Change Management related to introducing new tools in the Technical Information organisation

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Abstract

This thesis was written for Technical Information, an organisation in a global technology company in the marine and energy market. Technical Information transforms product and lifecycle data into easily understandable technical information for customer use. Transforming data into information requires an advanced toolset. The tools are continuously updated and replaced.

In such a dynamic environment, the change management is important. The main purpose of this thesis was to study change management and learning organisation, to research the organisation and based on those findings propose a general change management road map that will be used whenever a new tool is being introduced in the organisation.

A survey was conducted to find the current state of the organisations' change management. To get input from all employees in the organisation, a questionnaire was developed. It was sent to everyone in the organisation.

The research found a lack of information and training for new tool introductions. It also found that many employees don't necessarily see the new tool as superior to the old one. Planning and cooperation were also reported as development opportunities and recommendations to rectify the major pain points were given.

Language: English Key words: Change management, Learning organisation

EXAMENSARBETE

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Abstrakt

Detta examensarbete skrevs för Technical Information, en organisation i ett globalt teknologiföretag verksam inom marin- och energibranschen. Technical Information förädlar produkt- och livscykeldata till lättförståelig teknisk information för kunders användning. Förädlingen av data till information kräver en avancerad uppsättning verktyg. Verktygen blir hela tiden uppdaterade och ersatta.

I en sådan dynamisk miljö är förändringshanteringen viktig. Huvudmeningen med detta examensarbete var att studera förändringshantering och lärande organisationer, att undersöka organisationen och på basen av de vetenskapliga fynden föreslå en allmän förändringshanteringskarta som används alltid då ett nytt verktyg blir infört i organisationen.

En undersökning utfördes för att ta reda på organisationens nuvarande tillstånd vad gäller förändringshantering. För att få input från alla anställda i organisationen så utvecklades ett frågeformulär. Det skickades ut till samtliga anställda.

Undersökningen fann bristande informering och inskolning vid införandet av nya verktyg. Den fann också att många anställda inte nödvändigtvis ansåg att det nya verktyget var överlägset det gamla. Planering och samarbete blev också rapporterade som utvecklingsmöjligheter och rekommendationer hur man kunde fixa de största smärtpunkterna gavs.

Språk: Engelska Nyckelord: Förändringshantering, lärande organisation

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1 INTRODUCTION

In this chapter the thesis will be introduced. This leads the reader into the problem statement and the aim with the thesis. This chapter is gradually transitioning into the problem area and purpose of the thesis. The organisation of which the thesis was ordered is also shortly introduced in this chapter.

1.1 Theoretical background

Jacobsen (2019) says we live in a time where changes are clearly visible and are most apparent in the technology sector, including the internet, AI, big data and blockchain for example. The world is getting more tightly connected than ever before. One example that we all understand is that fluctuations in the stock market in Shanghai will have an immediate impact on the other side of the globe. Bruzelius & Skärvad (2017, p407) agree saying that there is no doubt in their minds that things like digitalisation, globalisation, customer demands and intensified competitors increases the need for change.

We can all probably, at least to some extent, agree with Jacobsen (2019), Bruzelius & Skärvad (2017) that the business environments are constantly changing, especially with regards to technology and data processing. This has a specially significant impact on a data driven organisation. And for those it is also imperative to deal with changes in a good way. The change management is therefore very important.

Change is only another word for learning, and those who are always learning are the ones that see that changes are opportunities, and they therefore thrive in the ever-changing world. Handy (1995, p44) Constant change means constant opportunities.

For an organisation to stay relevant in this kind of ever-shifting business environment it will need to continuously adapt to its circumstances and surrounding, but how can an organisation do it? A learning organisation is an ideal organisation where everyone is open to changes. Remember that changing is equal to learning. Becoming a learning organisation is worth pursuing for any organisation.

Technical Information is an organisation that is very data driven. Its main function is to convert a product data into easily understandable technical information for customers, both external and internal to the company. A lot of custom-made, advanced tools are in use all over the TI organisation. A lot of data is used as input by the organisation in many different forms and from many different sources. Data is processed by the organisation's experts for further company-wide and customer's use. The role of this data processing is of high importance to the whole company's success in the service sector. This also makes the tools that the TI experts are using very important to ensure success in the organisation's operations. To be able to keep up with the increasing number of products that the organisation supports and the growing demand for its deliverables, while at the same time optimise its functions, new tools are constantly being developed for the organisation's use.

Almost any change, whatever it may be, is always met with some degree of resistance, which also must be noted, is not exclusively a negative phenomenon. The resistance is in fact a reasonable human reaction to a change. It's a natural, psychological response to a deviation from the normal or something unexpected, something deemed inappropriate or unfair. On top of this are feelings of uncertainty and even loss of control. These are most often the background to the resistance rather than the change itself. (Bruzelius & Skärvad 2017, p409-410)

The change management related to introducing new tools is very important especially because of the agile way they are developed. A clear change management roadmap is required and involvement in the Agile development is needed for successful tool introductions.

1.2 Problem area and purpose

Why is Change Management important? The first purpose with this thesis is to answer this exact question. When introducing a new tool to the workforce they should embrace it and contribute to its development rather than resist it. Many times, the people are overwhelmed by changes and so they are passively waiting for others to act. When agile methods are used in development projects, many times the end users are closely involved in providing direct feedback to the development project. If this doesn't happen, if the project manager doesn't find supportive end users or if business managers instead take the role as end user, the agile development project is in danger of running late and in the end being dismissed by the workers. It can even have such impact that the project is rejected, and the project cost is wasted, without result.

The second aim with this thesis is to formulate a road map for Technical Information. Following this road map should ensure that the tools are introduced successfully to the workforce whereby they are actively contributing to the development of the tool resulting in a well-respected and wanted successors as replacement to their current well-familiar tools. The second problem statement is thus; How can the managers introduce a new tool to the workforce in the best possible way thereby contributing to the successful development of the tool?

To come up with a roadmap there is a literature study in theories about Change Management, Learning Organisation and Agile Methods. Empirical research about the current situation was also conducted in Technical Information in the form of a survey to find out what is important to the workforce.

There is currently a big marketing push from the company's top management to introduce and adopt the Learning Organisation concept. A third problem statement was designed to give a broad overarching view of the organisation's ability as a Learning Organisation and how it affects the change management. The third problem statement in this thesis is the following. Is a learning organisation better equipped with dealing with a change?

1.3 Technical Information organisation

Technical Information (TI) is an organisation with around 115 employees. It's a global organisation which operates from 4 different countries. The locations are called delivery centres and are referred to as DC I through DC IV. The countries where it operates from are Finland, Italy, Norway, and the Netherlands.

TI's main purpose is to ensure that information for operation, maintenance, repair and overhaul of the products that it is responsible for are available to the customers. This is realized by creating content, compiling and delivering technical information such as operation and maintenance manuals, work cards, spare part catalogues and service bulletins to customers, mainly through the company's online portal. (TI intranet 2022)

TI relies on available product data including product lifecycle data to create and maintain their deliverables, but also input from technical experts in other parts of the company. There are many tools used in the organisation's many functions to create and maintain the documentation throughout the long lifecycle of the products. Besides support from the company's department for software, TI has its own software developers making and improving tools specifically to them. That is how data-driven Technical Information is that they need their own developers. TI also has a major role in creating data for the digital twin which is used by all of after sales functions.

2 THEORETICAL FRAMEWORK

In this chapter the reader will be presented with the theoretical framework which this thesis will be based around. The theories that are studied will be explained. The chapter includes literature studies of different change management models, agile development and learning organisation.

2.1 Agile software development

Some projects are suited to be managed by empirical processes, to observe and adapt accordingly. Others are better suited to be managed by more defined processes involving more predictability and algorithmic precision. Highsmith gives the examples of a battlefield (agile) and manufacturing plants (process oriented). Agile practices could be used in almost any project but the projects where it makes most sense is in the category of exploratory projects. The more the requirements are volatile the better suited agile practices are. (Highsmith 2002 p.1-2)

Agile Scrum is a process to guide the creation and delivery of a working software to clients. (Vanderjack 2015 p.1) A working software is typically defined as a tested software that is ready to be deployed to production. (Wells 2009). Agile Scrum is now commonly used by many large well-established companies for managing projects such as new software or online trainings. A retrospective takes place every two to four weeks. This aids the project team in continuous improvement in their ways, and in agile teams it is preferred to fail fast in the earlier parts of the project. It is allowed to try different methods. Focus is on user stories (requirements) so usable features can be delivered as early as possible. In Agile, an initial requirement and a mid-project additional requirement are processed just as easy. (Vanderjack 2015 p.1-2)

The agile team works closely with the product owner with new requirements, the product owner validates the changes and confirms that this is what they want. In agile methods, the project team continuously get input and feedback from the end-user which really results in a great match with customer expectation. (Vanderjack 2015 p.2)

Reoccurring regular meetings are in agile language called ceremonies. Visioning ceremony is where the product owner and scrum team capture and refines requirements into user stories. The product owner is responsible for gathering the needed information from all stakeholders for this ceremony. Product owner therefore need to know the business need and the end-users behaviour very well. (Vanderjack 2015 p.12)

Grooming ceremony is where the product owner, scrum master and other team members review the user story backlog. They make sure the user stories are clean and understandable to the typical reader. User stories can also be decomposed into smaller stories if seen needed. (Vanderjack 2015 p.17)

Iterations is the defining character of agile scrum methodology. There is a list of user stories that is groomed and prioritised. Which user stories to commit to an iteration is selected from the list. These user stories are then completed (features developed) after which they are individually tested by the developers themselves according to test cases attached to the user stories. Following this testing is more testing, this time interconnected user stories' "modules" are tested in to make sure they also work together with each other and not only as separate modules. Next up is a demonstration from the agile scrum team to the product owner. The full current solution is on display. This also can act as an energy boost for the product owner to generate more ideas and user stories. Finally, the project owner accepts the solution and the iterative addition is considered done and moved to production whenever it makes business sense, usually a date can be agreed and this is to be well communicated with all stakeholders. Any defects at this stage are taken up as a new user story in the backlog and will eventually get done when it has high enough priority. Now it's time for a retrospective where the full team meets to discuss what went well and what to improve on. A list of improvements is made and they also think about how to expand on things that went well. If there are no reason for another iteration, if all work is done or if the funds run out, the release is completed. (Vanderjack 2015 p.18-21)

Daily scrum meetings can also be held within the scrum team. Only scrum team people are allowed to speak and each person is given a maximum of two minutes to tell what they did yesterday, what they will do today. Any impediments they might have, are also brought up. They also normally state if they have updated their work to the application life cycle management tool. This is where all information regarding the agile scrum project is stored for management and transparency purposes. (Vanderjack 2015 p.21)

2.2 Change Management

In this chapter we look at change management theories. The more well-known change management models from the literature is presented here. Some of these models align quite well with each other but there are also some contradictory theories involved. We'll start with the big one; Kotter's 8 step model, but first a few words about what is change management and why is it needed.

Change management is the use of a process for leading people through a change to achieve a desired result. Change management is helping the impacted people making the successful personal transition that enables them to engage, adopt and ultimately use a change. (ProSci 2022)

Almost all changes will meet some resistance by someone involved. It is both valuable and problematic. The resistance can take many forms and for example sarcasm and ridicule towards the upcoming change are common. This is not because of complacency or content of the people but a natural and humane response to uncertainty which can result in a feeling of lost control. Many times, the feeling is the main problem, not the change itself. (Bruzelius 2017)

The scope and strength of the resistance is normally greater towards bigger changes or when the change appears to come very sudden. If people feel they are in the losing end or the change is still unclear and thus generate stronger feeling of lost control is equally bad. Finally, whenever the people have negative recollection of a similar change one must really emphasis the change management. (Bruzelius 2017)

There are also a lot of individual variation related to the resistance to change that need to be considered. Some people worry about even the smallest of changes while others see huge changes as a stimulus and a driving force. (Bruzelius 2017)

Individuals normally go through unexpected, forced and uncertain changes in the following four phases. First, they deny and avoid the change. When that is no longer a viable option, they start resisting the change. This goes on until they find insights and opportunities in the change, after which they start to accept the change. (Bruzelius 2017)

The Kubler-Ross change curve can also be used to visually communicate the typical emotions involved in a change as it conveys the levels of energy and emotions as experienced by people going through a change.

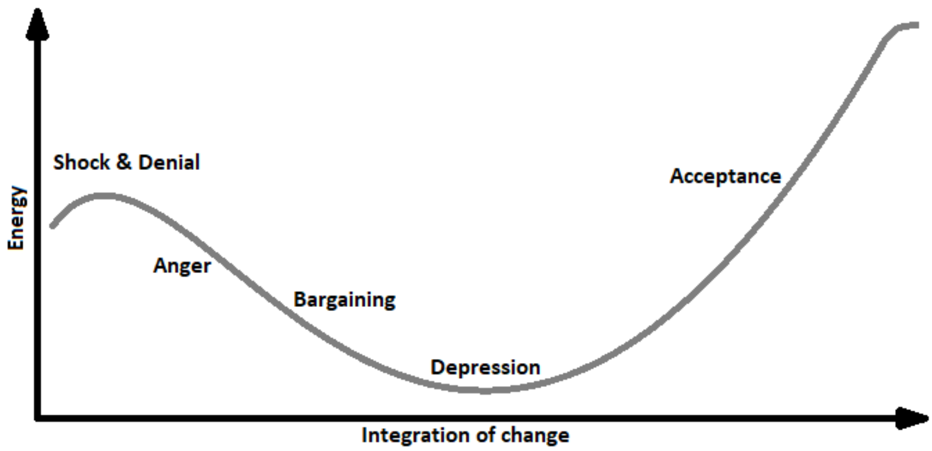

Figure 1 - Kubler-Ross change curve, own illustration based on Connelly (2020)

Other factors for resistance to change include differences in organisations' way of managing changes. Some organisations are used to constant change while others are more unfamiliar and lack the skill. The culture of the organisation plays a role. Politics in the hierarchy can also play a role and self-preservation can reject an otherwise sound idea for change. (Bruzelius 2017)

To not paint a too dark picture of the quite natural response, the resistance to change, here are some of the positive sides. By having resistance to change the number of wrong changes implemented can be reduced by it posing as a constructive opposition. Where there is resistance to change, the implementors are forced to detailed insight into the change, to really understand the background, impact and consequence of the change. It also results in better communication and motivation of the change. It therefore has an important function. (Bruzelius 2017)

The better the individuals learn and the organisation learns, the more effective the individuals and the organisation becomes in continuously adapting to changes and the less need there is for big, disruptive changes down the line. (Bruzelius 2017). More about the learning organisation in the next chapter.

2.2.1 Kotter's 8 step model

It is clear that changes are needed in order for an organisation to stay relevant. For example, reduce cost or increasing the quality of its products and services. Find new opportunities and increasing productivity. Improving competitiveness to be better positioned going forward. (Kotter 2012)

There will always be some degree of pain associated with these changes where people are forced to change by shifting business environments or evolving external or internal conditions. Not all changes result in an improvement. Kotter (2012) highlights 8 common mistakes that we desperately need try our best to avoid related to changing something in the organisation.

1. Allowing too much complacency
2. Failing to create a sufficiently powerful guiding coalition
3. Underestimating the power of vision
4. Under-communicating the vision by a factor of 10 or 100 or even 1000
5. Permitting obstacles to block the new vision
6. Failing to create short-term wins
7. Declaring victory too soon
8. Neglecting to anchor changes firmly in the corporate culture

Experts agree that volatility in business environment will only increase and change implementors can no longer afford to make these mistakes. The good news is that they can be avoided. It's important to understand from where the organisation's resistance to change comes from. For example, if people have experience from painful change attempts in the past, they can now very easily come to a wrong conclusion about an upcoming change. In other words, their history has not conditioned them for the challenge that a change comes with. Especially in growing companies and organisations, it is also problematic that many managers have no experience to lead them through it. (Kotter 2012 p.21)

Some organisations have proven very successful in aligning to new strategies and restructuring programs with all kinds of change initiatives, so there is hope. They have been successful in generating enough power, engagement and motivation to overcome the tendency to want to remain unchanged. They have done this by doing none of the 8 mistakes listed above. (Kotter 2012 p.22)

Even if it is crystal clear for everyone that a particular change is in fact of utmost importance, the change can fail for many reasons. The organisation is too inwardly focused, there is too much bureaucracy, office-politics, teamwork is on a low level, silos within the organisation, organisational attitude is too arrogant and the very human fear of the unknown. The challenge is real but as also earlier mentioned there is hope. (Kotter 2012)

The change challenge is normally thought to be a management problem. It is not. It's a leadership problem. Successful implemented change is about 80% leadership and only about 20% management. The problem is worsened by the fact that organisations today still don't have many leaders due to historical reasons, instead they have many managers, and managers of course think about the change problem as a managerial one, which it is not. This combination is deadly, an organisation that resist change and managers that are untrained in leading change. Only leadership can penetrate the firm inertia in the organisational culture and generate enough motivation to create change that last. (Kotter 2012)

After this introduction, let's look at how to avoid the 8 mistakes in the form of Kotter's 8 step process for leading change. Each of these steps are a counter, an antidote to one of the 8 mistakes.

