

INVENTORY MANAGEMENT AT RETAIL DOLFINARIUM



MASTER THESIS BY RENSKA RIJPKEMA

UNIVERSITY OF TWENTE.

Colophon

Author:	Renske Rijpkema
Student number:	s1487213
University:	University of Twente. School of Management and Governance Enschede, the Netherlands
Master program:	Business Administration Service & Change management
Date:	May 2015
Supervisors:	Dr. Ir. L.L.M. van der Wegen Dr. N.J. Pulles
Company:	Dolfinarium Strandboulevard Oost 1 Harderwijk, the Netherlands

Acknowledgements

I want and need to thank several people that supported me during the process of writing this master thesis. Without their help it would have been much harder for me. First of all, I want to thank my supervisors from the University of Twente, Leo van der Wegen and Niels Pulles. You have put a lot of time in helping me, and all meetings were valuable for improving my thesis.

Most of all, I want to thank Ingo. You helped me out a thousand times. When I had thesis-chaos in my head, you cleared your whiteboard and put it all structured on your board. When I did not know how to proceed with my thesis, you could motivate me and remember me why I really wanted to finish this. All the days I came home late and tired, you already made diner and were waiting for me. And most of all, you listened to me.

And of course I want to thank all the colleagues of Dolfinarium! Especially Alex Tiebot, my supervisor during the research and the one who believed in me and gave me the wonderful opportunity to start working at Dolfinarium. You answered my millions of hard and annoying questions and you gave me so much space to do my research, but also gave me opportunity to improve myself. Sander and Dennis also deserve special thanks, without you guys I would not have these results and would not have so much fun during the research. And to all other colleagues from Dolfinarium who make every day so wonderful, fun, enthusiastic and beautiful: You inspire me!

Summary

At Retail Dolfinarium stock transfers take place between several locations. Retail Dolfinarium has an inventory system, but there is discrepancy between the administrative stock and the physical stock. This leads to several problems like a low location accuracy, sold out products, oversupply and incorrect financial reports. The goal of this research was to improve inventory management of Retail Dolfinarium, to make sure the administrative stock is consistent with the physical stock. This led to the research question: *How can inventory management be improved at Dolfinarium to ensure the administrative stock to be consistent with the physical stock?*

There were no procedures on paper considering inventory management. To understand how inventory was managed at that moment, we worked along with each function and interviewed all employees who are responsible for a part of inventory management. We concluded that there was nobody aware of the whole procedure for one process, for some processes there were no procedures or agreements at all and not everyone described the procedures the same. We then started analyzing what the exact problems were at Retail Dolfinarium and we compared inventory management with Catering Dolfinarium and with Retail Walibi. We found that Retail Dolfinarium has an underperformance in inventory management and we found the possible causes of this underperformance. The causes that result in the biggest stock differences are 'employees do not know procedures', 'employees do not follow procedures' and 'lack of leading the Retail employees and improving them'. Therefore, it is helpful for Retail Dolfinarium to have clear procedures on paper that involve the whole process, and to make sure all employees follow these procedures. When there are clear procedures, management has guidelines to use for leading the team. Moreover management can use data from the inventory system to see where the biggest problems occur, and can improve on these points. This shows that the three causes are linked to each other.

During this research, we made procedures to make sure there will be no discrepancy between the administrative and physical stock. With involving all employees in this process, we also changed the spirit of the employees. With focussing on all processes, we did not only make them clear for everybody, we also made them more efficient. Therefore the employees noticed tasks could get easier with using the new procedures. This caused that all employees are now using the new procedures and know what is expected from them in each task. These procedures are designed so that every stock transfer is registered in the system, which would result in consistency between the administrative and physical stocks. With the weekly analyses we start to see less and less stock differences, but it is too soon to analyse real results.

For Retail Dolfinarium we recommend to implement the procedures, but also to keep improving inventory management. Therefore we have some advices on how this improvement can be reached:

- Use the data from the inventory system to lead the Retail team more targeted.
- Focus leadership on improving the employees.
- Do research on forecasting demands.

