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Value Stream Mapping for an office environment

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ABSTRACT

To be more flexible and efficient in a process, lean and all of its methods can be used to improve your workplace. This thesis was carried out by two aeronautical engineering students from Mälardalens University Västerås, on Saabs ILS department in Järfalla. The ILS department had problems with their time estimation in projects for creating technical documentation and the budget was often exceeded, therefore an analysis of the process was to be carried out.
The lean tool practised in this report is Value Stream Mapping. VSM helps to illustrate a process and its interfaces and is also a very good help to show what problems there are in a process.
The results were a stream mapping of the documentation process within ILS with suggestions of improvements to make the process less complicated and a document describing how to perform a mapping.

Sammanfattning

För att kunna vara mer flexibel och effektiv i sina processer kan lean och alla tillhörande metoder användas, för att skapa förbättrade arbetsplatser. Det här examensarbetet utfördes av två flygtekniska ingenjörsstudenter från Mälardalens Högskola Västerås, på Saabs ILS avdelning i Järfälla.
ILS avdelningen har haft problem med sin tidsestimering i processen att ta fram teknisk dokumentation och överskrider ofta budgeten, av den anledningen behövdes en analys av processen.
Leanverktyget som användes i den här rapporten är Värdeflödesanalys. VFA hjälper till att illustrera en process, dess gränssnitt och var problemen i processen finns.
Resultatet blev en flödeskartläggning av dokumentationsprocessen på ILS med förslag på förbättringsåtgärder för att få processen enklare och ett dokument som beskriver hur man gör en kartläggning.

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Abbreviations

BMS	Business Management Description
DR	Design Review
EDS	Electronic Defence System
ILS	Integrated Logistic Support
MS Word	Microsoft Word
OPEX	Operational Excellence
PDCA	Plan Do Check Act
ppt	Powerpoint
SM	Stream Mapping
VSM	Value Stream Mapping

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Chapter 1 INTRODUCTION

Lean can be a good help for companies to help them work more efficiently with their processes and customers satisfaction in focus, since 2010 the ILS department has been a part of a lean implementation project, driven by Saab EDS.

1.1 Background

Electronic Defence Systems (EDS), a business area within Saab, is a world leading supplier of surveillance systems, avionics and systems to; detect, locate and protect against threats.

To these systems there are often technical publications i.e. user manuals, maintenance manuals or spare parts catalogue, depending on the customers demand. These technical publications are made by the Integrated Logistic Support (ILS) department within EDS in Järfälla.

In 2011 a thesis work was carried out at the ILS department that evaluated the tool they worked in (MS Word), this led to that they bought another tool (FrameMaker) to be able to work more efficiently. But it is not only the tool that needs to be improved. It usually takes longer than planned and costs more than was budgeted to make these publications. The working method and the process to produce technical publications most likely contain different kinds of waste which should be identified, evaluated and eliminated.

1.2 Objective

The objectives with this thesis are to identify wastes and flaws in the process of producing technical publications by performing a value stream mapping according to Lean and suggest improvements to get a better process that will make it stay within budget and increase customer satisfaction.

Also the objective is to create a “light model” template, for how to perform a value stream mapping in various business areas within Saab.

1.3 Problem formulation

Value stream mappings have been carried out in a big number on many kinds of companies, but most common is to use it on production lines.

This thesis is going to adjust the mapping to use it on an office process which is not as common, yet. The problem is two folded, to help performing a VSM at the process for technical documentation, make it more efficient and flexible so that the planned time will not be overridden and thereby not exceed the budget, but also to make an easy to understand description in how to make a VSM according to Saabs earlier documents; literature and experiences.

1.4 Limitations

The time constraints make the bachelor thesis limited to about ten weeks fulltime work. This thesis prioritizes the value stream mapping, with focus on the process for technical documentations and a model for how to make a value stream mapping is second in prioritization.

Chapter 2
METHODS

2.1 Introduction

To learn about what lean is, and what Saab is working towards, a lot of time must be put off in reading literature, books, but also reading up on Saab's intranet. The books read were tipsed from Jessica Bruch, field doc at Mälardalens University and from Raymond Basudde who also showed the Saab intranet material that would be relevant for this thesis. The books that were read can be found under references.

Also five ILS engineers with good knowledge in working with technical documentation were interviewed with the purpose of getting a feeling in how the documentation process for the looks like. This meetings were only simple face to face meetings with one or two engineers at the time, just talking about how they felt about the documentation process and to see if some problems could be found at this early stage in the thesis.

Field trips were arranged to see and hear what Saab had done earlier with Lean and what could be learned and taken back from that.

2.2 Fieldtrips

Gothenburg

Saab EDS in Gothenburg has worked with lean and VSM in processes for some time. They have learned that when performing a mapping on an office/development process, focus should not be put on finding value adding/ nonvalue adding time, because this can be very hard and time-consuming and thereby take valuable time from the improvement work according to Roine Lundström, Quality Manager at Saab EDS Göteborg. Instead one should try to focus on illustrating the process and find out where in the process improvements can be found. This is called stream mapping, SM. The authors chose this method over VSM for the thesis work, because it fitted in perfectly with the project goals and the ILS process. To make the most of the meeting with Roine Lundström some questions were made as a help and these are shown in appendix VII.

Jönköping

Saab in Jönköping works hard with lean within their production lines and their work has paid off. They went from a low rate delivery precision to a 100% precision delivery at all time, according to production engineer Jan-Eric Spjuth. The work they have made really shows that lean can improve a company and that it is worth working towards better processes in a company. The way they have worked was not completely applicable on processes within office environments, but it gave a good lesson in how VSM's are made and showed real life result. Jan-Eric spoke about how hard they had to work to get where they are now and that the lean work can never be completed and must be maintained. In appendix VIII there are questions that was used as a help during a meeting with Jan-Eric.