Step 1 - Establishing a sense of urgency

High complacency means there is not enough cooperation from the people for the change to successfully make it until the end. No cooperation means no alignment and in fact, people will easily think of hundreds of excuses to avoid cooperation with a change initiative that they believe is simply unnecessary. (Kotter 2012 p.38)

To establish a higher sense of urgency it is necessary to eliminate the sources of complacency. There are 9 sources that can explain why an organisation suffers from complacency. All of which should be minimised, they are:

The absence of a crisis. If employees are unaware or shielded from threats, the sense of urgency is low.

Resources seem plentiful. For example, if the company premises are styled with abundance, the message to employees is that we are a rich company, let's relax.

Low performance standards. If targets are too low, so will the performance be.

Making people focus narrowly. If the organisation is set up in such a way that its people are made to only focus narrowly on their own tasks and goals, it will lead to lack of overall responsibility as an organisation.

Target system rigged to meet goals. If the company's internal target setting system is rigged in a way that everyone will always easily meet their goals, there is no need to stretch and try hard.

External feedback is non-existing. If the employees do not get feedback from outside the organisation, their perceived importance of the work they do can gradually be diminished. For example, a letter from an angry customer or frustrated stakeholder can really be a strong motivator and a reminder to not ease off.

Secretive organisational culture. The organisation is not candid enough to embrace feedback. It is instead dismissed as inappropriate and arguments are avoided.

Tendency to reject problems. Humans in general are prone to reject problems and think they will go away. When we stumble upon a problem, we tend to ignore it if possible because we have many of them already.

Happy talk. If senior management are arrogant enough to portrait a company without issues, people will start to believe it is so, but it never is.

To really emphasis the sense of urgency, bold moves are required from the leaders. Small actions such as showing one customer feedback one time is not nearly enough to overcome the powers of well-established complacency in the organisation. Bold, big moves are needed even if it will upset or even anger a lot of people. Executives that have worked in an organisation for a long time will normally not dare to transform the organisation. They will most likely not do the big, bold actions that are sometimes required to overcome complacency. Those initiatives now look too risky or foolish. So, the complacency continues. (Kotter 2012 p.44)

During a change initiative, it can be wise to ask someone external for their judgement about the current level of complacency. Is it low enough that we can complete the change? Is the urgency high enough that we can continue with the change process? It's safer with external data because people who are complacent probably don't know about it. (Kotter 2012 p.52)

Step 2- Creating the guiding coalition (alliance)

Putting together a change coalition is like selecting players for a sports team. You need people with different properties for it to be successful. Kotter (2012) lists the following four key properties. You need enough players with **power positions** to prevent the rest from blocking the change. You need relevant **expertise** related to the change task to make informed decisions. You need enough people with great reputation and **credibility** in the firm so that the message will be taken seriously. You need enough proven leaders to drive the change process. The leaders are important as they are the drivers of the change and they should also have managerial skills to maintain order and control. The leaders of the coalition will create visions and the managers will create plans. Both are essential. (Kotter 2012 p.61)

Types of people to avoid putting on the team is players with big egos that take up all the space. They are not contributing to the teamwork. Other type to avoid is the person that talks behind others' backs and likewise kills teamwork as it creates distrust. Both of these types can similar to other types be promoted to management and as such be seen as good candidate to a change coalition. However, it should be avoided if possible.

Trust and teamwork should be fostered within the coalition. All members should have a common and real desire to make the organisation perform in the best possible way. If the desire is not there, people are committed to other ideas and the change initiative might go down the drain. The right composition of change coalition is a requirement for driving successful change. (Kotter 2012 p.67)

Step 3 – Developing a vision and strategy

Central to all great leadership is vision. A vision is a description of the future along with motivation why it is worthwhile striving for it. When people share the vision, all the small decisions are made more easily. People themselves can settle many decisions by simply asking; is it aligned with the vision? It also motivates people to act, and all the actions of even thousands of people are coordinated efficiently. (Kotter 2012 p.71)

Without a vision, people are not willing to sacrifice their current comfort in order to adapt to the change that can lead to a better future. Without a vision they don't see that the change is worth the brief discomfort. (Kotter 2012 p.72)

A vision isn't inherently something epic, it can be an everyday statement or suggestion including how the desirable future will look like and why we should do what. Kotter's (2012) very simple example is *"It's going to rain in a few minutes. Why don't we go over there and sit under that huge apple tree."*. (Kotter 2012 p.73)

A vision needs to be designed so it takes care of all stakeholders' interest long-term, and may even do so at the short-term expense of a few. However, visions trying to help some and neglect others always produce a counterattack. For example, employees turning passive and resisting change. (Kotter 2012 p.75)

The artistic side of creating a vision is to make it clear enough that people can relate to it and at the same time vague enough that all people can take action on it. The vision also needs to be simple enough that it can be communicated to anyone in about 5 minutes. (Kotter 2012 p.79)

Step 4 – Communicating the change vision

The change vision needs to be communicated, not just to a few people, but to most of all involved until they all have a common understanding of the vision. Repetition is the key, and it can be helpful to keep the change vision always in mind going about your daily business. It will then generate different angles how to tell the story to different people encountered. A few brief mentions here and there contribute to the number of communications. Remember to also listen for valuable feedback and concerns. (Kotter 2012 p.97)

The communication needs to be easy to understand with less fancy words. This makes the message easy to digest. Examples and metaphors can aid in painting the picture. Trying to utilise several forums will reach more people. It is also very important that all leaders behave in accordance with the vision that's being communicated, because inconsistencies in this area will undermine all other communications. If any inconsistencies should appear, it is important to address those immediately. (Kotter 2012 p.91)

Step 5 – Empowering employees for broad-based action

This step is to remove all barriers and obstacles that are in the way for employees to take action according to the communicated vision. There are structural barriers, lacking skills, systems- and supervisor-barriers to consider. (Kotter 2012 p.105)

An example of a structural barrier can be as follows. An employee is inspired by the vision and takes action accordingly only to get criticized and questioned by the manager. Of course, the employee doesn't try many times before frustrated going back to the old ways.

In this step, some training might be needed. It's good to remember. Without proper training, a lot of additional effort is needed by the employee. Their willpower and energy will not last and they will eventually get frustrated. If the knowledge which has been learned through many years and has become habitual is now about to change, training and follow up is indeed needed. (Kotter 2012 p.110)

Removing systems barriers includes aligning the following systems to the change vision. Performance evaluation, compensation and promotions decisions. When these are aligned to the vision, they will support the transformation.

The last barrier to remove is the supervisor. The kind of supervisor/manager that tend to be against change, from historical reasons or others. The more subordinates they have the bigger problem they are. These need to be addressed early in the change phase. Honesty is a good method. Sit down and explain the situation and what is expected from this manager.

Step 6 – Generating short-term wins

Now that at least some people are on board with the vision and actively trying to reach that vision, it is now time to pour fuel on the fire by producing short-term wins. They are some type of improvement result that can be shown. Performance numbers or similar. This shows people that the change is actually working, that it's well worth their effort. A good short-term win is transparently showing result to the people involved. It should be clear-cut results very closely related to the change which can't easily be misinterpreted as for example luck or other circumstances. It needs to be proven that it is a direct result of the ongoing change and people's contribution. (Kotter 2012 p.121-126) Short term wins might be necessary as fuel also alongside the previous steps. (Kotter 2012 p.126) It also serves as a proving ground for anyone still undecided. It shows it is indeed working. When they understand that, they might jump over to the side supporting the change which in turn builds a stronger change effort. Higher level of resistance means short-term wins are even more important. (Kotter 2012 p.127)

For the change initiators, the short-term wins can act as a reality check. Here they can see how good their vision performs and it is now possible to make adjustments if needed. The results can also be needed to gain further funds or to keep management allied with the change.

The short-term wins need to be planned, they will not happen otherwise and they cannot be neglected. The goal becomes too far away and the energy and excitement will fade.

It might be tempting to artificially tidy up the short-term result to give added credibility to the change initiative and the vision, but this must not be done as it will without a doubt come to daylight sooner or later and it will drastically undermine the whole change team's reliability. The short-term wins need to be genuine, for everyone's sake. (Kotter 2012 p.133)

Step 7 – Consolidating Gains and producing more change

In change, and especially in organisational changes there are a lot of interdependencies to identify. In many cases they make change far from straight forward and absolutely not something to try alone. If this is changed then what about this over here? It can be almost endless. During a change process it might appear before you some opportunities to change or even eliminate some of the interdependencies in the systems because it can easily be included in current change process when the change machine is anyway steaming ahead and the short-term wins were very positive. The leaders of the change coalition should preferably then keep to leader-tasks and communicate the overall vision and delegate most of the managerial tasks as far down in the organisation as possible, to get support from as many other managers as the number of additional changes required. Only then is it possible to add more changes to the overarching change project. (Kotter 2012 p.147-148)

Step 8 – Anchoring new approaches in the culture

The culture of an organisation is a power not to be neglected during change. Many times, people are hired into a team because they fit well into the current culture and ways of behaving instead of for their skills and for what they can contribute with in the team. This of course tightens the current culture even more.

The new change must be thoroughly ingrained into the organisation culture for it to stick. Regression to the previous ways can otherwise occur, especially if the change does not match very well with the culture. Culture is based on experience of the organisation and the people within. A new change also requires experience, and with that time, to become part of the culture, and it takes persistence. This is precisely why the cultural change comes as the last step of the change process. Not that it is less important, but because the organisation needs experience with the change for it to happen. (Kotter 2012 p.153)

2.2.2 Culture, Habits and Unlearning

Organisational culture plays a huge role in managing changes. Some organisations can be entrepreneurial, others bureaucratic, some aggressive, others collaborative. However, generalisations such as these do not of course tell the whole story. The main question for change managers to ask themselves is Does the current culture support or impede the change we want to introduce? (Beech 2012, p.66)

In an *integrated culture*, junior staff from one part of the organisation has the same values and behaviour as a senior staff in another part of the same organisation. Evolutionary changes are especially well received in integrated cultures. On the flip side, more radical changes can be really difficult to implement. (Beech 2012, p.67)

In *differentiated culture*, there are silos of subculture, meaning that in one silo the culture can differ from the culture in another silo. When implementing a change in this culture there will be disagreements from some while others accept the change. In this culture disagreements are common but also accepted. (Beech 2012, p.68)

In *fragmented cultures*, the individuals are part of other organisational environment and draws from that culture more so than from the own organisation. For example a team of specialists, where each specialist has responsibility for their own discipline and mostly in daily contact not with their organisational colleagues, but with another department of their particular discipline. This creates a fragmented culture where the individuals don't share a stable common ground with closest colleagues. In such culture the change acceptance or resistance cannot easily be predicted. Leading change is then even more difficult. (Beech 2012, p.68-69)

To form the change coalition, Beech (2012) has a few considerations that could be asked.

1. Can they do it, do they have the capability?
2. Will they do it, do they have the motivation?
3. Should they do it, are they the best available to do it?

(Beech 2012, p.137)

2.2.3 Leading in a culture of change

Michael Fullan stresses that if a business does not become a learning organisation it will not survive and so leaders are faced with the problem how to move in that direction. (Fullan 2007 p.XI)

Fullan's theories about change is that instead of focusing on following a predefined recipe with action steps, the focus should instead be on insights and understanding the change process and on the necessary dynamic leadership therearound. (Fullan 2007 p.46)

No matter which side of the coin one looks at when it comes to change, it will bring out some emotions, positive or negative, and as a result leadership is important. (Fullan 2007 p.1)

Charismatic leaders can do more harm than good. At best they will get short term improvement while in the longer timespan cause frustration. As a role model they are impossible to model by the masses. Any large reform will not only depend on this type of leaders but will depend on many of us. (Fullan 2007 p.1-2)

If leaders put *external* pressure on the people to commit to a change, they will produce only short-term results. It is by *internal* commitment that an effective leader generates longer lasting change results. (Fullan 2007 p.9)

Michael Fullan has a theoretical model where 5 components(qualities) make up the core of an effective leader who can generate both internal and external commitment in their followers to take action. These are 5 components that an effective leader will have and constantly develops. The components are the following:

Moral Purpose

Having a sense of moral purpose, Fullan says, is acting to make a positive impact for employees. Genuinely acting with the employees' best interest in mind can have a great impact on the productivity in the organisation. It is the first of Fullan's 5 components that an effective leader will have.

It is worth noting that employees are all different, and it can get complicated for a leader to act on all of the employees' best interest simultaneously. Still, Fullan (2007) claims, it is worth while focusing on the moral purpose because the pros clearly outnumber the cons.

Furthermore, cultivating a sense of moral purpose in all employees through shared values and vision will also have a great impact on the commitment of the employees.

Understanding the change process

"*Leaders need respect for the complexity of the change process*"

Fullan writes that even after reading many of the literature's change step-by-step models, for example Kotter's or Hamel's 8 step models, change management is far from easy and probably you still don't know what to do. Some of the advice can even be contradictory in their nature. Fullan says **it is rocket science** and there is no ready-made formula for change that would work everywhere. (Fullan 2007 p.33)

It is however possible to lead change if the leaders understand the change process. About this Fullan writes "*Never a checklist, always complexity*". The key is to genuinely understand the dynamics of the change process instead of following a rule book. (Fullan 2007 p.35) For leaders to be effective in leading change, they must cultivate their knowledge, their understanding, and their skills in the complex subject of change.

The leaders style plays a big role in the change process. For example, coercive leaders (Do what I say) and pacesetting leaders (Have high performance standards and expect the same of others) will cultivate a resistance to change and a feeling of being overwhelmed into the people. (Fullan 2007 p.35)

Most, if not all, of today's managers recognise that they need to have the people on board in a change attempt. It was not so in the nineteenth century. It has improved, but still, they approach it in a predetermined fashion. (Fullan 2007 p.38-39)

A change will to some degree bring with it uncertainty. People might feel anxious, overwhelmed, deskilled and cautious. In this situation the leaders need coaching (Try this) and affiliative (People come first) leadership styles. To inspire people to keep going, leaders also need enthusiasm, self-confidence, optimism and clarity of vision. (Fullan 2007 p.41)

Relationship building

Leaders must be very good relationship builders. Leadership has moved from a product or service first approach to a relationship first approach. It is important to cultivate a culture of care. (Fullan 2007 p.55)

Businesses should really focus more on caring for people and relationships to be successful longer than in the short-run. Caring involves a great deal of emotional intelligence. (Fullan 2007 p.70-71)

The larger the change is, the more emotional intelligence is needed. Goleman (1998) (referenced from page 72 in Fullan (2007)) mentions the five main emotional competencies. Self-awareness, self-regulation, motivation, empathy and social skills. The leadership styles most effective at influencing during a change all display high emotional intelligence. (Fullan 2007 p.73)

In a change process, people's emotions tend to get more pronounced. It's actually a good indication that people do care. Resistance should be seen as a source for new ideas and resistors should be taken seriously.

Knowledge creation and sharing

Should one hope for the organisational culture to change to a learning organisation or should one hope for knowledge sharing to change the culture? Fullan bets on the latter and he explains that one must frame the knowledge sharing as an organisational responsibility through incentives and opportunities. (Fullan 2007 p.86)

A "caring expert" is someone who has reached personal mastery in their responsibility area and understands that they have a responsibility to share the knowledge. Knowledge is only given or received when the organisation provides the opportunity for it to happen. People will not share their knowledge if they have no motivation to do so. Effective leaders establish and continuously enable knowledge sharing habits with their people. (Fullan 2007 p.86-87)

Leaders must design and create opportunities for sharing. One example is the After Action Review that the military often has or the Lessons Learned as it is more commonly called in business settings.

Coherence making

Businesses are living complex systems. If they come to be in a state of equilibrium, they are less responsive to change in their surroundings. They are at maximum risk of becoming obsolete. On the other hand, when living things are being threatened they tend to move toward the edge of chaos where experimentation and new solutions appear more frequent. After this period of excitement they tend to self-organise into new forms. Living systems will not allow to be directed along a liner path, so the challenge is to disturb them in a manner that approximates a desired outcome. (Fullan 2007 p.109)

When establishing the previous 4 modules, the organisation will shift to a new state. This is a milestone where greater coherence is achieved. Also, from this stage great leadership is needed to guide the organisation onwards.

There will also be so called Strange Attractors along the way. These are unpredictable forces that attract commitment and energy of the employees. Visions shared in all levels of the organisation can be an attractor. Charismatic leaders can also attract commitment (but only short-term). (Fullan 2007 p.115)

These attractors are bound to produce new ideas and solutions along the way that can be built upon. Good leaders get the timing right. There is a time to cohere and a time to disturb. (Fullan 2007 p.116)

Leadership in change is about guiding the day-to-day organisational development and performance. (Fullan 2007 p.119)

If those 5 components are the core, then surrounding the core like an onion peal are 3 final properties that the leader needs; Energy, Enthusiasm and Hope.

