependencies and restrictions from Digital Platform side should also be made clear for larger audience so that for example possible freeze periods in production release could be considered when campaigns are designed or quick marketing actions are needed during freeze periods.

One of the responses raised the amount of work that is required to get new development items to team specific backlogs. Also follow-up of team specific development work was seen difficult when teams are using different channels and different processes in developing and reporting their work.

Compared to previous open feedback the feedback was directed more towards concrete ways of working inside Digital Platform. Use of digital channels was discussed in many of the responses. Prioritization of work was discussed in both rounds of survey, in latter one the concerns were more on how team specific development items could be prioritized during planning. Call for stronger connection for business impact in prioritization was also mentioned in second survey.

10 Reflections

This study was performed between June 2019 and December 2019. Two questionnaires were sent to Digital Platform stakeholders in order to find out how stakeholders view Digital Platform decision making, development and prioritization processes. Between surveys there was a six-month follow-up period. In the beginning of that time key experiments and enhancements were listed and their execution was planned. Aim of the experiments was to improve stakeholder awareness of Finnair Digital Platform development and decision-making processes. Experiments were done during summer and fall 2019. Actions included both enhancing of existing ways of working and totally new experiments that were tried for the first time during follow-up period.

Results from the first survey showed that many stakeholders were not aware of the decision-making processes in details and did not know how prioritization of development was done and on what information the prioritization was based on. Survey results showed also that some of the stakeholders were not well informed on how they could have new development items or features and development team backlogs. Stakeholders were not either well informed on the status of ongoing development work during sprints. This was the case especially with team specific development items where only few of the respondents stated they had good visibility.

Survey results revealed that source of information about ongoing development was based mostly on discussion and personal interaction and respondents were not using existing online sources and were not attending info session or demos that were held by Digital Platform on weekly and on monthly basis.

Based on results improvement targets were discussed with Digital Platform management and development team representatives and actions were agreed to be started during summer 2019. Emphasis of the experiments was to get stakeholders familiar with existing Digital Platform processes and to get existing information available for wider audience. Some new ways of working were also introduced, and plans were adjusted along the way, but the focus was kept on getting more benefit out of existing processes and tools. This was because these processes and tools were already in place and were used by all Digital Platform employees as a part of their daily work.

Experiments that were done included physical events, where stakeholders were present and actions that included material or information via online channels. Some of the actions were concrete improvements or changes to processes and ways of working.

10.1 Physical events

Physical events are strongly present in agile development and especially in scrum and their idea is in sharing of knowledge and in promoting transparency. With physical events I refer to events with the possibility of interaction between presenter and audience. Events can also be held as online events by using online presenting tools.

From existing physical events demos faced the most changes when bi-weekly f.com demos were introduced as a new event that gathered six development teams into single demo session. Sessions were held in large open space which has a capacity for approximately one hundred people. Demo sessions were shared online with the possibility to ask questions and comments directly on premises or via chat. Demos were recorded and stored to in Finnair's internal documentation channel where they could be accessed by any Finnair employee. Bi-weekly demo sessions were quite popular amongst stakeholders and participation in sessions was active. Demo content was originally targeted towards stakeholders and because of that aim was to present development items or features when they were close to final or releasable version. Demos included also ready or near ready designs of new features or larger design entities. Besides newly introduced bi-weekly some of the teams kept organizing sprint demos that were targeted directly to core business stakeholders. On top of these two demos Digital Platform kept organizing quarterly demos where all teams present the highlights of development from the ongoing agile cycle. Quarterly demos were recorded and presentations were available on demand via Finnair documentation channels.

It was a bit surprising that regardless of the number of stakeholders that participated in the demos and the attention demos had between surveys demos were not at all visible in the survey results as a source of information and were barely mentioned in the responses. Based on the answers people had attended demo sessions but sessions were not functioning as the source of information about ongoing design or development work.

Other physical event that took place was weekly Scrum of Scrums. This event is open for all Digital Platform employees and stakeholders, but majority of the participants were members of development teams and Digital Platform management. Aim of this event is to follow progress with development items and discuss about possible restrictions or blockers for future development. During the follow up-period the same physical space was used for extended team, when business area managers discussed development priorities together with Digital Platform management team members. This helped people to get shared view about the status of ongoing development. Based on the feedback from extended team meetings some changes were made in the prioritization process between feature and epic development prioritization. Physical epic and feature wall were mentioned by several of the respondents a source of information about ongoing development

and it can be seen as a relevant source of information than would be beneficial to maintain and it could be promoted even further.

Remaining physical events that promoted transparency and stakeholder engagement were related to agile planning day and especially development item and feature prioritization. First physical event was epic clinic (two sessions were held during follow up-period) where epics and other major development items were presented by product owners or lead developers briefly and questions about business or other impact, schedule and resourcing could be presented. These sessions gathered quite good audience and positive feedback was also given in the survey about events.