2.3 Stream Mapping

As mentioned earlier, the method chosen for this thesis is SM. It was evaluated after the fieldtrip to Gothenburg and found that this method would be the best for this project. SM can be used on all types of processes because it basically only illustrates a process how it is currently looking and from that you evaluate your selected process. This means that you don't have to look for measurements like timekeeping, which is one of the most important parts when performing a VSM according to the book "Lära sig se" and Jessica Bruch. Also a difference between VSM and SM are the maps you draw, a regular VSM uses symbols that symbolizes different types of steps in a production line, ex a triangle with a "S" in it means stock according to the book "Lära sig se". A SM uses small notes with text describing what steps they are and have different colors depending on what kind of steps they are, the colors used in this thesis was found thanks to Roine Lundström and are illustrated in appendix II.

Because of not trying to measure the process, the important thing is to try to get competent peoples working with and around the process to participate to the SM according to Roine Lundström. The purpose then basically is to get a good view in how a process looks today and later on in the SM process see what can be improved.

Swimlanes

As a help to visualize linked processes, swimlanes will be used in this SM. This was something shown at Saab in Gothenburg and they had used this method before with good results. The swimlanes helps to visually show how different parts of an organization connects to each other during a process. The different parts of the organization that will be used during a mapping will have its own lane and the interfaces will be showed clearly with this method in the SM. It was shown during the thesis that these "lanes" were a common are for disturbances and lost knowledge. The number of swimlanes used in a SM is depending on how much time and what ambitions the SM has, but more than five will be hard to create

because of the many interfaces and the need of having people representing each lane will be to many.

Maps

The first map that's made is a map showing exactly how the selected process works today, this one is called the current state map. It is important to get competent people working with the process to participate at the SM meeting so that the result can be trusted. The mapping works from the end of the process and upstream to give more customer satisfaction thinking into the map, but the first thing to come up on the map are the swimlanes. After that a start and finish of the process will be put up and after that you can start to work your way through the process from the finish.

The participants will also discuss what problems are found in the process and mark these in the map, this is done after the process is completely done on the map and all the talk about problems must be kept to a minimum before the process is complete so that the SM can continue according to Roine Lundström. All problems should get an act of action and a liable should be chosen so that the problems can be eliminated. To get good results from the actions, try to evaluate what actions are most important and feasible to get a greater result in the end.

The second map is a future state map. This map will illustrate how the process should look like in the future. According to Lära sig se, Roine Lundström and Jessica Bruch the improvements should not take longer than approximately six months because of the importance to see results.

Preparations

After having read books that had been recommended and been on fieldtrips, preparations for how the SM was going to be carried out started to be more important because of the time limitations that the thesis has. Some of the things that needs to be prepared were already given, what process and the limitations for SM was going to be about, the technical publications process. Preparations for when the meetings could be carried out and how they would look like started to be important and this was determined with Raymond Basudde. To make the work more efficient the authors had different tasks for the SM, one SM manager that would lead the SM and a notary that would take notes on what was said during meetings.

Meetings

The idea in this thesis, is to work with an adapted method from a way of working that was presented to the authors during an interview with Roine Lundström in Gothenburg. In Gothenburg, they planned for an all day meeting to make the today state SM map. This way was not applicable in this thesis because of the problems to get peoples to attend a whole

day, instead the meeting was to be spread out on three different meetings, two meetings for the current state map and one for the future state map, after having discussed with Raymond Basudde . The meetings was planned into two hours each. An advantage with this way would be that the meetings could easier be placed where the attending ILS engineers could attend. The three meetings was planned with an interval so that the SM could proceed from the start to it finish, with a light introduction meeting first. On every meeting appendix II was handed out to the attendees to assist them in knowing what the different colours for the map represented and also to give them some tips for how to do a SM. Every meeting started out with a ppt presentation that would address what the goal for the meeting was. The people that was called to these meetings were ILS engineers that was working with the documentation process.

First meeting

The purpose with the first meeting was to give the attending engineers an introduction in SM and how this meeting/project would proceed and also to start the SM map first by choosing swimlanes and after that to get the start and stop in the process and to get some rough activities to work around with later on. This order of working was agreed upon between the authors and their supervisor at SAAB after the Gothenburg trip. The swimlanes that were chosen are[1]:

- Analysis
- Documentation
- Construction/Production
- Customer

The analysis lane is very important according to the engineers because it is from this section they get important input material for the documents. The most important analyzes that are used also became activities in this lane, these are the FMECA, MTA and LORA analysis. Because of the object with this thesis was to improve the documentation process, the documentation lane was inevitable. The documentation lane was to be the foundation to this mapping and most of focus should be put here because of this. Therefore the start and stop of this map was put in this lane. The stop of the process was not much to talk about, everyone felt that it should be an approved delivery. The start then was a bit more tricky to define according to the engineers. But after some discussions about whether a calculation for

[1] The customer lane was brought in after that the start and stop had been choosed in the documentation lane.

the document or an offer was to be the start, the engineers agreed up on the offer as start for the process.

In this lane the base for the whole map would be, so the discussions here started out with witch activities would be the foundation. Four activities was found to be the foundation in creating a document according to the engineers, these are; planning, preparations, producing and review. When having these foundation steps, the problem was to brake these down into more specific actions to see what happens in what steps. To illustrate this on the map a brighter yellow colour was used when many ways of working was found.

The construction/production lane was chosen by the engineers because of the importance in including the people working with and constructing the products into the documentations and thereby find ways in making the interface between them better in the future.