2.2.4 Agile Change Management

The world is a volatile place, and it can be difficult to make a detailed plan up front for the execution of a several year long change initiative. To dare to manage the initiative during the long period of time strictly according to the initial plan is not really appropriate any more in today’s world. It is far better to begin with an idea of the end in mind, to know what it is you want to achieve, but be flexible about how to achieve it. This enables one to react to changing business environment and for example changing markets, customer requirements and new innovations. (Franklin 2018, p2)

Today, change initiative is no longer decoupled from business-as-usual. They are no longer resourced separately from business. Change ideas are no longer only coming top-down. Everyone is involved in change, and it leads beautifully to the continuous improvement cycle as seen in below picture. (Franklin 2014)

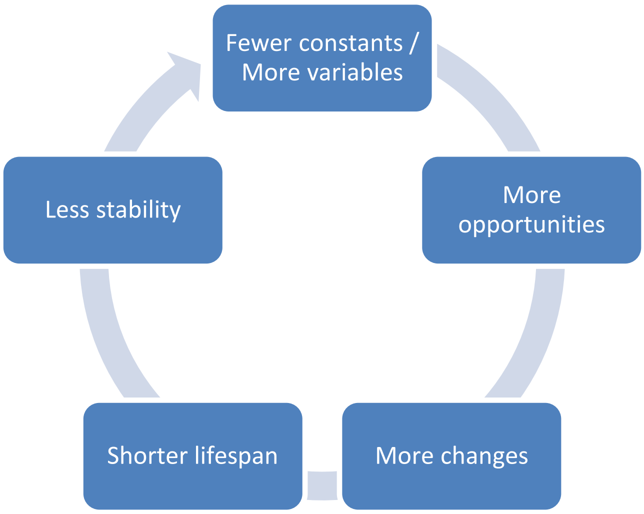

Figure 2 - Own illustration based on Franklin’s (2014) continuous improvement.

Agile approaches are the logical answer to uncertainty. To start small, create a part of the solution, get feedback early and directly from those most affected before deciding which part of the solution to deliver next. (Franklin 2014 p.2)

Agile methods are most commonly used in software development but can also apply to other endeavours such as marketing, training programmes and new product and services implementation. (Franklin 2014 p.3)

To achieve agile change management, one must adapt the traditional change management to the speedy delivery rate of changes when using agile approaches. It means that change management need to be sped up to cope with all the waves of change. For this to happen, the organisation needs a really good change leadership. Each one of the small changes contribute to support the people through the change and they are Franklin’s 5 guiding principles. (Franklin 2014 p.11)

Principle 1 - Recognize that there is a deadline for making the change and respect it

When people affected by a change know in advance when it will happen, they have a chance to prepare their work to the new way of working. If the change is not delivered on-time it will start to diminish the intended benefits of the business need. (Franklin 2014 p.13)

The timeframe can be agreed between those who implement the change and those who are primarily affected by the change. The total time allowed for the whole change initiative will be divided between all the iterations of change. (Franklin 2014 p.13)

Being time oriented and determined like this allows the business players to plan their normal work besides implementing change that they can sustain a satisfactory customer experience.

Principle 2 - Allow the details of the change to evolve

With agile approaches should come flexibility. One cannot with certainty predict all the elements of a change. We embrace that some enhancements will come throughout the change initiative. All details are not planned at the start but they will be planned when they are required. By not having a clear detailed plan from the start, it removes the idea that everything is thoroughly thought through. This enables people to question and evolve the original ideas and better ideas might see the daylight because of it. (Franklin 2014 p.13-14)

The uncertainty of the plan needs to be balanced by ensuring the deliveries of changes are actually on-time and that the people involved with them fully understand that they will be involved throughout the whole lifecycle of the change. It enables people affected by the change to get a chance to give feedback and change requests. (Franklin 2014 p.14)

This principle makes sure the change is evolved and is delivered incrementally as soon as it’s ready for use. People don’t need to wait for the project end before they can start to learn the new ways of working and adjust to the change. Even a small change can have a big impact.

Principle 3 - Ensure the change meets a business need

Because change is costly and disruptive, it’s always a risk for the organisation to implement a change. Therefore, there must also always be an upside to the risk, a business need. The change must also have the commitment and funding of senior managers.

Ensure the need for change is valid. Assess the impact of the change and make sure it has a positive impact on the organisation’s internals and externals relying on the organisation. The change can generate too little business value to be justified if it is imbalanced between internal and external drivers. (Franklin 2014)

Principle 4 - Work collaboratively across a wide spectrum of interested parties

Full participation is required to achieve the most successful change initiatives. It should be a real team effort, because you cannot force change onto others. Repetition is key, so make sure the change is on the agenda of every meeting. The change activities should be designed so that they are attractive to all levels of staff, not only senior management. This way commitment and teamwork is promoted. Now is **not** a good place to take care of things yourself just because it's faster and simpler to get it done. Involvement of everyone is important. When everyone is involved, it creates a shared understanding of the change initiative and what actions are needed to make it happen. There will be less of a large information package at the end of the change initiative aimed at those impacted, because they are involved and supported throughout the lifecycle of the change. (Franklin 2014 p.15-16)

Principle 5 - Balance time and resources across all phases of the change

Often, the energy will tail off as the change initiative progresses. This is not good as it is precisely when the change has started that there will be the most resistance to the change. This is when most energy is needed, to persevere and overcome the opposition or resistance. It is the phase when most people are impacted by the change that they need the most support and information. It's important to understand to always balance your time between your day-to-day work and the change initiative that will shape the future of the work. It's important because getting the balance wrong will cause harm to either one or the other. So, remember to hold back the energy also for later in the process when resilience and perseverance will be required. (Franklin 2014)

2.2.5 Engagement

Change cannot be forced onto someone, each person needs to realise that it is in their best interest to accept the change. Therefore, as a change manager, it is important to influence people in a positive way and highlight the advantages of the change to them. (Franklin 2014 P.146)

Let's travel from engagement to motivation. Beech argues that engagement is what determines if the voluntary behaviours such as innovation and creativity will come to fruition in the workplace. Creativity is essential in some work and less important in other. Where routine is the norm and repeatability and control is important, creativity might be less important. However, the engagement of people is just as important here. Disengaged people can outside of work have very creative activities where they are very engaged, many times also voluntary work. (Beech 2012 p 46)

Motivational force can be calculated by Victor Vroom's theory.

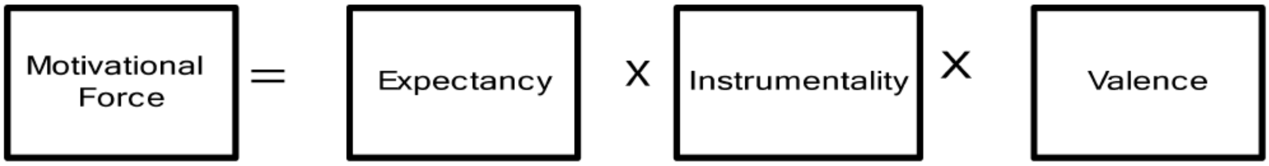

Figure 3 - Vroom's expectancy theory.

From above figure, we can see the three variables affecting the motivational force.

Valence is how much satisfaction we think that the desired outcome will result in. **Instrumentality** is the amount of belief we have that the desired outcome will actually result in the satisfaction. **Expectancy** is how likely we think it is that a particular action will lead to the desired outcome. (Miner 2005, 94-98). We therefore experience the highest motivational force when we absolutely know that we will feel a very high amount of satisfaction from the result of our actions. On the flipside, we experience a total lack of motivational force whenever only one of the above factors is absent.

2.3 Learning organisation

A learning organisation needs to have a formal way of stating problems, formulating theories, testing them and reflecting on them. Far too many organisations only react to events in an opportunistic way. This cannot be left to chance; it needs to be organised if the organisation is to learn. (Handy 1995, p179-180)

The learning organisation makes it the organisation's responsibility to push its people into new worlds or it will start to suffer from group-thinking. A learning organisation can utilise mentors to endorse learning. Time for learning and reflecting should be seen as legitimately spent time. (Handy 1995, p183-184)

Building on Handy's (1995) work around learning organisations, Bruzelius & Skärvad (2017) in their summary of the subject emphasises the areas around continuous improvement and candid culture where individuals are eager to learn by themselves in an exploratory way. Important is also to spread experiences and learnings within the organisation.

A learning organisation is one where co-workers identify problems and prescribe solutions in an early stage. They are continuously finding ways to improve the work processes and routines. It's those small incremental or evolutionary changes that reduces big disruptive out-of-necessity changes. In this organisation the people give sincere constructive feedback and they also have the freedom to try something new, they are allowed to fail. The key in a learning organisation is that people are individually learning all the time and sharing their learnings and insights with others. An organisation is not fully a learning organisation until what was shared is also implemented by co-workers. (Bruzelius 2017, p407-431)

Learning organisations give its people enough space to try and make mistakes. Disappointments and mistakes are a part of a learning organisation. A learning organisation will use the mistakes as learning opportunities, not as a stick with which to beat people. (Handy 1995, p183.)

In a learning organisation, individuals are eager learners. They learn on the job and without them no organisational learning is possible. Because they are also free to explore, and are allowed to fail, they will find new problems to solve. By exploration and information gathering and analysis they will quickly form a solution. (Bruzelius & Skärvad 2017, p242-243)

A learning organisation is structured in a way that it promotes the learning process very well. The workers need to have clear targets to work towards. In this direction they will find problems to solve. In order to solve problems, access to information is needed. The information will aid in the decision making. It is also important that the worker is given the power and responsibility to make decisions and follow-up the decisions. (Bruzelius & Skärvad 2017, p243)

Now that we have a good overview of what a learning organisation is and why it is so important to become one, the question now is how do we move towards becoming a learning organisation?

A helpful first step can be to reflect on whether our organisation is already or is not yet a learning organisation. Senge (2000) suggests 7 handicaps that an organisation might suffer from that prevents it from becoming a learning organisation. It is important to identify the presence of any of these handicaps in the organisation to be able to move past them.

1. People are unaware of the bigger picture of what their work and actions affect. They are just doing their job but they lack the ability to see the whole system which they affect by their daily actions.

2. As a consequence of the previous point, and when problem occur as a result of their own actions in their small part of the whole system they focus on, they start to blame everyone outside, everyone but themselves, because they are simply not aware how the whole system works.

3. People don't deal with difficult situations until they get so bad that they eventually cannot longer be ignored. This is a reactive behaviour. On the flip-side people can also be too active in fighting the outside forces from previous point. It means they are active in blaming others.

4. People are short-sighted and mostly thinking about the latest single problem they have encountered. That is not promoting a productive environment.

5. The inability to detect the slow gradual changes of circumstances. These are the changes that often are the biggest threats.

6. People learn best from experiences and mistakes. The problem is that sometimes they don't get information about the consequences of their action. The reason is that people have a time and space limit of how much of the whole system/organisation they can be aware of. Often organisations are therefore constructed of a multitude of specialised teams in order to contain the effects of someone's actions or decisions, but this only creates silos between which there is not much communication and cooperation.

7. The management is ill equipped to deal with these learning handicaps. They waste time fighting over territories and power. Difficult topics are avoided and silently swept under the carpet. They are skilled at being incompetent, masters of not learning and not developing.

(Senge 2000, p29-36)

The above seven points are absolutely worth getting rid of. Senge (2000) suggest these five disciplines as an antidote to the above handicaps.

1. Personal mastery. It's the ambition to constantly develop and grow. A desire and challenge to see how far one can reach with one's skills. These personalities are of utmost importance in the learning organisation.

2. Mental models. These are deep ingrained thought patterns that influence or control our actions. Many times, we are not even aware of them. This discipline is related to making decisions based on actual facts rather than on belief/assumptions about something.

3. Building shared visions. A vision of the future can have an immense impact on people's motivation. They are now acting on own interest rather than to just comply. A **shared** vision ensures that everyone's motivation is aligned to the same goal.

4. Team learning. It's about well working teams that can have a genuine dialog and discussion about complex topics. A dialog is like an exploration into the complex topic and the discussion is where arguments are presented for and against decisions. In team learning one must be objective and trust the other team members and manage personal conflicts arising from being in a defensive position.

5. Systemic thinking. It is thinking in terms of a whole system and determining how the system works. It is what integrates all five disciplines and results in the efficiency of the learning organisation.

Senge (2000 p135-246)

Woolner's development model describes five stages of how an organisation relate to its and its people's learning. The stages start with sporadic reactive learning and end with being a learning organisation. This can also help in reflecting on where one can improve one's organisation and move towards the last stage. In short, the stages are:

1. The forming organisation. Learning happens outside of any formal structure on a reactive need basis. Most start-ups for example will utilise this form.

2. The developing organisation. This organisation recognises the need for a formal training setup and will most likely acquire trainings from external suppliers. Still, the trainings are something out of the ordinary for organisations operating within this stage.

3. The mature organisation. The organisation now understands the economical advantage of training the people and it now happens through in-house trainings.

4. The adapting organisation. Now trainings are given and are in line with the organisation's strategy. The organisation's strategy and goals give clues about what trainings should now be offered that we have the competence in the future when it, according to the strategy, will be needed. It's the strategy that drives the trainings.

5. The learning organisation. Trainings are part of the daily work and in accordance with the strategy. Learning is recognised and rewarded and it's understood that they are critical to the success of the business. People and teams learn from each other's experiences and trainings can occur both formal and informal.

(Johnson 1998, p144)

Let's now look at what is actually required from the leaders to move the organisation towards a learning organisation. Johnson (1998, p 144) says that an organisation will not progress in the Woolner's five stages until the required leadership capabilities has been developed in its leaders. It is only then that an organisation can move on to the next stage.

The minimum effort we can demand from leaders is that they are well aware of the different stages and know that they are likely themselves the bottleneck in progressing the organisation. There is no use in blaming the people for not developing and learning. This is something for leaders to reflect on.

> *"…learning organisations require different leadership qualities from traditional organisational models."* (Johanson 1998)

Johanson (1998) further explains the recurring three main themes that he found from the literature. These are leadership qualities that a learning organisation's leaders need to master in order to successfully lead such an organisation.

1. Visioning. The ability to show their people what the future could look like.

2. Empowerment. The ability to engage the people and give them the power and responsibility to produce results. Focusing power in management can destroy the culture of the organisation.

3. Leading-Learning. Leaders are responsible for and must promote continuous improvement and learning. This should be done by doing, not by only telling. Actions speak louder than words, and followers of the leader will naturally follow.

To the concept of these three main themes must also be added that they are not equally important depending on where in the Woolner's stages the organisation currently sits. Visionary qualities are more important in the early stages, for example in a start-up, and is less and less important as the organisation progresses. Empowerment and leading-learning are less important in the early stages but gets more and more important as the organisation progresses to the later stages. Johanson (1998 p146-147)

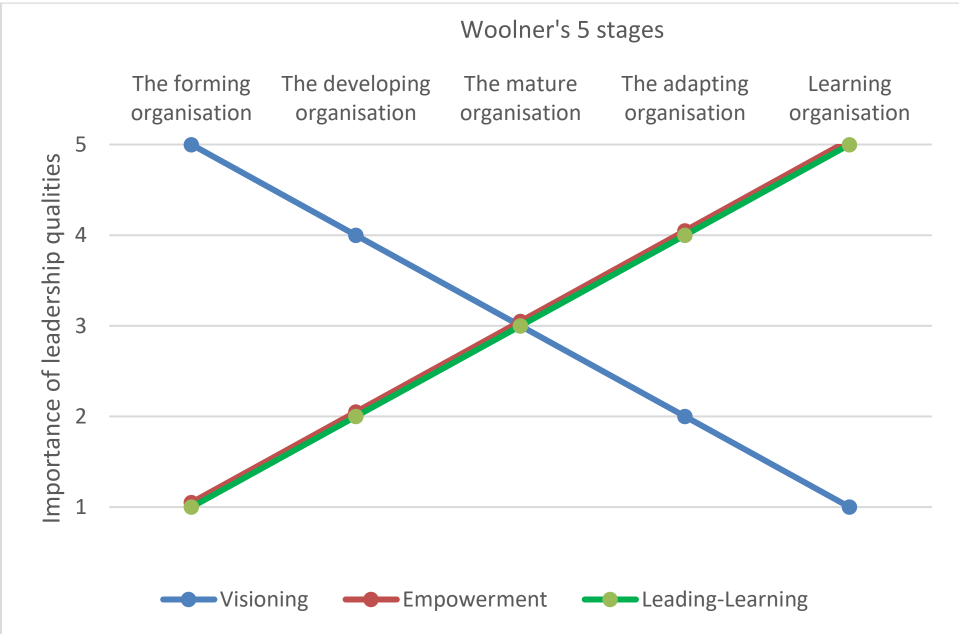

Figure 4 - Own illustration based on Johnson (1998, p146) showing which leadership quality is important in the different stages of Woolner's model.

We have now seen what is required from the leaders in order to progress in the direction of a learning organisation. Let's still touch on the subject of openness.

Very few workers want internal politics and games behind the scenes at their work place. Such environment where the "who" is more important to the "what" when it comes to getting ideas through. The power distribution is focused at the top and is exercised with little regards to others. Meritocracy is only an illusion. This kind of political environment is very typical for a traditional organisation. Internal politics is one of the first things to deal with when aiming for becoming a learning organisation, it is not needed nor wanted. Doing the right things produce a better outcome than focusing on who wants something done. To deal with issues of this nature there is a need to foster openness and creating a common vision in the organisation. (Senge 2000, 247-248)

3 METHODOLOGY

Knowledge about the main topics of change management, agile and learning organisation was gathered in the previous chapter. This chapter is all about presenting the methodology which was considered and ultimately used for the empirical study that will focus on the organisation's current situation and by doing so will close the knowledge gap between it and the theories from the literature.