Other new event was breakfast session for business stakeholders that was held twice during the follow up-period. The idea of this event was to gather all Digital Platform development teams into same space with stakeholders before planning day and to share information about the features that were planned by the teams. Sessions were casual two-hour events where people could freely discuss with development teams and could also see what individual teams were planning together with their business counterparts for the upcoming development cycle. Feedback from the events was positive and there was a demand to continue arranging sessions, although breakfast meetings were not mentioned in the survey responses in any ways.

Last of the physical sessions was Agile planning day, which together with feature and epic prioritization is the single most important session for sharing information between Digital Platform and related business stakeholders. During follow-up period two agile planning days were organized and they both gathered approximately 100 people together from Digital Platform and from Finnair business units. Agile planning day got also quite many mentions in both surveys as source of information about current development. Based on the feedback from previous agile planning days people were satisfied with the event itself but would like to gain information about the development prioritization process that produces the prioritized list of development items. This was visible also in the survey, where adding visibility to the actual prioritization process was seen as a way to improve collaboration between Digital Platform and business in several feedbacks. Agile planning day is the forum to align development resources for selected development items and features, but the prioritization of development items is done prior to the event.

10.2 Information sharing with online tools

Besides physical events information is handled and shared in Finnair Digital Platform with online tools. Tools such as Trello and Jira are used for managing agile software development by development teams. These tools can be also accessed by others than developers to gain visibility to software development and management processes. Online tools

are promoted because they are the tools teams are using to plan, manage, coordinate and follow development work and they can also be utilized for reporting and information sharing purposes if they are built and maintained correctly. Besides Trello and Jira other platforms such as SharePoint and Confluence are used in Finnair but for information sharing purposes Trello and Jira are most widely used within Digital Platform.

During the follow-up period focus was to enhance the use of Trello as online tool for stakeholders. This was done by creating unified roadmaps boards for all teams to meet the need to share information about team specific development for stakeholders. These boards were promoted directly for the stakeholders working closely to the development teams, but they were open for everyone with Trello access. Trello was also updated to enterprise version and to enable login all existing Trello users were contacted to about the upcoming update with instructions how to log in by using Finnair Ad-credentials. During update Trello boards were also cleaned and views were re-organized to give logical and unified view for user that was not perhaps using the tool on a daily basis.

Jira is similar tool to Trello and it is widely used by Finnair corporate users in business units outside digital Platform. Jira is utilized by some of our development teams but we chose not to focus on Jira in our experiments, since it was not purposeful to build single roadmap views for teams with Jira and because majority of the development teams were already using Trello to plan and manage their development.

Based on the feedback from second survey utilization of online tools for information sharing purposes was not successful. Despite the efforts done to promote Trello fewer people mentioned online tools as the source of information about ongoing development in the second survey. Not did only the number of people using online tools as a source of information decline, in open-ended feedback three of the respondents wrote that they were not aware of Digital Platform using Trello or Jira to manage development or them having access to the tools.

10.3 Reporting

Reporting is a part of traditional product and project management and there is a demand for reports of various purposes in larger companies and especially in listed companies. Within these experiments new reports were not purposefully created even when they were requested in the first survey by some of the respondents. In the actions that were done during the survey, it was selected to use existing reports that were already created for Executive Board by Digital Platform management or were results of reoccurring meetings such as memos of extended team meetings where development priorities were decided between business and Digital Platform management.

This approach was chosen because it was seen that generating individual reports would not solve the issue at hand and because there were also other means to gain the same information for example by using online tools Trello and Jira or by attending demos or weekly scrum of scrums meetings.

From the results of the first survey it came visible that all stakeholders did not have access to extended team meeting decisions regarding the prioritization process of development items. This problem was approached by Digital Platform managers who started actively to share extended team material for relevant business stakeholders. This was visible also in the survey responses where Digital Platform extended team decisions were mentioned as a source of information.

In responses from second survey there were less requests for reports compared to first survey responses. In second survey only one of the respondents mentioned monthly or quarterly bulletin of the progress of the development teams as a viable source of information. Two respondents also mentioned management reports as a source of information about the current state of development. Compared to first survey round responses regarding reports were encouraging. In first survey 6 of the 24 respondents requested for a report or letter to cover progress on ongoing development and only one respondent mentioned reports as the source of information.

10.4 Conclusions

The process and experiments described in this master's thesis were carried out in Finnair Digital Service Development during summer and fall 2019. Aim of the process was to promote transparency in decision making and to enhance communication and engagement between development teams and stakeholders in an environment where business stakeholders have long history in project-based organization.

Surveys that were done before and after the experiment phase were asking if people get information about current development and where is that information coming from. Similar questions were asked about the prioritization of development and how prioritized items are selected to development. Experiments that were carried out during the Fall 2019 focused on sharing of information about the current status of development amongst development teams and about the priority of planned development items. Efforts were also done to promote the prioritized items before each planning day.