Customer satisfaction is important in lean work. Therefore the needing for the customer lane was chosen by the engineers but also to be able to show how the customer contributes in the work but also to see if this could be improved later on. There was only a few steps that could be collected from the customer now, an operational profile and sometimes some standards for the project.

The first meeting map is presented in appendix III. At the first meeting there were six engineers attending and the two authors.

Second meeting

The purpose of the second meeting was to finish up the current state map from the first meeting. This was done by complementing the processes steps, on the same map as before, and also to define wastes and flaws that was found during these two meetings. Focus was put to find wastes from the documentation point of because of there was not enough time to analyze the other lanes. Where the disturbances are located in the process can be found in appendix IIII, the red boxes, and suggestions of improvements for these disturbances can be found under chapter 3.2 suggestions of improvements.

First the activities in the map had to be completed before the waste work could start. A few steps was introduced in this meeting and some was complemented. From the earlier meeting two steps was brought up in haste for the construction/production lane, these were the knowledge that the ILS engineers needs from this lane to be able to produce a document that works with what the construction says. Also that when validating a hardware input is important and used. The review also got a complemented step that was that the customer is a part of the review before the document is approved and can be delivered.

On this meeting there was 3 attending engineers plus the two authors, a bit too few because of some late drop offs. The second meeting completed the current state map and is presented in appendix IIII.

Follow up meeting

Because of the risk that none of the actions to improve the selected process found during the earlier meetings will not be taken serious, a follow up meeting will be held after about six months. The purpose of this meeting is to ensure that all the actions has been taken care of and to see if some of them needs more time, if they have been useful or if they have not.

2.4 Model for how to do a SM

The model for a SM process was created from own experiences during the work ,both from talking to people and reading books and from the Saab intranet documents, Flödeskartläggning by Roine Lundström and Metod för värdeflödesanalys by Claes Edman. The reason for using these documents were to make it more Saab friendly and also to be able to use parts that Saab already was using, ex. the color settings for the maps found in appendixII. The model for how to do a SM is found under appendix I

Meeting with OPEX

Because Saab is such a big company, supervisor Raymond Basudde thought that a meeting should be held with the OPEX division to see what they thought about our work and if this was something that could benefit Saab. The main questions that was brought up was if they were interested in take part of the light model for how to perform a SM and also a bench marketing system ,found in Gothenburg, that could be used in the process for technical documentation but also for the whole ILS process.

Chapter 3

RESULTS

3.1 Third meeting

To create a future-state map, a third meeting was held. A refresh from earlier meetings and the old map was an introduction to help the attending engineers remember and understand what this meeting was going to address.

The same swimlanes(Analysis, Documentation, Construction/Production and Costumer) and the four main activities (Planning, Preparation, Producing, Review) were the starting point. From that the attendees built a map that is a more optimal process for the documentation part of ILS department.

The result of this meeting is a future state map shown in appendix VI but also some improvements were brought up to the attendees so that they later on would be able to evaluate these and choose liable.

3.2 Suggestions of improvements

There were some improvements that were found during this mapping, and from the fieldtrips. These are:

From the meetings:

- A work package description that is standardized, so that the ground is similar in various projects, to give a more simplified process view and work.
- It was brought up that different project used different structures on their documents, a standard structure would make the work more easy and flexible, because everyone would understand how all the documents were built-up.

- When sending documentation for review, lots different ways were used. A way to simplify this part in the process would be to agree up on one standard way to use and transmit this way to all involved.
- Review feedback was, like the one above, a part in the process where lots of ways were used, but here there is a template that could be used as a standard all the time.
- Lack of involvement from construction/production can make the document writing hard and sometimes it has to be re written just because of lack of information. A better communication could solve this problem easily.
- IFS approval from the ILS manager, this is a step in the process that the employees felt were a bit unnecessary and this part in the process maybe should be changed.

From fieldtrips and other

- Design review was a method that was brought up during a fieldtrip. DR is a milestone review process to ensure that the product is mature within the ILS process and no work is carried out too soon. It is a simple method with some meeting just to ensure everyone in the project were they are in the process and whether the project can move on or if the pace needs to be stepped-up.
- Workshop description is a simplified document that can be used as an input to the document process. People from involved parts of the organization meet up and discuss how a work on a product should be carried out and write this down together with some pictures for illustrations. This is a step that should bring a great input to the document process but would also be great for the production department.
- FrameMaker, since frame maker has been evaluated and bought in, a good idea would be to train all the ILS employees in this utility and start using it.

3.3 Light model result

The light model came out to be two documents presented in appendix I and appendix II. Appendix I shows a way for how to work your way through a mapping and give tips for how to keep the SM moving forward. Appendix II is a help document for the attendees at the SM meetings and is meant to help them understand what the different colors on the map means but also gives tips for what the process is for a SM.

Chapter 4

DISCUSSION

Since lean is such a wide concept, when first getting this thesis, we soon understood that we would have to put a lot of time to get a better understanding in this way of working and also to get a picture of what Saab wanted with their lean work.

At the first field-trip the project took kind of a big turn when we were introduced to the term stream mapping. Right away this felt as a good way to carry out a thesis within an office environment, so more research had to be put into learning more about this way of working.

Since the goal with the SM only was to suggest improvements to the ILS department there has been no further working into the suggestions of improvements.

The method for how to do a SM in chapter two is almost the same as the document that has been made for Saab to use on their future mapping. Both the SM documents and the DR was handed over to the OPEX (they work with the processes within Saab) department so that these could come to use.