When starting to plan the research, it is important to know who and what will be researched and how it will be researched. (Dahmström 2000 p.13) In this chapter we will be presented with detailed information about how the empirical research was conducted, which research methods were investigated, and which ones were chosen and motivation why they were chosen for this research. The aim with this chapter is to give the reader enough information to be able to reliably replicate the research given the same identical conditions. The aim is also to make the research transparent and external evaluation of the result possible.

The starting point of a research is commonly a problem that someone wants researched so that the result can be used for example as support in decision making and ultimately in action. What can be achieved by the research depends on various variables such as the client, the overall environment surrounding the problem and timeframe of the result. The research work is also much dictated by the researcher's own resources. (Dahmström 2000 p.14-15)

3.1 Research approach

The traditional research approach is that the researcher views the surrounding reality as more or less objective. The researcher can observe, register, and measure the reality because it is objective, and perhaps more important because it is the only one. It is then easy to formulate theories about it and hypotheses can be tested to see if they are true or not. (Backman 2016)

The alternative approach is that the reality is viewed subjectively. In this case reality becomes an individual, social or even a cultural construction and the research becomes focused on the human-reality perception and human-reality interpretation. This type of research is aimed at the individual instead of the reality. In this approach, the researcher normally doesn't start with a problem statement or a hypothesis, instead the researcher starts with the empirical study, the data collection phase while often simultaneously formulating a hypothesis. This approach is called inductive. Deductive approach on the other hand is used in the traditional research approach where a researcher starts with a problem statement or hypothesis and the empirical study follows. (Backman 2016)

This thesis follows the traditional research approach in which the researcher started with a problem statement or hypothesis followed by literature and empirical studies including data collection, the results of which was analysed, interpreted, and finally presented. Because this thesis was aimed to research an objective organisation operating with a set of rules, processes and hierarchy with the main purpose of proposing a change management road map that could be applied to said organisation, it was decided that the traditional approach was better suited for this research.

Although, admittedly, the delimitation of the separate parts in the research process is somewhat arbitrary as they often overlap, below is anyway an illustration of what Backman (2016) suggest the traditional research process look like. On the right-hand side, the focus is on the problem. On the left-hand side, the focus is more on the result.

Figure 5 - The traditional research process, own illustration based on Backman (2016)

3.2 Qualitative or quantitative methods

The second methodology decision to be made is if the research should use quantitative or qualitative methods to gather information. Quantitative methods are those that result in numerical data or can be transformed into numerical data and data structures. Numerical data can be for example temperature and yearly income. Qualitative methods on the other hand means words, sentences, opinions, verbal formulations. For example, the verbal stated feeling about private childcare is very qualitative. (Dahmström 2000 p.24-25 and Backman 2016)

Wallén (1996) explains that qualitative methods are needed for the following cases:

- When we want to interpret an observation in a theoretical context in order to identify which kind of phenomena the research encounters and to find characteristic properties.
- When we need to interpret fragmental, partial or otherwise incomplete information in order to paint the complete picture.
- For all vague, ambiguous matters, such as experiences, feelings that cannot be directly measured, for example pain.
- To interpret subjective meanings and symbols. In the simplest of cases the meaning can be predefined, for example as with road signs, but special interpretation-problems occur if there is any probability of hidden or implicit meanings.

Qualitative methods can be applied to any research area with practical operations. (Wallén 1996) The use of quantitative methods in a qualitative research approach is also possible, but not very common. (Backman 2016)

In this thesis the researcher wanted information from the organisation, for example, about how employees perceive the change management performance. Interpretation of those employees' opinions was required which means verbal formulations needed to be analysed more than numerical data. Therefore, a qualitative research method was chosen.

Conducting interviews could possibly generate great quality in the answers, which in turn could lead to a greater understanding of the answers compared to a questionnaire. However, due to time limitations, only in a small subset of the whole organisation could realistically be interviewed. A questionnaire brings the possibility of receiving a lot of responses in a relatively short time span, especially compared to interviewing. This was important because the researcher wanted the opinion of the whole organisation as much as possible, not only a selected few. The vast number of responses in a questionnaire method, in this case, largely outweighed the advantage of conducting interviews. With this in mind, the researcher chose to develop a questionnaire that could be sent by email to the whole organisation because of the sheer reach this method enables. The questionnaire must include enough open questions to let the organisation's opinions about the research matter become clear.

3.3 Designing a questionnaire

When developing a questionnaire, the first thing for the researcher to decide is what information is wanted from the respondents to meet the objective of the research. Reviewing the already defined problem statements and hypothesis will help at this stage. When the researcher knows what information they want, it is time to define the population for which they want to generalise from in the sample data to be collected. Next, it is necessary to choose a method of reaching the target respondents. For example, group/personal interviews, email questionnaire or telephone interview. The more sensitive, personal information that is asked for, the more personal the method should be. (Crawford 1997)

Critical evaluation of questions should not be neglected. The researcher can ask themselves "Does this question contribute towards the achievement of the research objective?". No question should be included unless their answer will give direct contribution to testing at least one of the research hypotheses. The exception is when an opening question is designed to gain involvement and help build rapport. The researcher can now develop the question wording and the questions classified as open-ended, closed or open response-option questions. Each type has their pros and cons. For example, closed question means the respondent don't have to think about how to articulate the answer, which makes it easy to answer. It is also easy to analyse all the answers. Disadvantage is of course that respondents are not free to answer what they want on closed questions. Using open ended question, one can avoid influencing the respondents to answers they might not have answered otherwise, and they are allowed to answer in their own words. (Crawford 1997)

Generally, it is good practise to keep the questions as simple as possible. The researcher must be sensitive to the fact that some of the population might not have high level of education. Also, respondents' memories are limited and long questions can therefore be difficult to absorb. The fewer words in a question the better. First questions are critical as they set the tone for the nature of the task to be performed. If they find the first questions pleasant and easy to answer, they are encouraged to continue. The questions should have a flow, so that one question leads into the next. The respondents naturally become increasingly indifferent to the questionnaire as it nears its end. Because of this fatigue, questions of special interest should not be placed last. (Crawford 1997)

After the researcher is done developing the questionnaire, piloting the draft could make sense because up until now it is the product of only one or two minds. Pretesting, preferably with a broadly representative small subset of the intended population, can identify mistakes and problems in the questionnaire. (Crawford 1997)

3.4 Questionnaire of this thesis

The information that was needed for this research was information that could directly contribute to the problem statement and hypothesis mentioned in the introduction. The draft questionnaire was pilot tested by a colleague within the organisation before it was considered approved and published. It normally takes only a few minutes to complete the questionnaire, which was why the organisation was not given many weeks to fill it out. The researcher gave the organisation two weeks' time with a kind reminder after one week.

The complete questionnaire that was sent out, can be found from Appendix A.

4 RESULT

The survey was conducted, and the questionnaire was sent out to mail lists including all of the department's 115 employees. The questionnaire was open for two weeks, and a reminder was sent after one week. The response rate of the survey turned out to be around 35% which according to some sources (Cleave 2020) is in line with an internal employee survey response rate of about 30-40%.

The problem statement in this thesis which the researcher was aiming to get solved by the support from this empirical study were the following two.

- How can the managers introduce a new tool to the workforce in the best possible way thereby contributing to the successful development of the tool?
- Is a Learning Organisation better equipped with dealing with change, specifically introducing new tools?

4.1 Analysis of collected data

In this chapter is presented the analysing of the collected primary data. The objective was to organise, analyse, and finally present the results in a clear, transparent, structured way.

The primary data directly and indirectly indicated actions that the change managers could take into consideration when initiating a change process. The researcher's recommendations from the study as a whole can be found from chapter 5 Discussion.

The individual respondents' rating of topics related to learning organisation can be used to calculate a score of that individual. To test the hypothesis that a learning organisation is better equipped with dealing with change, the correlation between this score and how positive their answers were about change management can be plotted. This potential correlation will also be of use to know what to recommend to the change managers because it might be worthwhile focusing on adopting the learning organisation as well as on change management.

From the questionnaire, a few questions were analysed in detail. The free text answers were only altered in a way that does not impact on the result, that is spelling errors were corrected, abbreviations were explained, and names were removed to maintain anonymity.

Question 3. *What makes your organisation good at adopting new tools?*

Most of the answers to this question immediately discerned similarities and could as such be classified into categories. Here are some of the typical answers, per identified category. Invalid answers such as empty answers or unrelated statements are not mentioned here.

- **IT skills**
  - IT skills.
  - Expertise of personnel.
  - Computer literate employees, quick to adapt new kinds of programs/tools.
  - We have a capability to develop tools on our own. Tools can be tailor-made to fit our requirements.
  - There are people with many different backgrounds and skills. It is easy to find help and support from colleagues. There is always someone who knows better.
- **Culture**
  - There is usually someone inside the team that has heard more of new tools directed to our team that can share more information when asked.
  - Willingness to improve our job quality.
  - Collaboration between users.
  - People like to learn new knowledge.
  - Interest to make the best result possible with good data connections and tools.
  - Lots of good ideas and experienced people define tools to help to improve our way of working.
  - Motivated and curious colleagues.
  - Culture and experience.
- **People see potential in the new tool**
  - The willingness to use these new tools.
  - We adopt the tools we need to do our jobs, and if we get new tools to do our tasks even better, we are also good at adopting new tools.
  - If it simplifies the work in such a way that fewer tools are needed to do the job.
  - Easy to use and user-friendly.
  - If the tool is faster or automates complicated tasks.

  - Renders work more efficient and up to date with market demands and processes.
  - Making the tools user friendly and timesaving.
- **Inclusion**
  - The end users get the possibility to influence the functionalities of the new tools.
  - We try to involve people in the development, and we try to arrange training for the users.
  - Including employees in development projects of new tools.

Answers to this question said that IT skills, culture, and seeing potential in the new tool make up about 49% of why the organisations are good at adopting new tools. 7% answered that being included in the tool development is beneficial.

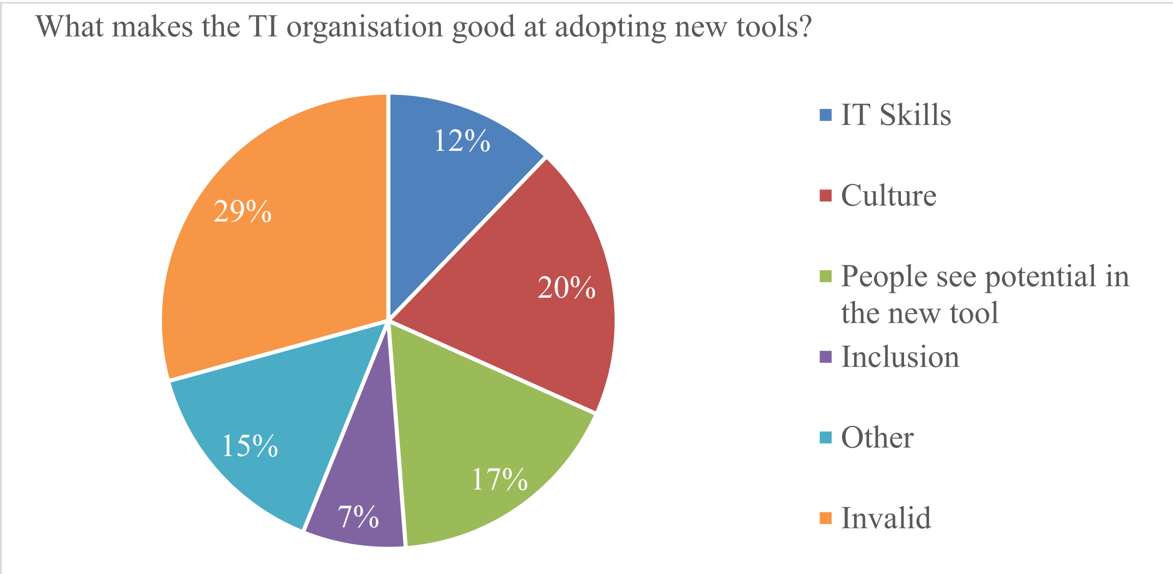

Figure 6 - What makes the TI organisation good at adopting new tools.

Question 4. *What makes your organisation struggle with adopting new tools?*

In these answers, can be seen some of the challenges people see in their organisation. 20% say they are not informed well enough or are lacking in training. Same amount, 20%, can be included in category that fails to see that the new tool is superior. Next largest category is challenges around coordination between delivery centres. There were also a smaller portion that felt the organisation had time or workload challenges or too many changes. Few people answered that they felt the organisation is resisting changes due to old way of working or being comfortable.

When plotting the identified categories against the different delivery centres, one can make some observations. For example, in DC I the biggest challenge is lack of information or training. In DC II too many changes are reported as the major challenge. In DC III it is that the new tool is not seen as better. In DC IV it is also lack of information and training that is the biggest challenges.

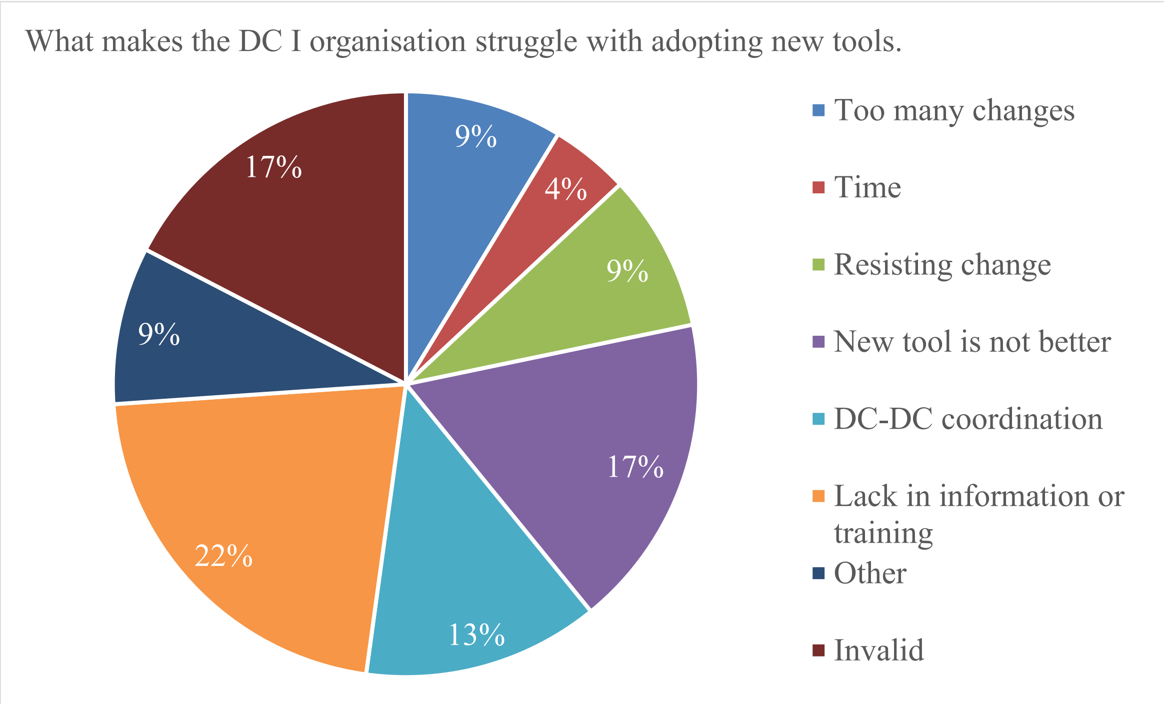

Figure 7 - What makes the DC I - Finland organisation struggle with adopting new tools.

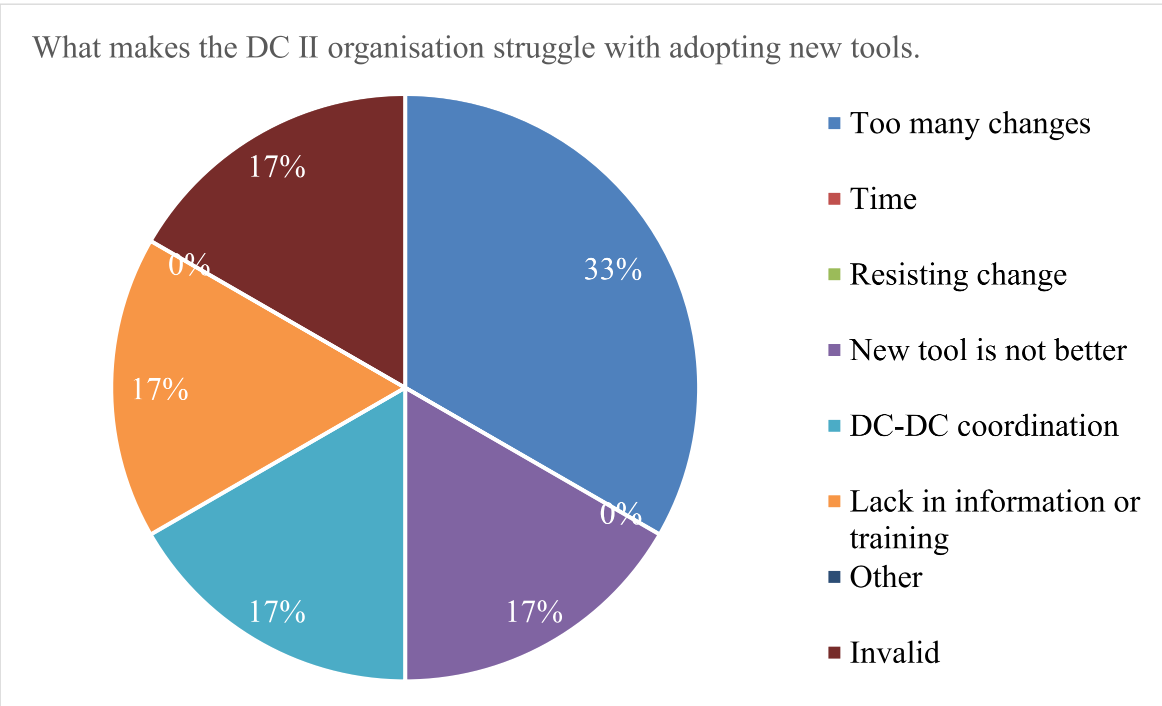

Figure 8 - What makes the DC II - Italy organisation struggle with adopting new tools.