Experiments that were carried out succeeded only partially to fulfill the targets that were set to them. Despite numerous efforts taken to share knowledge of current status of development overall score or responses dropped for the question "I know which epics and

touchpoint specific features Digital Platform teams are currently working on". Only difference was the result of respondents from commercial business unit with the raise of 0,8 on average responses. From all respondent Commercial unit stakeholders are the group with most impact for Digital Platform work.

Especially experiments that were focusing on enhancing the use of online tools as a source of information were no successful on basis of survey responses. Less people were naming online tools as the source of information for the current status of development. Use of online tools was asked in two separate survey-questions. Trello and Jira were discussed also in responses to open-ended questions where four respondents were not aware of access to development team Trello and Jira dashboards. Respondents were willing to use online tools to get information but based on their responses they did not know about the possibility to do so.

From physical events most attention was given to demos in the form of bi-weekly demos. In agile development and in Scrum demos promote transparency and work as a way to share information. Bi-weekly and quarterly demos were quite popular, and many stakeholders were attending them during follow-up period. However, this was not visible in the survey responses: based on the responses of second survey less people had participated in demos compared to respondents in first survey. The result seems a bit surprising because there were many sessions available to participate and invitations of the events were sent to relatively large group of people including stakeholders from all three business units.

Agile planning days with related events and weekly Scrum of Scrums were physical events that gained attention during the follow-up period. Agile planning day was mentioned as the source of information about current development more often in second survey as well as the physical scrum boards. Epic clinics were also given recognition in open-ended responses.

Most notable difference between first and second survey was in the responses of open-ended question that asked how to improve collaboration with Digital Platform. Seven of the responses in second survey stated that current prioritization process is not transparent enough or it is not working how respondents would like it to work. There were demands to involve stakeholders more directly to the prioritization process and prioritization done more on basis of revenue of the features.

The experiments that were discussed in this thesis were not focusing on the work prioritization process or portfolio management that was run by the extended team which consisted of Digital Platform management and representatives of business unit management.

This group discussed and negotiated the priority of development items that was then presented in epic clinics and at later stage in agile planning day. It was a conscious decision to keep the focus of the experiments as well as survey questions on the parts of the process that were not directly involved with the prioritization process, since that was seen as a responsibility of business unit management as part of portfolio management.

11 Next steps and recommendations

Outcome of this thesis is an improved communications and engagement process for Finnair Digital Platform development teams and management to increase transparency in software development and decision-making processes towards stakeholders.

Agile software development can be done in many ways and there is no single right way to build teams and operate them. Individual teams inside companies vary between how they implement agile and teams are in constant change when they experiment new techniques and frameworks. Teams are also sometimes re-formed, or team composition is changed in order to accommodate to changing requirements. To improve communications and stakeholder engagement I would recommend following changes to communication and work prioritization processes for Finnair Digital Platform.

To further improve the communications and transparency between Digital Platform and different business units I propose that principles of agile development would be opened up for stakeholders in sessions that could discuss the roles of development teams, product owners and stakeholders in agile development. As a further step Finnair specific agile processes and ways of working related to software development could be discussed with relevant stakeholders. This would clarify the expectations and possibilities for stakeholders and would probably help to understand where to gain information and who to contact when facing questions about development.

Based on the survey results and the feedback from latter survey I would suggest improvements and changes to the current development prioritization process. Current prioritization process should be documented and discussed openly with business stakeholders to inform stakeholders where the decisions about development prioritization is done and how new development items can be but to development pipeline and by what criteria are new items selected for development. As an outcome of this would be improved prioritization process that would have clear evaluation criteria and pre-requirements for new development items to enter development funnel.

I would recommend a clarification on how business can have input on development item prioritization. Currently there is a set of basic information related to business impact and KPI's that is required in order to get priority in development for new development items or features. This set of requirements should be visible and accessible for all interested parties in order to increase transparency in prioritization and selection process. A formal process with evaluation criteria related to development item prioritization should be published and discussed with business units.

The list of prioritized items should be also available widely before they are selected to enable dialogue about the future development in as early phase as possible. This has previously been difficult because the list of prioritized development items is evolving up until the last days before planning day.

One improvement is related to harmonizing the ways of working between development teams. This could be done for example by using single online tool to manage daily work. Team should have consistent way of using that tool to make the information easily available for stakeholders. This would decrease the complexity from stakeholder perspective and could make use of online tools more feasible. Use of online tools will be increasing due to changes in ways of working due to COVID-19.

Digital Platform could also arrange info sessions for stakeholders to clarify the processes and open up the ways of working that are currently in place in Digital Platform. Sessions could explain the agile ways of working in Digital Platform and discuss how development items are selected for development. The availability of online tools and existing reports could be also discussed. This way we could share the knowledge about current ways of working also for those stakeholders who are not familiar with them.

As an improvement in communication Digital Platform events and event invitations could include information about the purpose of the event, the targets of the event and link to decisions and documentation that is generated during the event. This unified way of information sharing could be applied to all the recurring meeting invitations including weekly Scrum of Scrums, demo sessions, epic clinics and agile planning days.

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