Chapter 5
FUTURE WORK

Since this thesis has focused on the documentation process within ILS and the goal was to suggest improvements, some further, future work needs to be carried out to get as good results as possible.

5.1 Follow-up meeting

A follow-up meeting should be held after about six month from when the SM is "completed", to secure that the improvements are made and implemented in the process. This is a very important meeting because it is here you can see what has been changed in your process and what the results has been. This meeting is the last mile stone in the process of completing the SM and now there can be a good idea to look for further improvements in other areas or maybe look at some other lean-tools to make the work even better.

5.2 Full scale map

A full scale map of the entire ILS department should be made to visualize the entire flow and all disturbances in the whole department. The same SM process can be used here but in a larger scale with longer meetings and all the right people need to attend to get a result that is good. By doing this the ILS department would have a very clear view on their processes and should be able to make them as good as they possibly can.

Chapter 6

ACKNOWLEDGEMENTS

6.1 Thanks from the authors

The authors hereby want to sincerely thank everyone that has participated in any way to this thesis. Thanks to Jenny Eld Bedoire for giving us the opportunity to do this thesis at the ILS department in Järfälla. A big thank you to our coordinator at Saab, Raymond Basudde for all the help and support.

Thanks to everyone from the ILS department for making us feel welcome and to our father for lending us his car and credit card.

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- **The Toyota Way** – Jeffrey K Liker, ISBN 9789147089024
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- **Claes Edman,** Lean coordinator
- **Jessica Bruch**, *Post Doc, Mälardalens University*

Appendix

Appendix I

Stream Mapping, SM

Introduction

This document will in a concise way describe how to do a stream mapping (SM) for processes within office and development environments.

The document is based on Saabs earlier documents “Metod för värdeflödesanalyser” and “ Flödeskartläggning (med fokus på eliminering av hinder, störningar, slöserier och frustrationer)” and also own experiences from the thesis period.

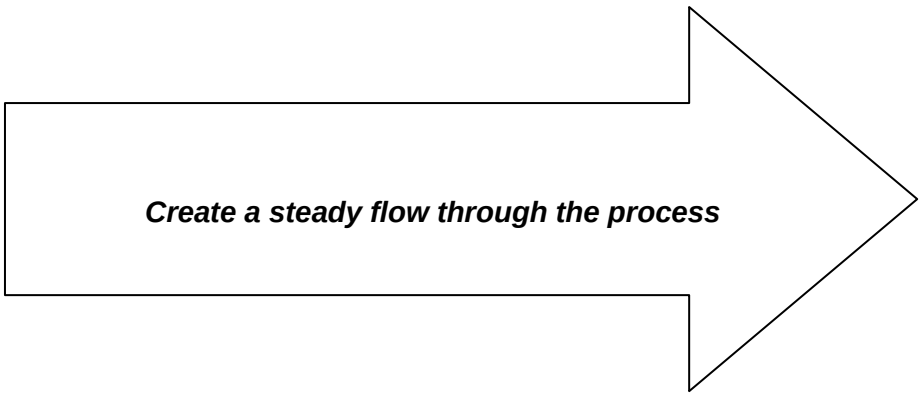
Value Stream Mapping, VSM versus Stream Mapping, SM

A classic VSM, based on timekeeping to find bottlenecks can be hard to adapt to an office/development department because of the problems in finding performance indicators and other things like movements during the development. Therefore a SM can be more useful, in this method you look at the process as it is and based on finding disturbances, interface problems and other kind of failiures.

Pros and cons

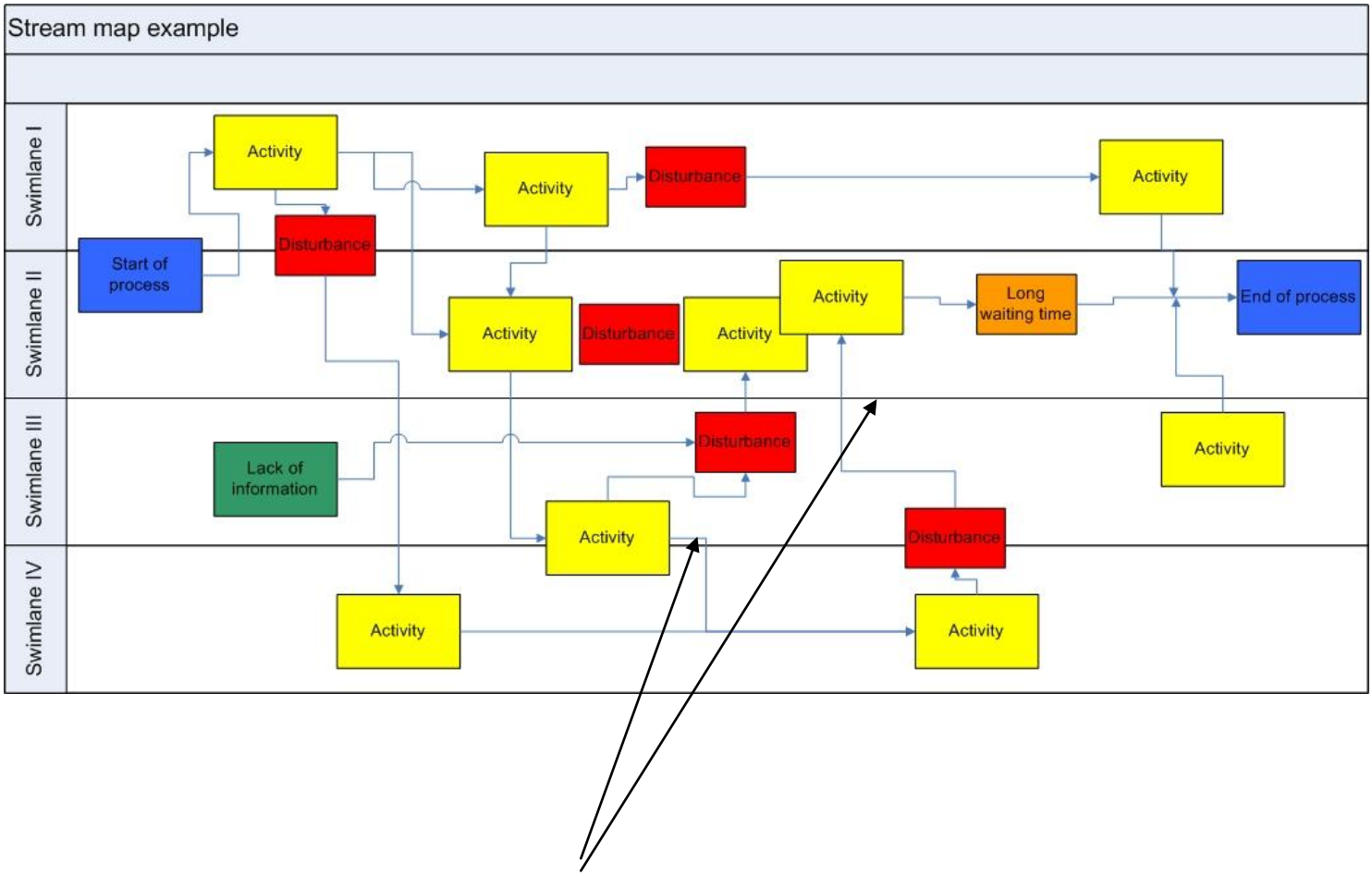
- Simplified method (stream mapping)
  - \+ Universal
  - \+ Simple to use
  - \+ Highlights links/interfaces between various activities
  - \- Excludes value adding/non value adding terms
  - \- Can not be used to evaluate lead time etc.