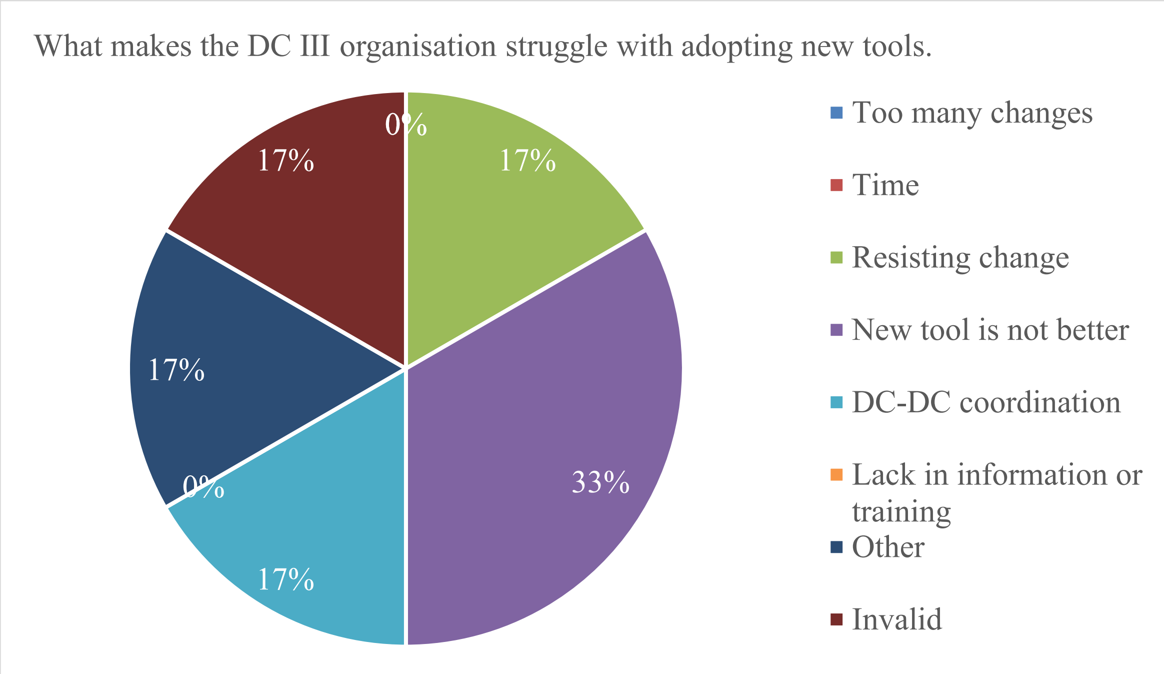

Figure 9 - What makes the DC III - Norway organisation struggle with adopting new tools.

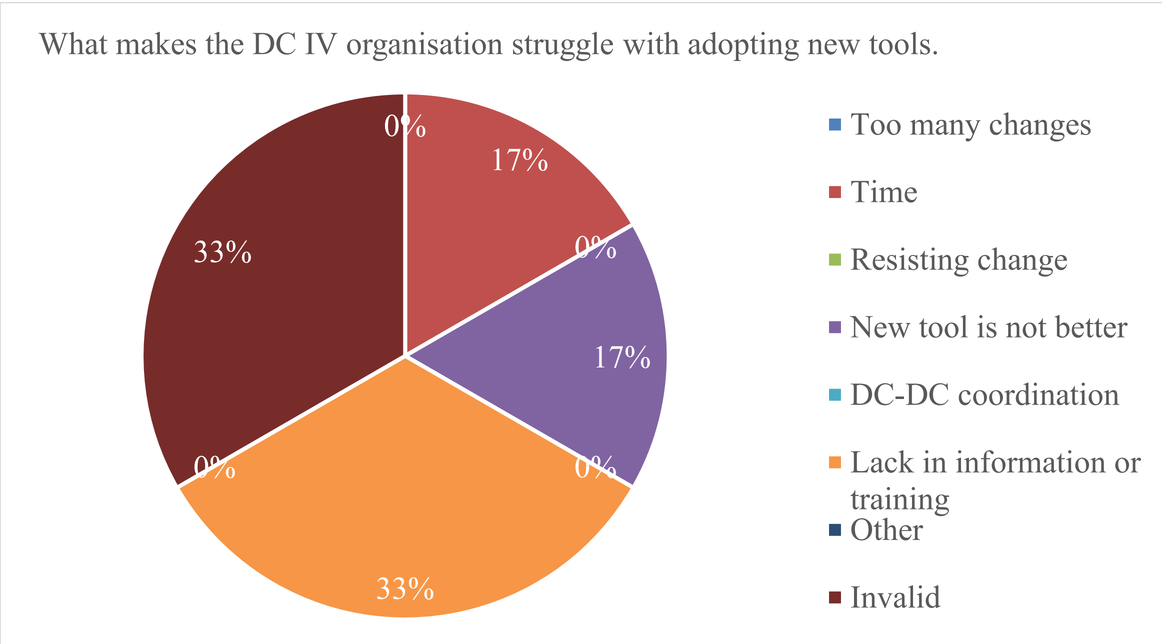

Figure 10 - What makes the DC IV - Netherlands organisation struggle with adopting new tools.

Overall, in TI global the two biggest categories are *Lack in information or training* and *new tool is not better*.

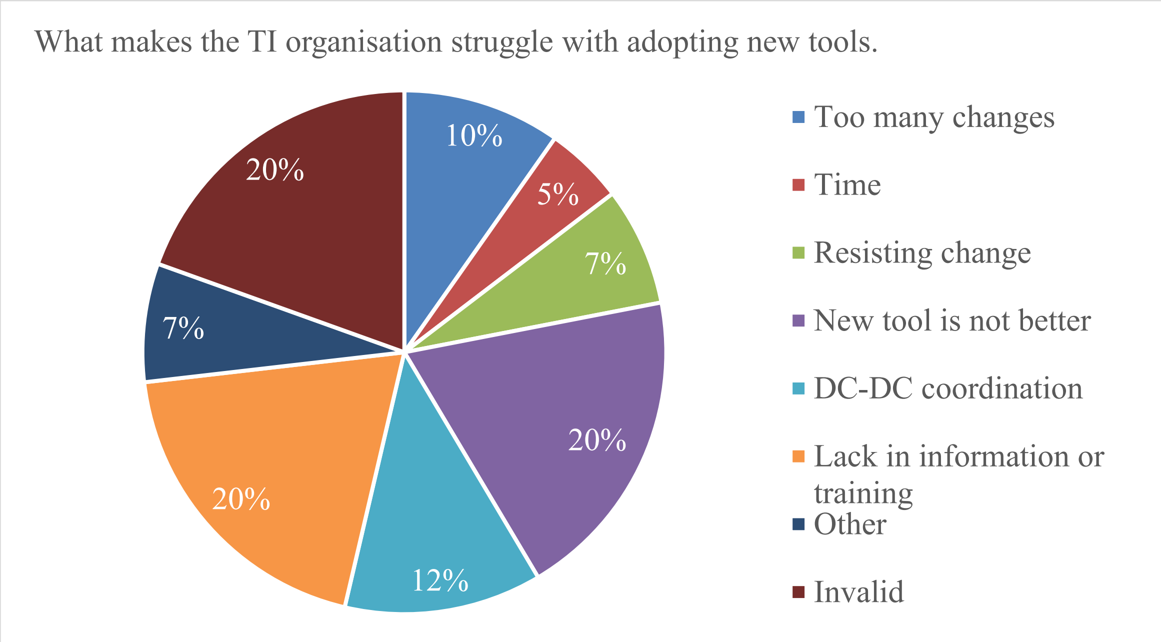

Figure 11 - What makes the global TI organisation struggle with adopting new tools.

- **Too many changes**
    - Too many existing tools.
    - It is difficult to remember the correct way of working in the different tools. Much time wasted by reading old notes or asking a colleague for help.
    - They are expensive, and they keep changing, hence you need getting used to. At times you also have too many available, could be confusing.
- **New tool is not seen as better**
    - When the tool takes more time than the old tool and more complex to use. Which means it is not that user friendly.
    - There are a lot of different tools, for sharing information in different departments, and different information that are used in these tools. So, finding a good new tool for this is not easy!
    - Non-user-friendly and time-consuming tools.
    - [Company] is an archipelago, with their own "language", habits, and budget. Adopting tools without a benefit for your own island is not accepted. "Old school" is practice and leading.
    - Resisting change if functions of tool is slower or more complicated.
    - Unforeseen problems or bugs in the tools.

- Some tools do not utilise possibilities to connect to other tools. Database connections etc between different tools is many times needed but not always possible.
- If the tool isn't ready. The tool still need development before it can be used properly.

- **Not informed well enough / Lack in training**

  - There are too many tools and sometimes the introduction for these tools is missing.
  - There is a lot of tools available for us to investigate and make use of, but if it's not directly linked to the work tasks we have today, we don't spend time on it, even if it could be useful, and we could make use of the new knowledge. This is because we are part of a "production line" and we have time-limits and KPI's (Key Performance Indicators) on our tasks. We could be better on this, if we took a structural approach, and the managers delegated specific tasks to the employees to investigate and to get training on specific software and tools they might think can be useful.
  - The difficulty of learning the functionality of the new tools linked to the current practicality of the current ones.
  - There is quite seldom clear instructions or proper training for new tools. Feels like you are left alone to try and test, learning by doing. This is not the best way to get all the best out of the tools. You easily end up by using them on the lowest level you can manage to do your job. Also, the speed of changes and updates is sometime too much to keep on track.
  - No clear communication channel for new tools. Often you just receive link to new tool via e-mail with possible short comments what it is about. It can go often even unnoticed or easy to postpone to later time and it then goes forgotten. When there is a new tool, I wish they would be clearly communicated and at least short teams training for all how the tool looks and how to use main functions.
  - Poor examples are when someone is in a hurry to implement the tool. Too little time is spent on introduction and tests. Another poor example is when someone implements a new tool as a work-around to incorrect master data or due to a poor understanding of the [Company] data and processes. TI is a master of work-arounds.

  - Insufficient guidelines, not enough training.
  - Need to have a good training.

- **Workload/time**
  - Hard workload.
  - It takes a lot of time to adopt a new tool.

- **Coordination between delivery centres**
  - It happens that different locations must start adopting a tool as new because it is already used in another location.
  - Delivery centre Finland has disproportionate power over the tooling. If it works for Engines, it doesn't necessarily work for Propulsion, however, we are often forced to use same tools.
  - Sometimes there is a change resistance in harmonising the way of working in the between delivery centres. This requires more variations in the tools and hence more complicated tools increasing development work and support. Also, the tools should be used in a common agreed way.
  - Each delivery centre has their own way of working and this makes it difficult to develop and introduce new tools.
  - Different similar tools are developed in different delivery centre. We miss coordination.

- **Resisting change**
  - Some persons don't like changes/going out of comfort zone.
  - People who are older and/or work too long at [the company] don't like to change and use new tools.
  - We are quite sceptic that new tools are taken into use without any major hiccups. Old way of working is pretty stuck in our backbone.

Question 5. *Select the option that best describes the amount of information you receive from your organisation about ongoing developments (e.g. new tools, additional features, tool issues etc.)*

37% chose the option *Too little information*. The majority, 54% chose option *Suitable amount* and 10% chose the option *Too much information*. This indicates that people feel they get somewhat too little information about ongoing tool developments.

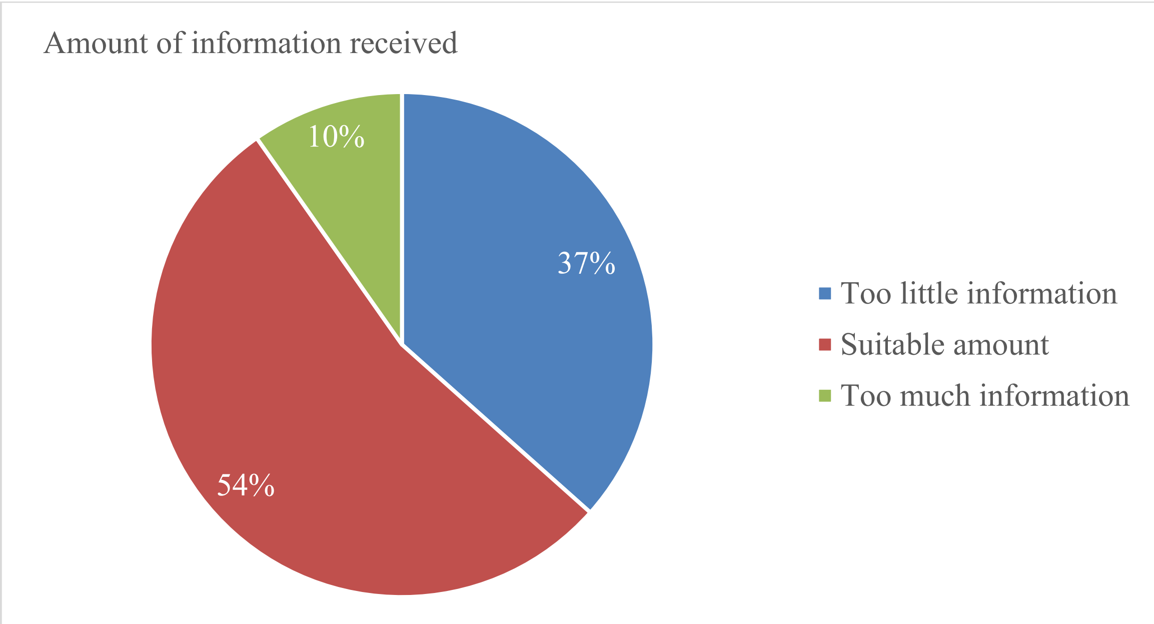

Figure 12 - The Amount of information received about ongoing developments.

Question 6. *I get the support I need whenever a new tool is introduced.*

Generally, the majority feel they have the support they need.

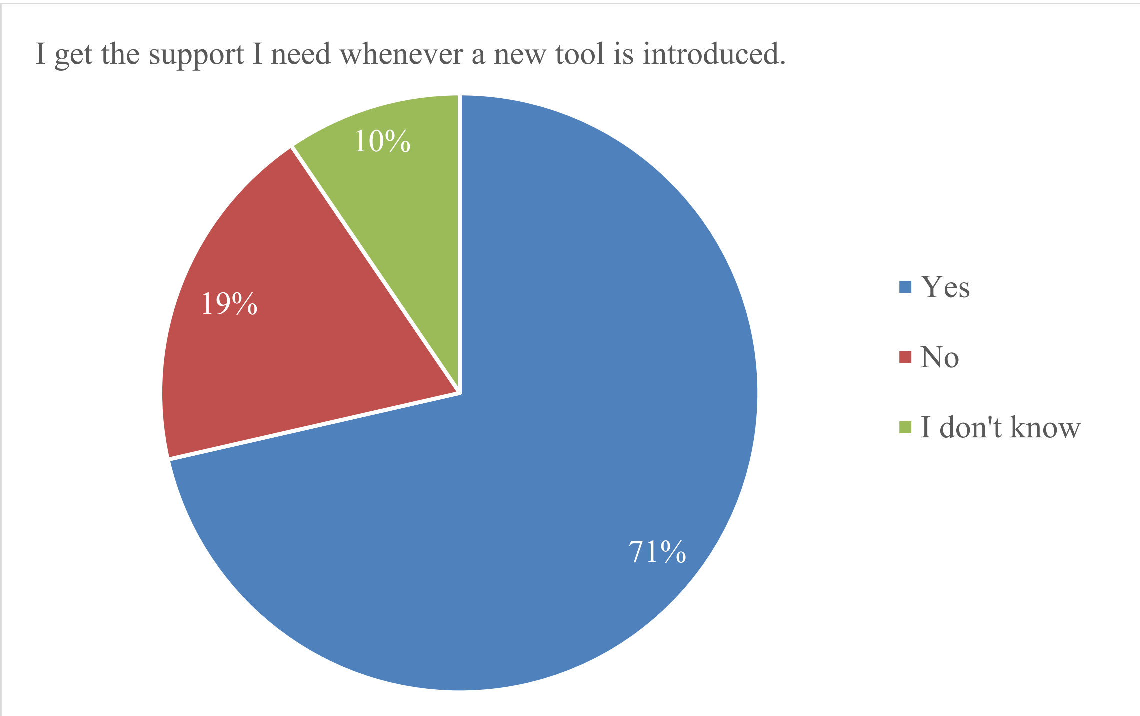

Figure 13 - Perceived support

Question 7. *I have enough time to learn new tools.*

The majority report they have enough time to learn new tools. But on the other hand, also a significant percentage can’t say that they do have enough time.