- Traditional method (value stream mapping)
  - \+ Highlights value adding/non value adding time
  - \+ Highlights waste
  - \- Limited to production processes



Swimlane

- Visually show different parts in the organisation and how they connect in a stream map
- Every part of the organisation has it's own lane, and the mapping will show you how the workflow jumps between the different lanes (a common area for problems)
- The lanes will show you how the different parts in the organisation interface during a process flow



The interface between different "lanes" is a common disturbance area where e.g. knowledge can disappear. This SM uses four Swimlanes.

Purpose with SM

- The purpose by doing a SM is that you can in an illustrative way, map a workflow as it really looks like today.
- It helps to visualize the whole selected process, not just individual steps.
- It is a good tool to help explain why and how to improve a process.
- Give support to find improvements and visualize a better, future flow.
- Create a higher value for the customer and give a more profit.
- Can give a rough sense of lead time within the selected process.
- Helps to create a continuous process flow (focus must be on the whole process not on step by step).

Were to apply SM:

You can apply SM on all types of processes, but this document will concentrate on office/development types of processes.

SM is a very good and easy method to get a detail overlook of the flow within a specific process and you will see where the waste is located, witch will be explained and illustrated later in this document.

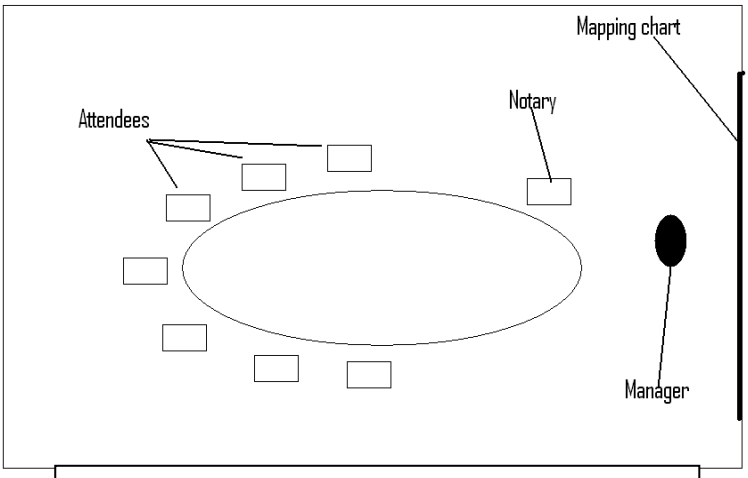
Preparations

The better prepared one is before a stream mapping, the better results you will get, and you don't need special equipment for doing this, its suffusion enough with a big paper (many papers taped together if needed), post its and markers.

- First of all you need a decided, limited area with a well defined start and stop, to be analysed. (Tips for a SM can come from anyone and should be addressed on a meeting or with your boss.)
- Then a SM manager should be selected that,
    - read up on the process
    - is competent with lean, SM
    - (has earlier experiences)
    - prepare oneself and the team
    - with notary lead the SM meeting
    - coordinate a team, 2-4 peoples (one of which will be a notary at the mapping meeting) to prepare for the SM

- The team should
    - define goals with the mapping, e.g. shorter lead times or less disturbances etc.
    - make a SM plan
    - (be people who has experiences with the process)
    - represent different skills in the process
    - book a room big enough for the SM and all the peoples who will attend (about 6 -10 peoples with representatives from all concerned stakeholders), a full day should be prioritized, depending on the level of ambition

    - get a large blank paper, different colours post its and markers (see other document)
    - decide who will be the notary on mapping meeting
- The notary should
    - assist manager during mapping meeting
    - take notes about what is said, good to know



How a common SM meeting can look like

Methodology – the meetings

For a start should a large blank paper be put on the wall before all attendees comes to the meeting. Appendix 1 can be handed out to the attendees as help during the mapping (or be e-mailed).