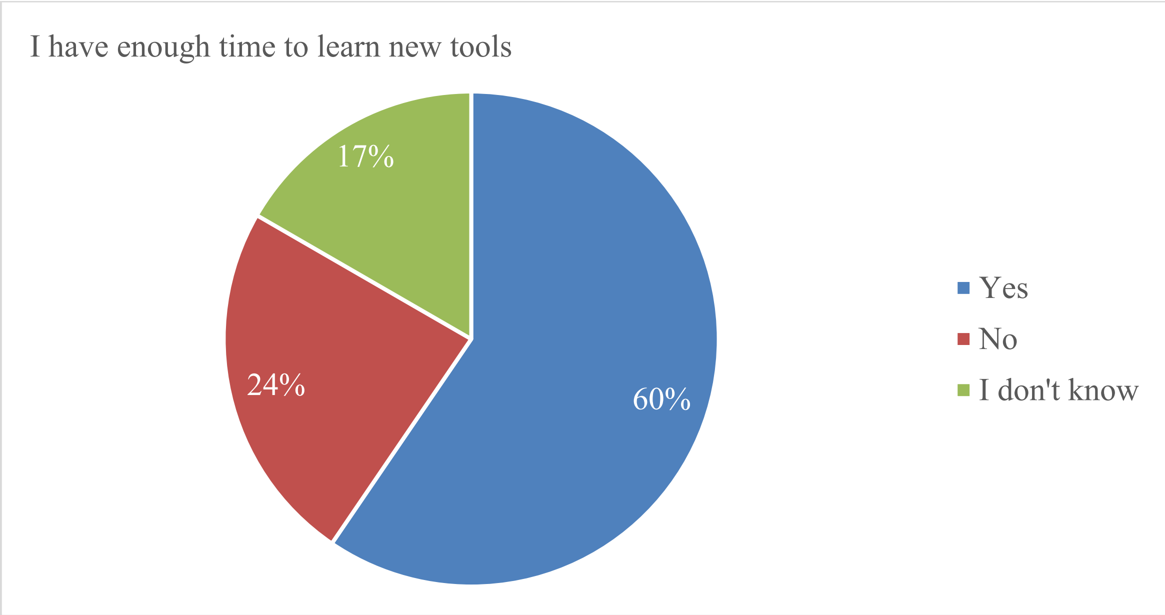

Figure 14 - Sufficiently enough perceived time to learn new tools.

Question 8. I have the possibility to practice/see/feel new tools in a sandbox environment before it is released in production version.

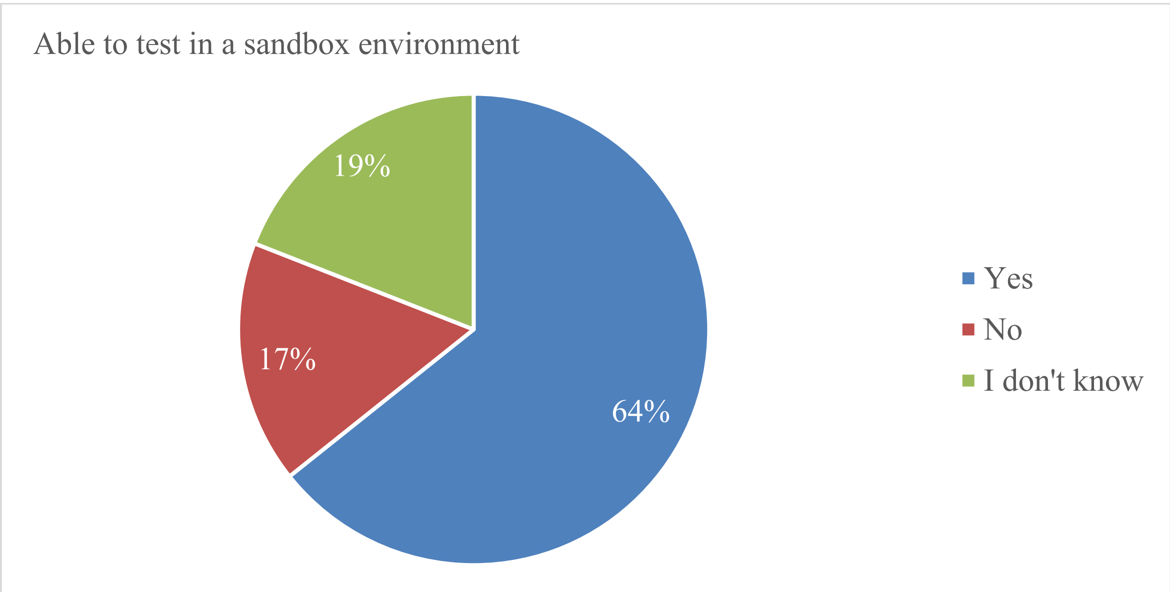

Figure 15 - Possibility to practice in a sandbox.

Question 9. *Give examples of the type of change management actions that you have seen in the past that you would like to see more of in the future.*

This was in general a misunderstood question and there were all kind of invalid or empty answers. It is also the first question where the respondents are forced to really think about change management from their experience and formulate an answer. However, a few categories became apparent. The biggest category is communication and presentations.

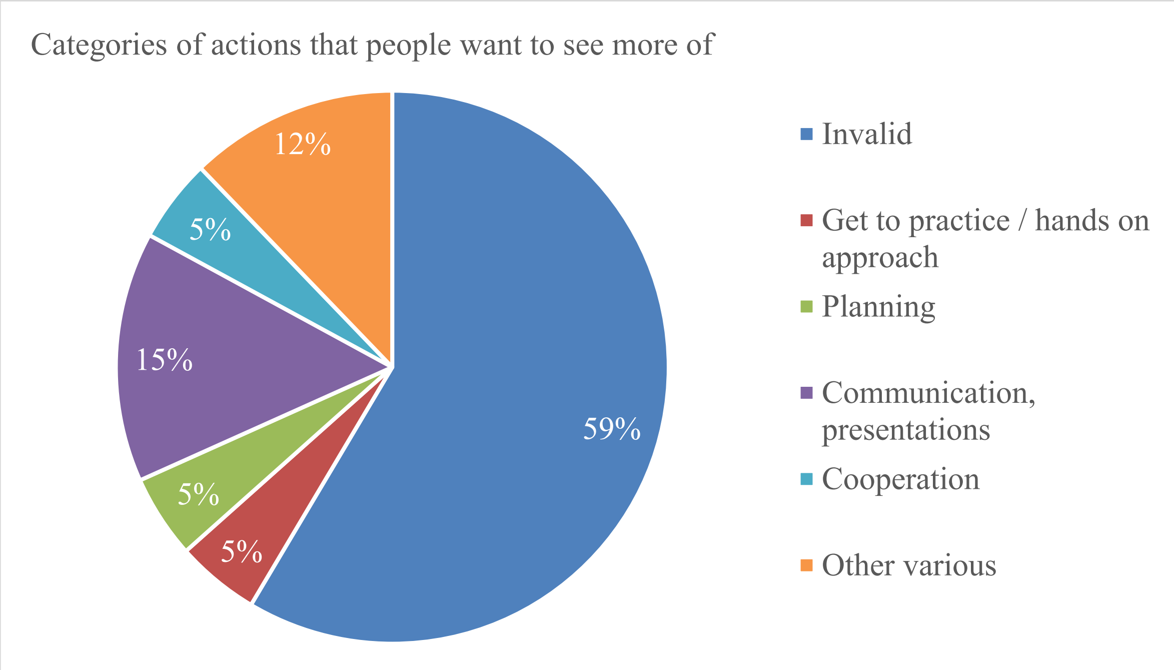

Figure 16 - Change management action that are wanted.

- **Get to practice / hands on approach**
    - Learning by doing.
    - When a new tool is introduced material on how to use the tool and hands on demonstration of the tool and possibility to use the tool in sandbox/QA (Quality Assurance) environment.

- **Communication, presentations**
    - usually, a decision of something is made (a change in way of working for example) and it has been good to hear and understand the motivation why that change is made and the impact of it.
    - Currently we are trying to adapt a more agile way of working, and as such all team members are encouraged to take relevant courses. Offering support and guidance on new programs.

- For a couple of years back it was an interesting experience when the company was downsizing. All managers and team leaders was presented for the reason why, they explained in details the reason for the change, they handed out materials to present for our teams, they presented us for questions and answers that might would arise so we could prepare, and there was a Teams meeting where the issue was discussed, questions from managers and team leaders was answered by management, and we all felt prepared. In case of the digital transformation and the change of value proposition in the company today, I understand that we cannot have the same approach to all changes, but we should talk more about all the changes that is going on, and present to the teams what's going on in the organization. We should adjust our actions according to what our stakeholders and other parts of the organization do. Not just do our tasks the same as for 5 years ago.
- MDM (Master Data Management) made a change in their tool for updating running hours to engine. This was presented in a monthly meeting. Person from MDM showed the tool, clearly indicated the changes done to the tool and explained why it change was done.
- Introduction of M-Files (document management tool) was pretty well orchestrated, almost too much info. But it was also quite different from old IDM (document management tool) requiring lots of preparations before actual use.
- Presenting tools that are about to be taken into use in the organization. If it's a longer project to implement a tool, then some milestone updates would be interesting and helpful to get people familiar with the tool beforehand.

- **Planning**
  - Plan the change, Communicate the plan to full TI, Decide the change, Communicate the change and timeline to full TI, Organize the deployment, Organize the training close to the deployment.
  - Have a good testing and introduction plan.

- **Cooperation**
  - Like the Excosoft Skribenta (DITA tool) replacement process, where new candidates are chosen by a team of users from all units/countries. This is to secure that everything is considered before the final platform is decided.

- TDOC (DITA tool) replacement. There are participants from each DC and from all teams that will use the tool.

- **Other**
  - Taking into use Polarion (task management tool) as workload monitoring and managing system (aka TIPMS) in TI. This didn't take too long time and it was tested well before deployment.
  - Possibility to test a new tool and provide improvement suggestions before the tool is eventually taken into use.
  - Polarion has been introduced gradually and involved people had time to familiarize.
  - That a training course is set for the new change. or more time to learn!

Question 10. *Give examples of the type of change management actions that you have seen in the past that you would like to see* ***less*** *of in the future.*

This question raised a lot of negative, invalid comments such that they cannot be related to this specific question. Again, some categories could be identified, and the answers were classified.

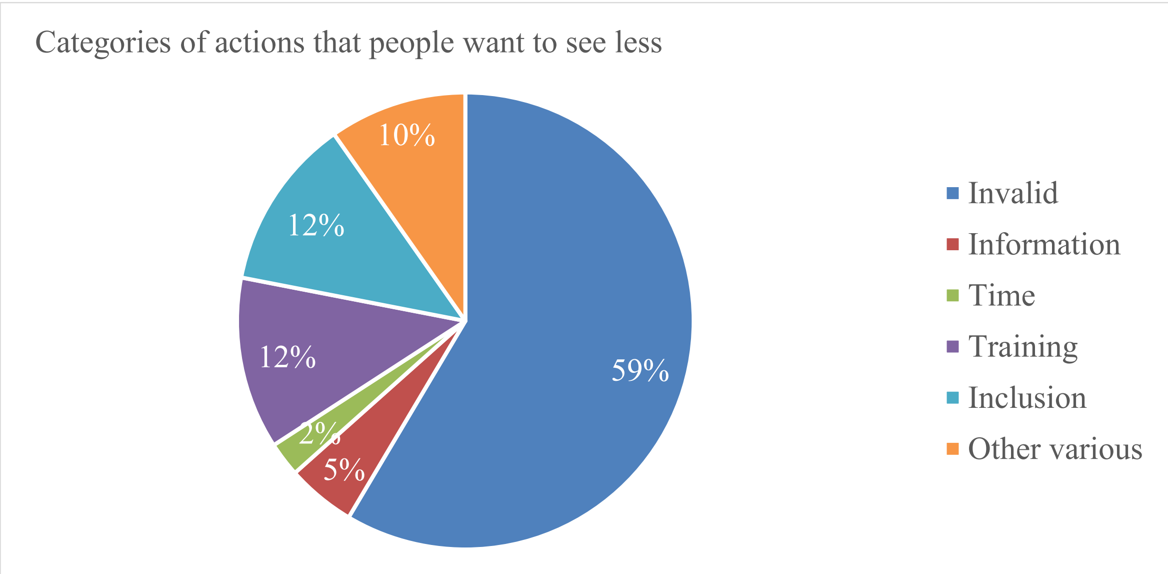

Figure 17 – Categorised change management actions that people want to see less of.

- **Time**
  - Rolling out new thing too fast. People need time to adapt to new things.

- **Training**
  - Introduces new programs without training.
  - Like when M-files was introduced, and the training was poor. It was almost impossible to find anything or to know where to put information in the document metadata.
  - Taking M-Files into use. Really hard to find anything from there nowadays compared to old IDM. I also do not save anything there as I feel I do not understand how it really should be done.
  - Providing too little training material, so the users struggle with learning the new tool.
  - Lack of training and training material.
- **Inclusion**
  - Changes fall from above without having any way to give feedback.
  - Switching to different/new systems without consulting the actual end-users of said system.
  - If tools are created without including the end-user in the development and testing, they will most likely fail and not be implemented.
  - Material Data Search tool - I am aware that it is in test phase still, but there has been only talk of this new tool being developed and link has been shared and asked to go see and test how it looks. But I would have hoped that the target group would have received some short meeting where this tool and its functionalities would have been gone through in order to properly test the tool.
  - Sometimes we introduce new tools to simplify a part of the process, but then it creates issues to the rest of process. We need to introduce changes taking into consideration all stakeholders.
- **Information**
  - Teamcenter (product data management tool) deployment in the company. It took too long time and employees started to feel, that it will never be taken into use in Technical Information. Also, people who were part of the development project were changed during the time and therefore information flow wasn't smooth.
  - In general, when something is developed "under the radar" and only for a small group, when there would be opportunity to introduce a "global way of working".

- **Other**
  - Diluting the change action in an effort to make everyone happy.
  - Stick to well-defined and reliable processes without changing them due to internal re-organizations.
  - Tools where test data is stored in production environment.
  - Introduction of Sales BoMs (bill of material). The handover of this from the Project to Technical Information. No process was existing, no clear RACI (responsibility assignment matrix) and no supporting workflow. This we in Technical Information had to start to create when the project was already in G3 phase, and the project manager had already moved to new duties.

Question 11. *Which of the above two change management action types are currently more typical of your organisation?*

Even people that have not given any examples of actions in related questions 9 and 10, have chosen an option here in question 11. These answers are also taken into consideration because even if they don't give examples in previous two questions, they clearly can have an opinion about which direction the organisation is going in this question. Majority of people answered that they currently typically see in their organisation that what they also want to see more of.

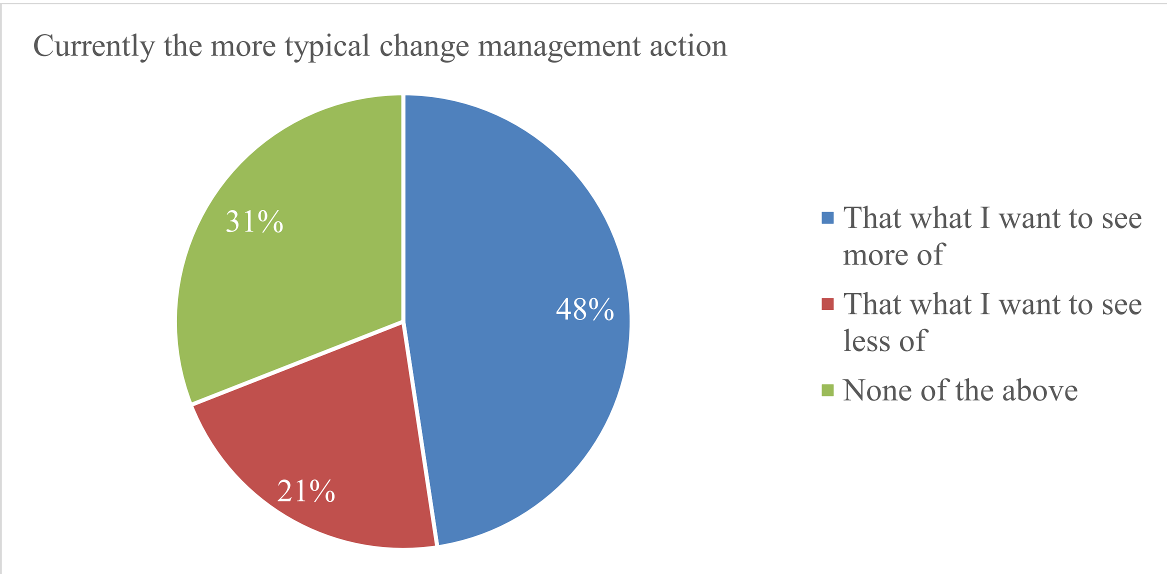

Figure 18 – Currently the more typical change management action.