The manager will lead the meeting assisted by a notary who will write down facts that comes from the attendees. It is very important that unnecessary discussions are put away by the SM manager so that the meeting will progress.

- If the attendees are new with SM it can be useful to have an introduction before the meeting
- Agree on what the start and end of the process are and put up post its on the paper
- Then begin to define the main process roughly with post its on the paper, work your way from the end and upstream to have customer satisfaction in focus
- Now you can start to brake down the process into more specified steps and draw flow arrows, it is important that you don't write things as you want them to be at this time! Only use steps as they really are.
- Have a discussion to determine that this is how the process looks like in real
- Now start to search with a discussion where in the process you can find different kind of wastes/disturbances and put them in the process, long waiting times, lack of information etc.

"Aftework" (for the team)

- Organise map, if needed

Future state map meeting

Is kind of like the meeting before but now you can design the flow as you want it to look like. This state should be reachable within six months.

- Set up a new meeting with the same people as before
- Prepare them for what this meeting will raise
- Design a new better flow without the wastes/disturbances, the new flow should be reachable within six month
- Rank the wastes/disturbances, should be reachable within six months. If not, break down the action into smaller actions and have a reconciliation after six months
- Set up a plan of actions and choose a liable for each action

- Break down the waste/disturbers and work with specified parts
- Use the PDCA boards to get an overview of the work (if one uses PDCA)

Follow-up meeting

On the follow-up meeting one should look at what was supposed to be changed in the process and see if things are in order now. This meeting should be held after about six months just to ensure that the SM has given a result. Here it can be good to bring up with new ideas if the SM feels complete, for new improvements.

Appendix II

General

This is a handout to the participants attending a Stream Mapping Analysis meeting according to M-00025656.

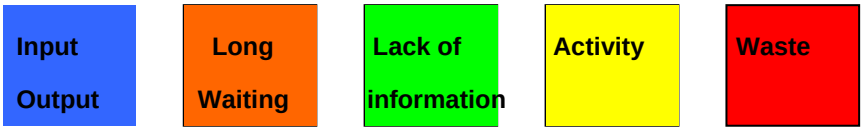
Keep in mind:

- "Current state" – Keep the discussion objective and focused on how the activities/tasks are performed as today.

- "Future state" – Use creativity and imagination to reduce/eliminate activities/tasks that do not contribute to an added customer (stakeholder) value.

It is recommended that you select the stream mapping "post-it notes" colors as follows:

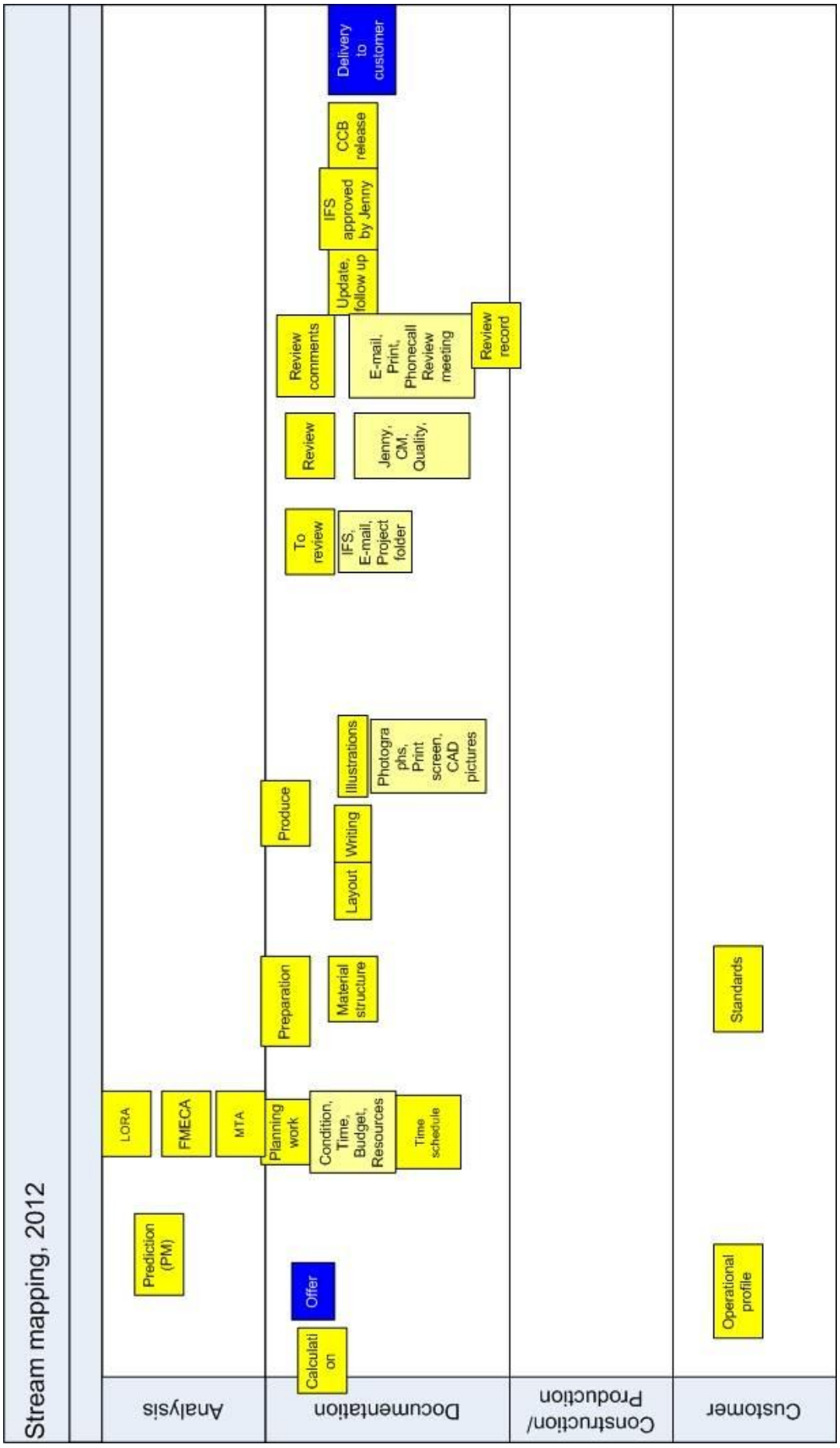
- Blue- starting point & ending point
- Orange - Long waiting times in the process
- Green – To be used when a lack of information or insufficient information exists
- Yellow – Activity
- Pink/Red – Highlights problem areas e.g. resource problems, lack of communication, quality issues etc.