Question 12. *Rate your organisation's change management when it comes to introducing new tools.*

Overall, the respondents gave a good rating for TI's change management. Slight differences can be seen when comparing the different delivery centres.

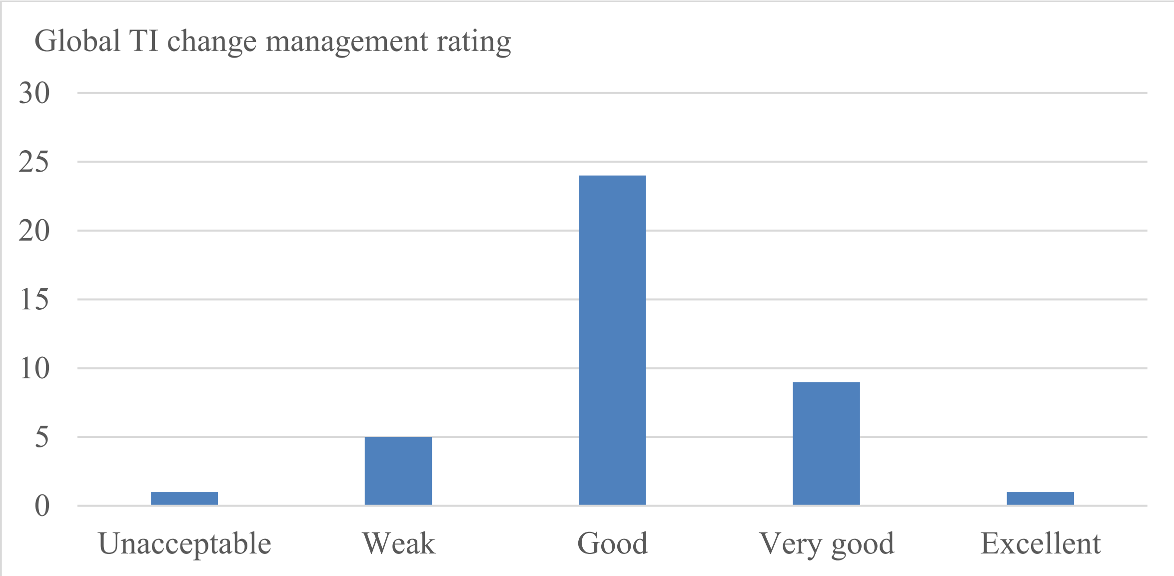

Figure 19 - Change management rating for global TI.

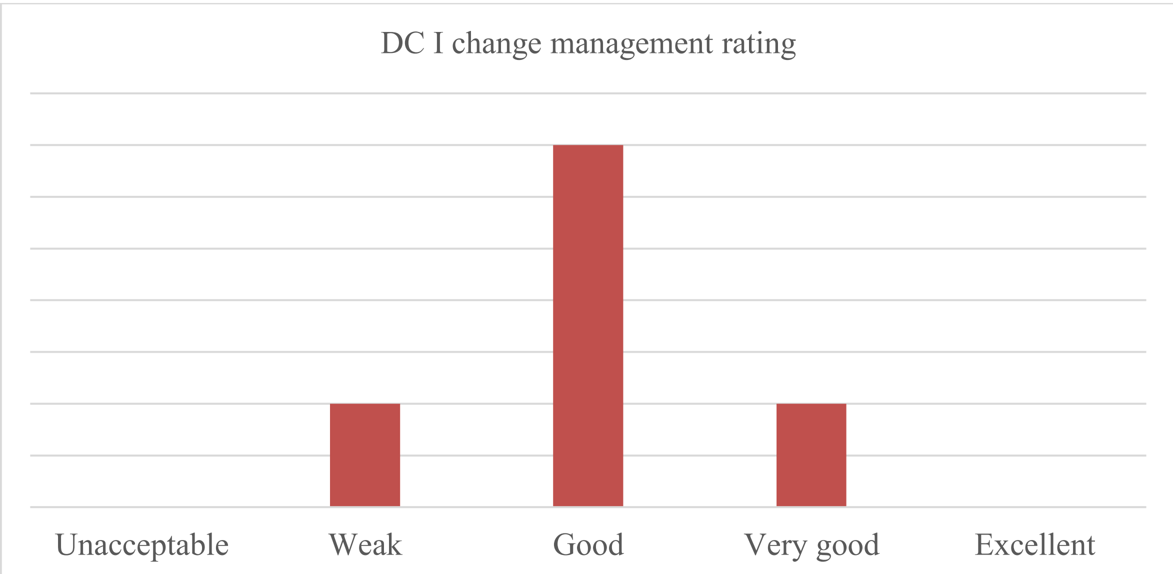

Figure 20 - Change management rating for DC I.

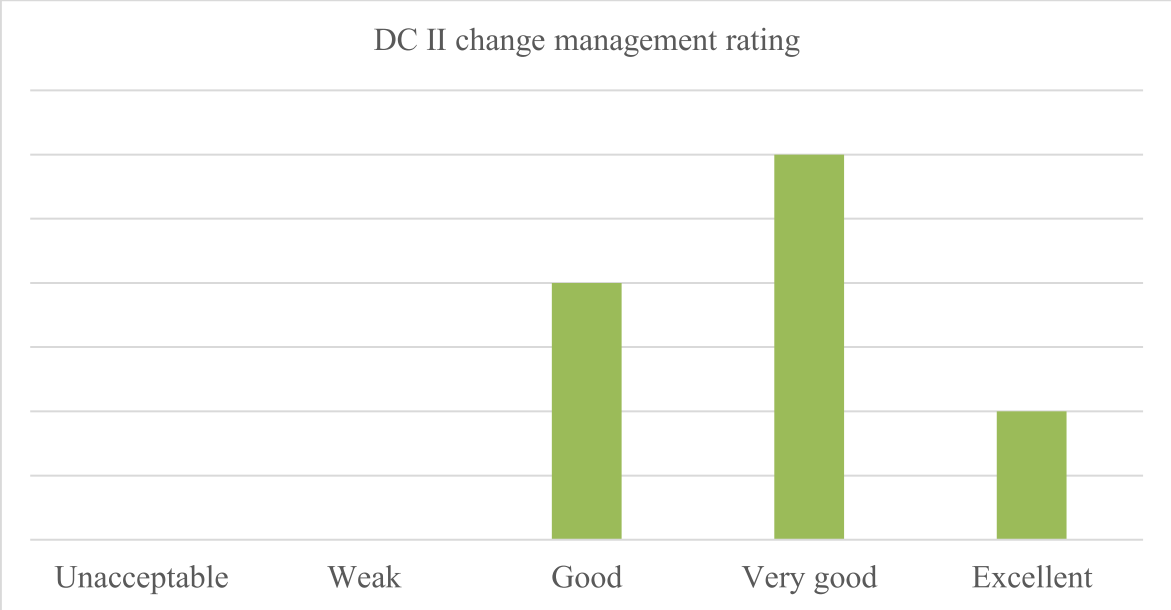

Figure 21 - Change management rating for DC II.

Figure 22 - Change management rating for DC III.

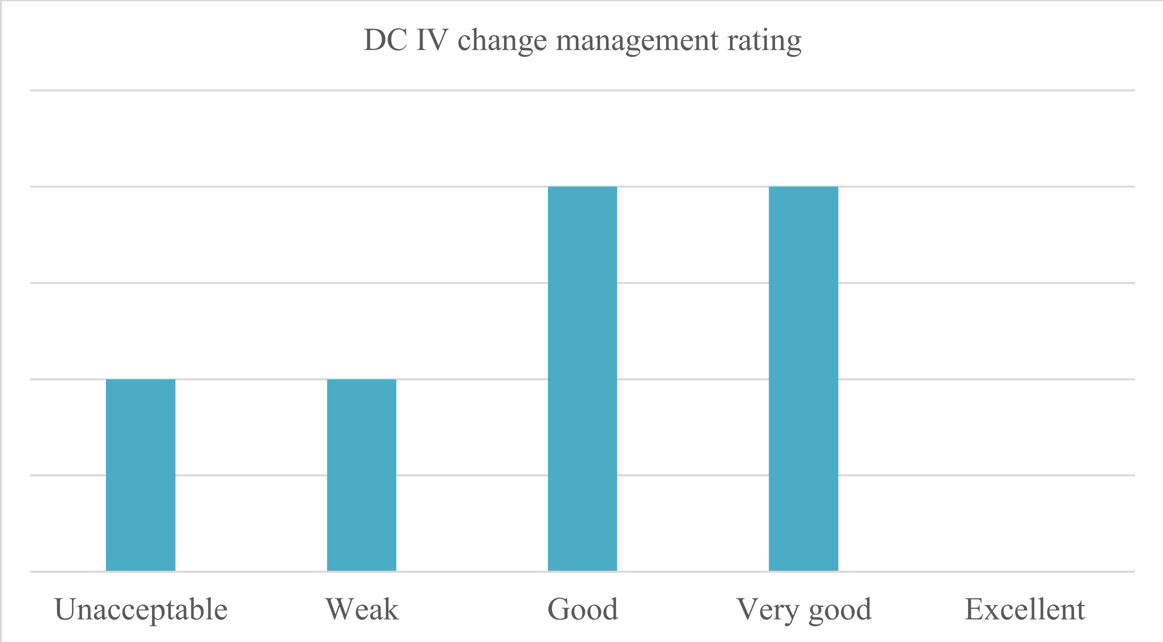

Figure 23 - Change management rating for DC IV.

Question 13. *How important is a good change management process to you when it comes to the introduction of new tools that will impact your daily work?*

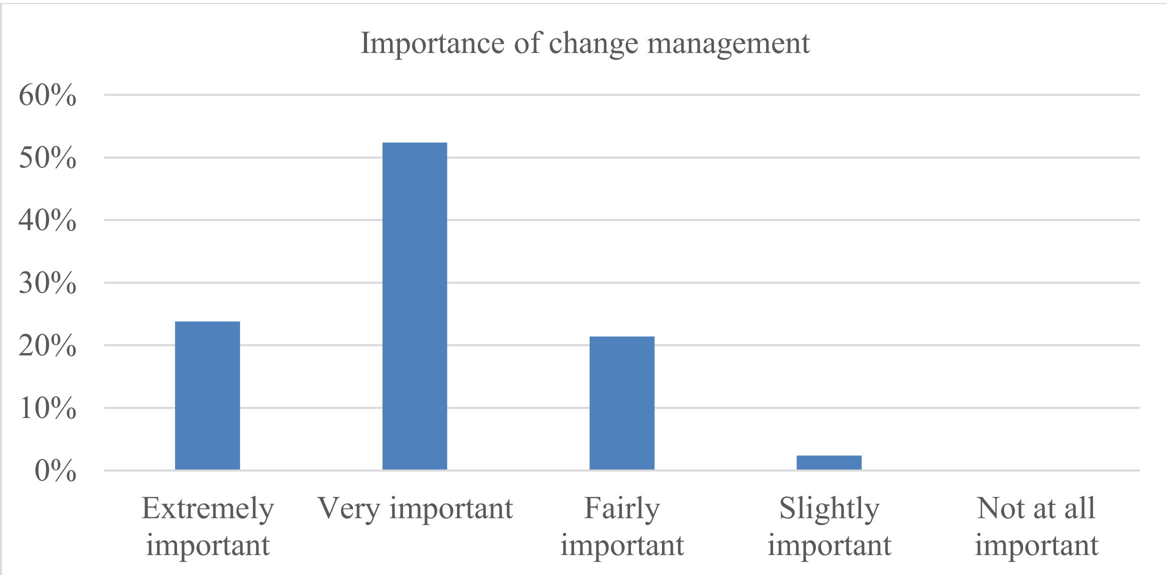

Figure 24 – Importance of change management.

Majority of the respondents see change management as very important or extremely important.

Question 14. *The following five personal disciplines are related to learning organisations. Select the option that reflects yourself most truthfully.*

The following chart represent TI's answers on a global level. It is immediate apparent that the result does not follow the normal distribution curve as it is significantly pushed to one side. Note that the fourth statement is negated and as such gives also a very positive result.

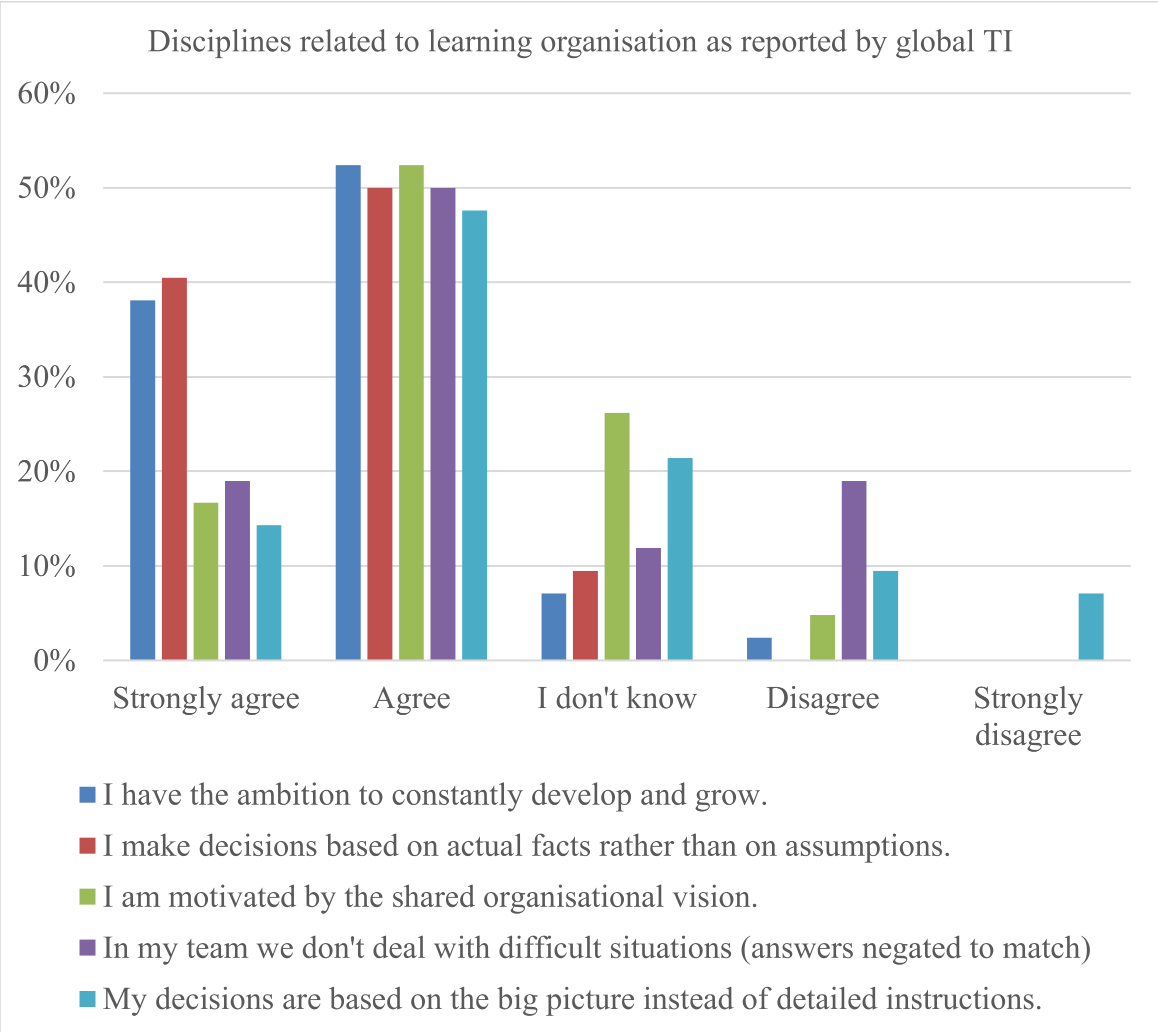

Figure 25 - Disciplines related to learning organisation.

To evaluate the hypothesis that a learning organisation is better equipped in dealing with change, this result must be analysed on a personal level rather than global level. By putting a score on the individual's separate answers one can deduce a score or level of Learning Organisation given by each respondent.

The correlation ended up being very low at only 0,015 meaning there is no significant correlation found in this study. To be noted, there is also no negative correlation.

In the following chart, the own organisation's Change Management is given as a score directly from question 12 but it's presented as standardised data. The Learning Organisation score is calculated from answers to question 14 and it is also standardised for the chart.

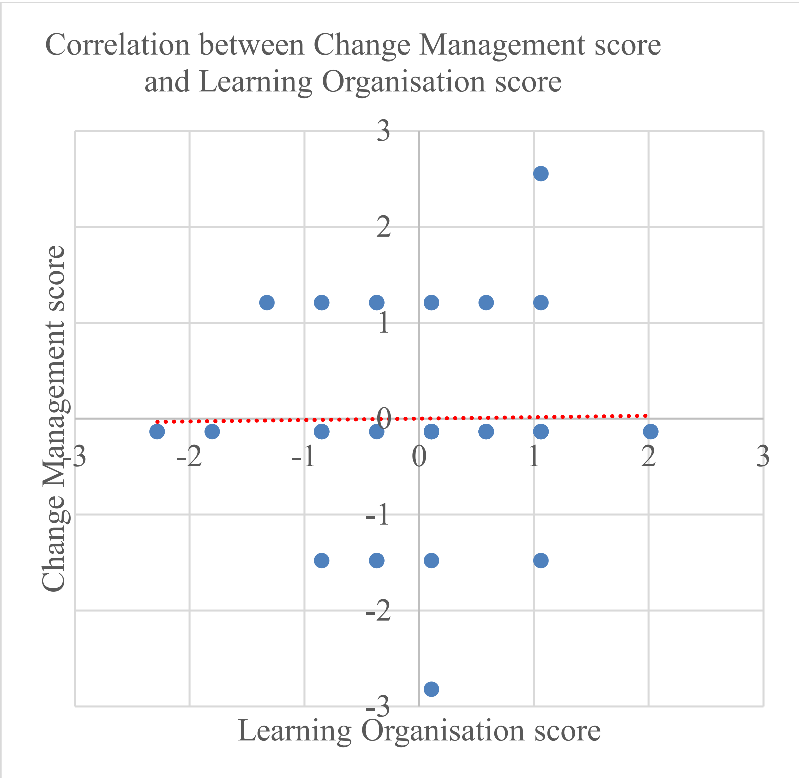

Figure 26 - Correlation between change management and learning organisation.

In question 11 it was asked about what types of change management actions people typically see in their organisation. This gives indication about how positive people see change and can therefore be used as an indicative measurement of the capability of dealing with change. The assumption is that people with negative outlook on change are not very capable to deal with change and vice versa. The correlation between the capability of dealing with change and Learning Organisation score is plotted on the graph below. The correlation was calculated to be 0,243 and is a minor positive correlation, not significant.

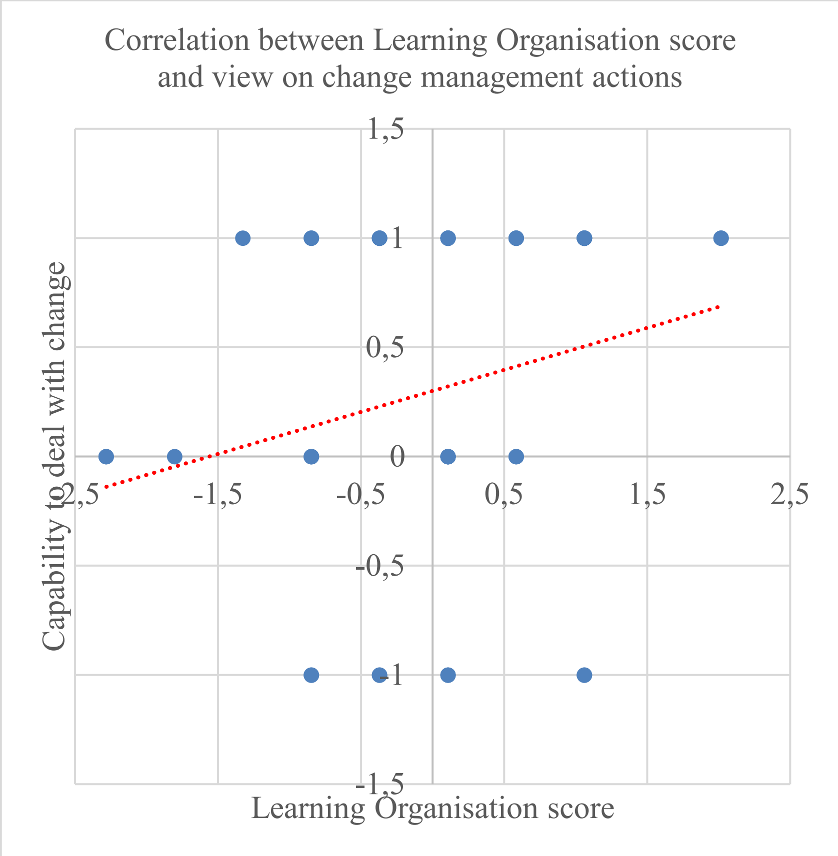

Figure 27 - Correlation between learning organisation and view on change management actions.

Question 15. *Any other thoughts you want to share related to the change management when introducing new tools?*

A couple of free comments were submitted in the last question.

- Always consult the eventual end-users on what kind of features they would like the new system to include before forcing some half-baked software down their throats.

- Try to combine more tools instead of introducing hundreds of them :-). I think it is called API?? That is the key to success- to save time AND avoid frustration.

- The contradiction is that Change Management consist of enhancements and not changes. Within [the company], every bussiness unit keeps on changing -for own benefit- without getting result for [the company] as a company. We've a slogan "first time right", but that's not our best practice. New tools need a clear COMPANY policy and strategy.

5 DISCUSSION

The aim of this thesis was to answer three questions. This chapter will present the answers to those three questions based on the literature study and the empirical research.

5.1 Why is Change Management important?

It turned out that this question could be answered by the literature study alone. Here is a short summary to highlight the most important topics of the literature study related to this question.

Organisations need to constantly adapt to their environment in which they operate because the environment itself is very dynamic. Changes are therefore always needed. (Kotter 2012), (Jacobsen 2019), (Bruzelius & Skärvad 2017). All changes will meet some resistance by the affected people (Bruzelius 2017). It's a natural, psychological response to deviations from the normal and it can evoke feelings of uncertainty and loss of control (Bruzelius & Skärvad 2017, p409-410). It is many times difficult for people to adopt a change successfully by their own. Therefore, support through a process to lead the impacted people through change is helpful and that is why change management is so important. (ProSci 2022) It enables people to go through the emotions of the Kubler-Ross change curve more quickly and adopt the desired changes more effective.

5.2 Is a Learning Organisation better equipped to deal with change?

The theory clearly indicates that a learning organisation is better equipped to deal with change because in learning organisations everyone is willing to learn, find solutions and continuously improve. (Handy 1995)(Bruzelius & Skärvad 2017). Handy (1995) goes so far as to say that learning is the same as changing. When learning and changing are equal, a learning organisation must per definition be better equipped to deal with change.

The better the individuals learn, and the organisation learns, the more effective the individuals and the organisation becomes in continuously adapting to changes. (Bruzelius 2017).

The result of the research shows no significant correlation between having personal disciplines to enable a learning organisation and the capability of dealing with change. The correlation was 0,015 which is a very low positive correlation. Not significant enough to justify a clear yes for this research question. It means the research and the literature does not fully align, so let's explore more detailed why that is.

In a learning organisation, everyone wants to continuously improve. They are eager learners. They are also eager to share their knowledge and insights. (Bruzelius 2017). When conducting a survey in a true learning organisation, one could therefore expect close to full response rate. In this survey it was around 35%. This alone indicates that Technical Information is not a true and pure learning organisation. Answers to question 14 of the questionnaire on the other hand tells a different story. Very few responses were neutral or negative, meaning people of Technical Information reported having all the right personal disciplines to form a learning organisation. So, what is holding them back?

Woolner's development model focuses more on the organisational and leadership side of transforming into a learning organisation rather than on the personal disciplines of individual employees, as was the focus of this research. Woolner's five stage model is ranging from sporadic reactive learning all the way to being a learning organisation with learning as an integral part of the daily work. Johnson (1998, p.144) says that an organisation will not progress in the Woolner's five stages until the required leadership capabilities has been developed.

The research turned out to be slightly inconclusive on this question because it focused only on the employees' personal disciplines. The organisation and its leadership were not researched. The research does show however that the employees have the right disciplines to enable a learning organisation.

The literature is, as explained earlier, very clear. A learning organisation is indeed more capable of dealing with change.

5.3 How can the managers introduce a new tool to the workforce in the best possible way thereby contributing to the successful development of the tool?

Answering this question is the main objective of the thesis and the researcher start by giving a cautionary statement from the literature. The Change Management literature is filled with attempts to produce the best possible set of instructions for managing change, a simple prescriptive point list of how to do it. These kinds of instructions are commonly generalised and compiled from a set of case studies. (Beech 2012 p.28). Furthermore, these theories tend to get mixed with managers' own theories based on their experience of what worked in the past and what did not (Beech 2012 p.5). It's a complex area to simplify in short form. (Beech 2012)

Fullan (2007) agrees, he says **it is rocket science** and there is no ready-made formula for change that would work everywhere. It is however possible to lead change if the leaders understand the change process. About this Fullan writes "*Never a checklist, always complexity*". The key is to genuinely understand the dynamics of the change process instead of following a rule book. (Fullan 2007 p.35). For leaders to be effective in leading change, they must cultivate their knowledge, understanding and skills of the complex process that is change.

Based on previous mentioned cautionary statements, the researcher recommends all readers to study change management as it is indeed a complex area to master and execute successfully. However, the main purpose of this thesis was indeed to propose a plan or roadmap to drive the successful change of tools.

There were a few reoccurring topics from the survey. Those have more weight to them in representing the overall organisational opinions. The following is a list of the most important key points from the research.

Information

The answers to question 4 of the questionnaire (What makes your organisation struggle with adopting new tools?) shows that in global TI, the most common struggle is that people are not informed well enough, or lack in training.

The answers to question 5 also indicate that more people feel that they get too little information rather than too much information.

Kotter (2012) mentions that under-communicating the change vision by a factor of 10 or 100 or even 1000 is one of the common mistakes in change management. On top of this, Bruzelius (2017) claims that the scope and strength of the resistance is normally greater towards change that appears to come very sudden. It is therefore important to communicate the change well in advance and more frequently, repetition is key.

Planning and cooperation

Besides increasing the quantity of communication and presentations about new tools, it was reported through question 9 that more planning and cooperation is wanted. The research also showed that the organisation already uses its IT skills and culture of helpful colleagues to support in adopting new tools. Open comments to question 9 highlighted the success of including representatives from each delivery centre into the project team. This approach works well in agile projects, when including end users and continuously adapting according to their feedback.

Full participation is required to achieve the most successful change initiatives. It should be a real team effort, because you cannot force change onto others. (Franklin 2014) If leaders put *external* pressure on the people to commit to a change, they will produce only short-term results. It is by *internal* commitment that an effective leader generates longer lasting change results. (Fullan 2007). According to Vroom's expectancy theory people feel the highest motivational force when they are certain that they will feel a high amount of satisfaction from the result of their actions. (Miner 2005).

Understanding the advantages of the new tool

In question 4, 19% of respondents indicate that they struggle with change because they do not see the new tool as superior to the old tool. As a change manager, it is important to influence people in a positive way and highlight the advantages of the change to them (Franklin 2014).

New tools must make business sense. Otherwise, they should not be adopted by the organisation. This is precisely why a healthy resistance to change is not always unwanted. By having a resistance to the change, the number of wrong changes implemented can be reduced by it posing as a constructive opposition. It also results in better communication and motivation of the change. (Bruzelius 2017)

5.4 Conclusions

The literature study shows that it is not recommended to compress such a complex subject as change management into a simple and general point list, memory list, road map or similar. This was however the main purpose with this thesis; to formulate a general and simplified point list that managers could follow whenever introducing a new tool into the organisation.

That is why the researcher writes a caution to use such lists and instead recommends any change manager to learn change management.

The secondary research questions were introduced probably more by the researcher's own interest in understanding how a learning organisation would relate to change management and of course why change management is important to begin with. The research questionnaire was designed to find out the current change management opinion and situation in the organisation. The secondary research questions were given less focus. During the discussion of the results, it became apparent that the questionnaire was not enough to completely lay bare the impact of a learning organisation on change management. Using the questionnaire, the employees were researched, and it shows that the employees are ready to enable a learning organisation. There are other perhaps more important considerations besides employees' readiness however, such as leadership style and organisational relation to trainings that could be further researched to fully satisfy the research question. Luckily, the literature about learning organisation is very clear on this question.

The questionnaire was piloted by a highly educated tester who gave valuable feedback which was acted upon by the researcher, and it helped with clarity in some of the questions.

The study shows that the information should be increased, particularly the benefits of the new tools could be highlighted more. The study also found that the cooperation and inclusion could need more focus. These points therefore constitute the backbone of the recommendations from this thesis.

5.4.1 Recommendations

Based on the study, the researcher primarily recommends that change managers would take the time to learn change management. If this will not happen for one reason or the other, the following list can act as a short, generalised, and simplified road map in roughly chronological order for introducing new tools into the Technical Information organisation.

- Include influential end users, preferably someone familiar or willing to learn agile methodology (for example senior engineers) from each of the affected organisational silos or teams into the development project. The research showed that the organisation already utilises its IT skills and culture of helpful colleagues to support in adopting new tools. These skills and willingness to help could be used in an earlier stage by inclusion into the project. Furthermore, the inclusion will also create engagement towards the development in question.

- The included end users can continuously share their experience and status of the tool and project for example in regular team meetings. This will keep the peers updated with latest development. The research showed that people wanted more information and training and an end user sharing the progress/status will also serve this purpose.

- Arrange presentations, development status, communications, and trainings. Kotter (2012) says communicate 10, 100 or 1000 times more than you think is needed. The research showed a lack in information and training and indicates it is possible to increase the communication amounts. So, whenever suitable, give communication about the ongoing developments.

- The affected people must see and thoroughly understand the strength and upsides with using the new tool. It is very important. The research showed that people don't always feel like the new tool is better than old ways. No one wants to use a lesser tool than what they currently have. So, it needs to be explained why it is better, and again, not just once but repeatedly many times over. In addition, listen to any concern and feedback and address those promptly so they don't go viral instead.

- The research also showed that more coordination between delivery centres is needed. Representatives from all affected DC's to be included in the development project so any concerns from all DC's come forward and can be tackled early.

- The research showed that the people in TI do get the needed support but could use more time to learn the new tool. Trainings should be included in the development project. A sandbox environment is always beneficial for training purpose and can also be used whenever the appointed business users are updating their peers on the status of the project. Live sandbox testing is a good time for gathering broader feedback from peers.

- When the new tool is first taken into use in a meaningful way, provide genuine hard evidence of how it actually performs but be aware that portraying a development better than it actually is, will drastically undermine the whole change team's reliability in the long run.

- Remove other viable options by a well communicated deadline, to prevent the last late-adopters to continue with the old way.

- Support and inject respect into the tool's reputation until it is used so much that it is engrained into the culture.

It is the researcher's opinion that the change management in Technical Information could be improved by using the recommendations outlined here. It takes a lot of effort from the change managers, but the tool should certainly benefit from it as well as the output of the organisation due to the more streamlined reception of a new powerful tool. This thesis also showed that it is in fact a worthwhile objective to become a learning organisation. For example, it eases the effort needed in the change management.

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8 LIST OF APPENDICES

Appendix A – Questionnaire, 5 pages

APPENDIX A – Questionnaire

Change Management related to the introduction of new tools in Technical Information.

This questionnaire is anonymous and has been sent out to all of Technical Information. The research is part of Mats Röösgren's Master's Thesis at Novia University of Applied Sciences.

The main purpose with the questionnaire is to map the change management related to introduction of new tools and features (software) into Technical Information organisation. Please answer, honestly and openly, your answers will remain anonymous and are highly appreciated.

1. Select your organisation, it will be referred to in some of the subsequent questions. *

   - ◯ DC I - Finland
   - ◯ DC II - Italy
   - ◯ DC III - Norway
   - ◯ DC IV – Netherlands

2. How long have you worked in your current organisation?

   - ◯ 0-3 years
   - ◯ 4-9 years
   - ◯ 10+ years

3. What makes your organisation good at adopting new tools?

4. What makes your organisation struggle with adopting new tools?

5. Select the option that best describes the amount of information you receive from your organisation about ongoing developments (e.g. new tools, additional features, tool issues etc.) *

Too little information	Suitable amount	Too much information
○	○	○

6. I get the support I need whenever a new tool is introduced. *

- ○ Yes
- ○ No
- ○ I don't know

7. I have enough time to learn new tools. *

- ○ Yes
- ○ No
- ○ I don't know

8. I have the possibility to practice/see/feel new tools in a sandbox environment before it is released in production version. *

- Yes
- No
- I don't know

Change management is the use of a process for leading people through a change. It is helping and supporting the impacted people in making the successful personal transition that enables them to engage, adopt and ultimately use a change.

9. Give examples of the type of change management actions that you have seen in the past that you would like to see **more** of in the future. *

10. Give examples of the type of change management actions that you have seen in the past that you would like to see **less** of in the future. *

11. Which of the above two change management action types are currently more typical of your organisation? *

- That what I want to see more of
- That what I want to see less of
- None of the above

12. Rate your organisation's change management when it comes to introducing new tools. *

Excellent	Very good	Good	Weak	Unacceptable
◯	◯	◯	◯	◯

13. How important is a good change management process to you when it comes to the introduction of new tools that will impact your daily work? *

Extremely important	Very important	Fairly important	Slightly important	Not at all important
◯	◯	◯	◯	◯

14. The following five personal disciplines are related to learning organisations. Select the option that reflects yourself most truthfully. *

	Strongly Agree	Agree	I don't know	Disagree	Strongly disagree
I have the ambition to constantly develop and grow.	◯	◯	◯	◯	◯
I make decisions based on actual facts rather than on assumptions.	◯	◯	◯	◯	◯
I am motivated by the shared organisational vision.	◯	◯	◯	◯	◯
In my team we don't deal with difficult situations.	◯	◯	◯	◯	◯
My decisions are based on the big picture instead of detailed instructions.	◯	◯	◯	◯	◯

15. Any other thoughts you want to share related to the change management when introducing new tools?