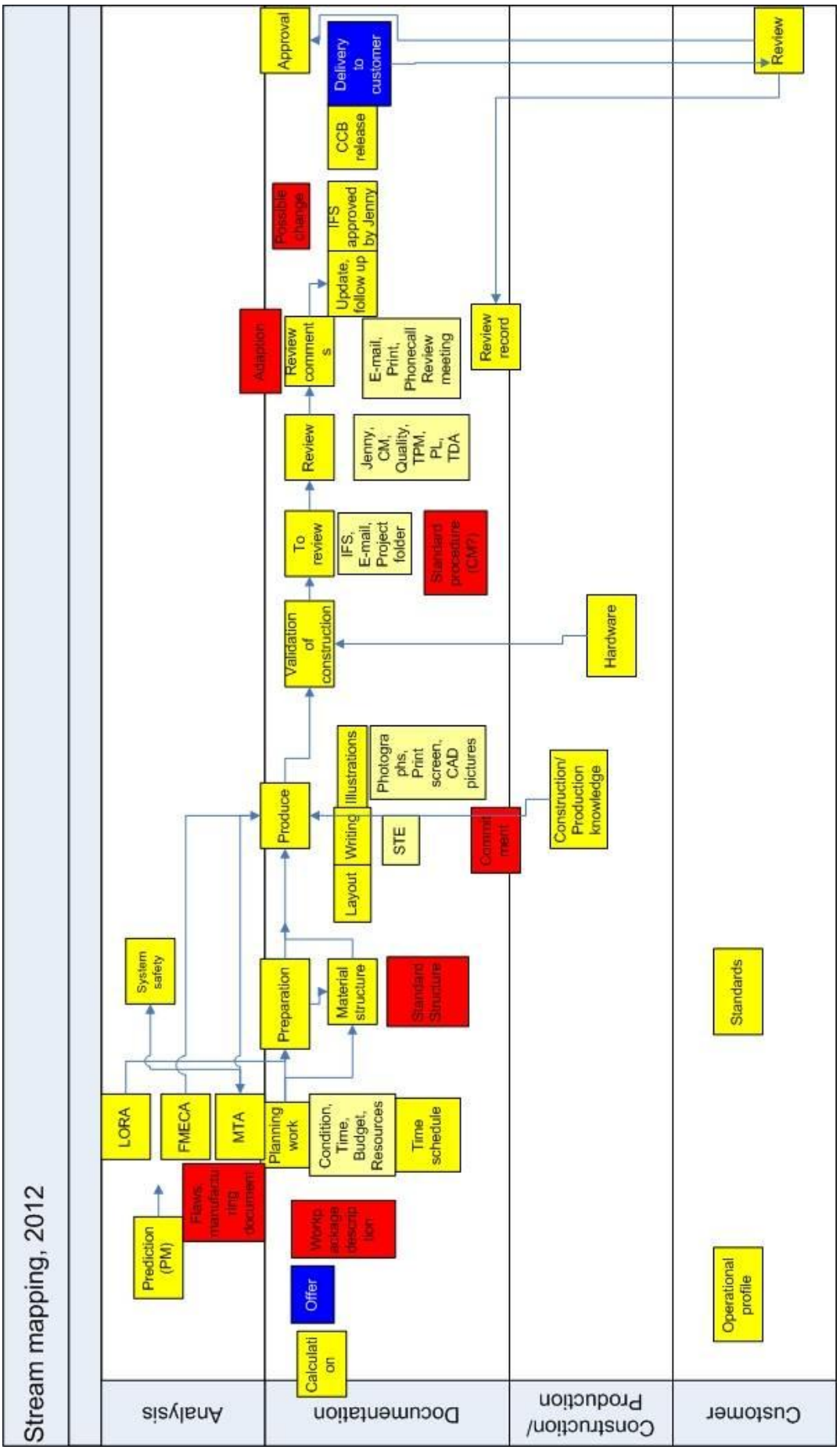
Getting started:

- Define start & stop (Input & output)
- Think *swimlanes* - i.e parallel functions connected to the process
- Main activities – Should be easy to understand. Plot these in the flow
- More details – Break down the main activities in sub tasks
- Think standards – Are current standards used
- Improvement suggestions – Eliminate the main waste contributions in the process. Solutions shall be reachable within 6 mounts, if not the solutions require more breakdown
- Follow-up – It is very important that the improvement suggestions are assessed within a period of 6 months to evaluate their impact

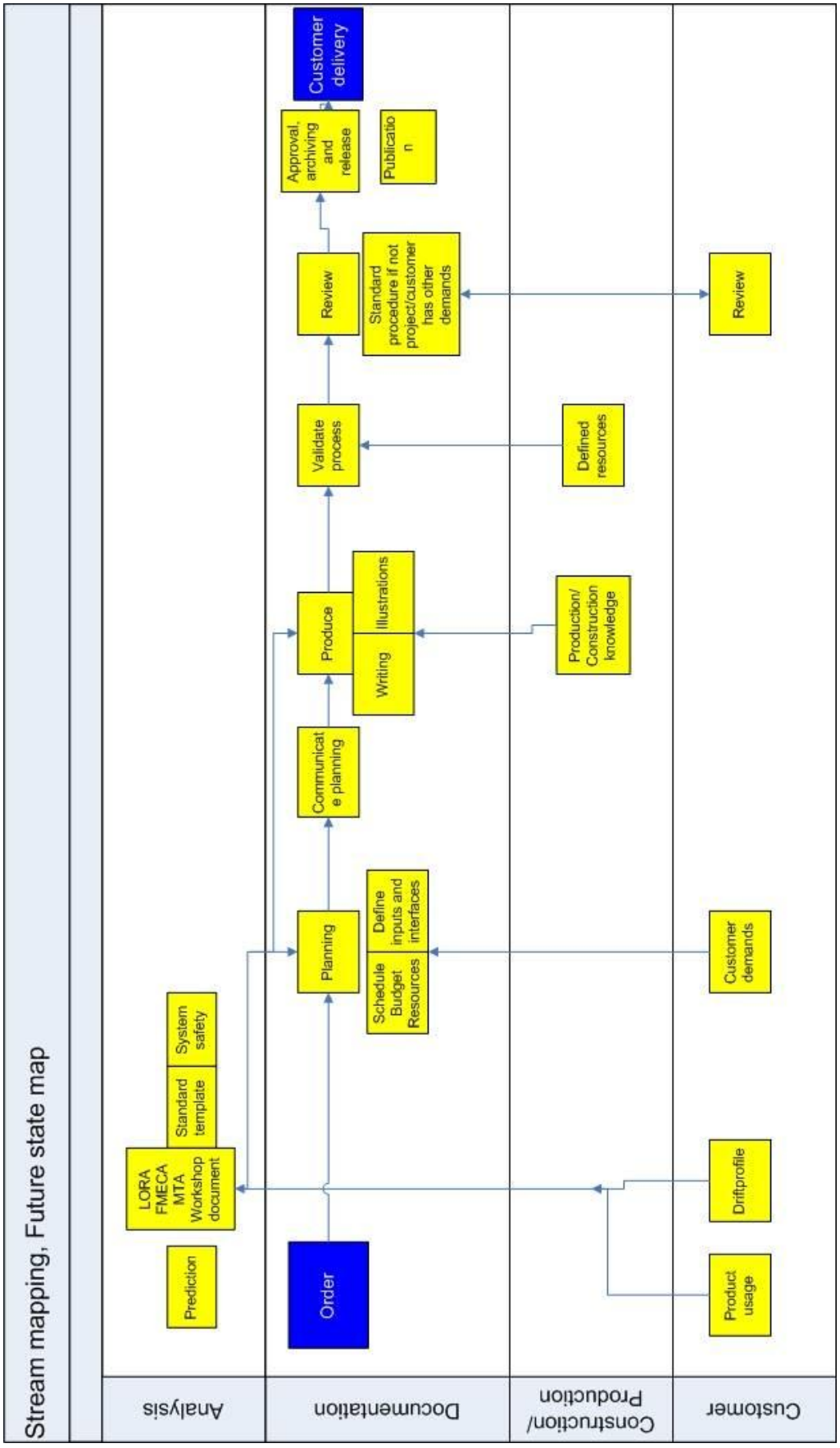
Appendix III



Appendix IIII



Appendix V


Stream mapping, Future state map
Analysis
Documentation
Construction/ Production
Customer
Prediction
LORA FMECA MTA Workshop document
Standard template
System safety
Order
Planning
Define inputs and interfaces
Schedule Budget Resources
Communicat e planning
Produce
Illustrations
Writing
Validate process
Review
Approval, archiving and release
Publicatio n
Customer delivery
Standard procedure if not project/customer has other demands
Defined resources
Production/ Construction knowledge
Customer demands
Driftprofile
Product usage
Review

Appendix VI

Interview with Roine i Gothenburg

- How did you start with your lean work?
- What limitation did you have?
- How many where involved?
- Methods?
- What did you searched for?
- Did you find waste?
- What tools did you use?
- Did you implement the results? Follow up?
- What values did you find and how was it measured?
- How did the idea come up? Role models? Similar projects?
- What previous knowledge did you have?
- How much time did you spend on the analysis?
- How was the results compared to your expectations?
- Tips and ideas for us students?

Appendix VII

Interview, Jönköping, Jan-Eric Spjuth

- Tell us about what you think is important with lean and VSA. For how long time have you worked with lean?
- Have you done any similar analysis as our? Tell us about it.
- Do you use milestones in the development process? Design Review?
- Follow-up with the waste you found? Results, to who and how? Where did you found most of the waste? Which type?
- Value Stream Analysis experience, producing vs. office? Different in results? Measured values?
- Stream Analysis vs. Value Stream Analysis?
- Swimlanes? Do you use alternative methods? Limitations?
- How have you spread the results after an analysis? Response?
- How many analysis before good results/ smooth analysis? Can you see some trend the more you work with analysis?
- Who has led the analysis? How do you appoint someone, time to prepare etc.
- Group set? Who is in the meeting, who is in charge, how long is an average meeting?