Table of Contents

COLOPHON	I
ACKNOWLEDGEMENTS	II
SUMMARY	III
TABLE OF CONTENTS	V
1. INTRODUCTION	1
1.1 SITUATION AND COMPLICATION	1
1.2 RESEARCH OBJECTIVE	4
1.3 RESEARCH QUESTION	4
1.4 SUB QUESTIONS	4
2. CURRENT INVENTORY MANAGEMENT AT RETAIL DOLFINARIUM	7
2.1 RETAIL DOLFINARIUM	7
2.2 CURRENT PROCEDURES	8
2.2.1 Orders	8
2.2.2. Internal transfers	10
2.2.3 Sales	11
2.3 CURRENT INVENTORY MANAGEMENT	11
3. POSSIBLE CAUSES OF UNDERPERFORMANCE INVENTORY MANAGEMENT AT RETAIL DOLFINARIUM.....	12
3.1 INTERNAL RESEARCH	12
3.2 EXTERNAL RESEARCH	15
3.2.1 Catering Dolfinarium	15
3.2.2 Comparison Catering and Retail	16
3.2.3 Retail Walibi Holland	17
3.2.4 Comparison Walibi Holland and Dolfinarium	18
3.3 CAUSES UNDERPERFORMANCE INVENTORY MANAGEMENT RETAIL DOLFINARIUM	18
4. LITERATURE BACKGROUND	20
4.1 CREATING PROCEDURES	20
4.2 IMPLEMENTING CHANGE	23
4.3 IMPLEMENTING NEW PROCEDURES	27
5. SOLUTION AND IMPLEMENTATION	28
5.1 DEVELOPMENTS	28
5.2 CREATING PROCEDURES FOR RETAIL DOLFINARIUM	29
5.3 IMPLEMENTING CHANGE AT RETAIL DOLFINARIUM	31

6. CONCLUSION, DISCUSSION AND ADVICE.....	36
6.1 CONCLUSION	36
6.2 DISCUSSION.....	37
6.3 ADVICE.....	38
REFERENCES	40
APPENDICES	42
A. LOCATION ACCURACY	42
B. EXPLANATION CATEGORIZED EXAMPLES OF UNDERPERFORMANCE	43
C. EXAMPLE NEW PROCEDURE RETAIL DOLFINARIUM – INTERN TRANSFER FROM SHOPS.....	44
D. NEW PROCEDURES RETAIL DOLFINARIUM.....	47

1. Introduction

1.1 Situation and complication

Dolfinarium is an animal theme park with marine mammals, located in Harderwijk, in the center of the Netherlands. It is a subsidiary of Compagnie Des Alpes (further mentioned as CDA), a French company operating in ski resorts and theme parks in Europe and on the French stock exchange since November 1994 (Compagnie Des Alpes, 2014). During this research, Dolfinarium is purchased by another company (see Section 5.1). Dolfinarium is opened from the first of February until the 31st of October, and welcomes on average 600,000 customers a year. The organization is divided in different departments: Animals, Events, Entertainment, Catering, Retail, Park, Front-office, Marketing, Finance and HR. All departments are located at the animal theme park in Harderwijk.

The turnover of Dolfinarium is accomplished with the sales of entrance tickets, catering and the sales of souvenirs from Retail. Since these three sources of income provide almost all of the income of Dolfinarium, Dolfinarium depends on them. Therefore the departments behind these three sources of income need to be organized well. However, Dolfinarium does not have clear insight in the belongings and turnover of the retail department, and thus not in its profit. Therefore, this research considers the retail department of Dolfinarium.

Retail Dolfinarium is the department that sells souvenirs to customers. Since the target groups of Dolfinarium are young families, kids, school trips and company trips, the souvenirs of Retail Dolfinarium are mostly toys and stuffed animals for children. There are four different souvenir shops (see Figure 1) and one warehouse with two buildings next to the theme park.



Figure 1: Map of Dolfinarium, with the shops accentuated by author (Dolfinarium, 2014)

The yearly turnover of Retail Dolfinarium in the season 2014 was €1.44 million, on average this was €2.28 per visitor above 3 years old. Most of the turnover, 61.9%, is gained at Shop 1, see Table 1. This shop is close to the entrance and is always open when the park is open. Besides the four shops, Retail Dolfinarium makes and sells pictures of visitors. Furthermore, Retail Dolfinarium sells one specific product during the dolphin show.

Shop	Open	Turnover 2014
Shop 1	Always	61.9%
Shop 2	>1,000 visitors/day	16%
Shop 3	>3,500 visitors/day	4%
Shop 4	>3,500 visitors/day	6%
Dolphin show	2-5 times a day	10%
Pictures	>3,500 visitors/day	2%
		€1.44 million

Table 1: Percentage of turnover per Retail Shop, season 2014

Retail Dolfinarium works with an inventory system, called Futura, which all Retail departments within CDA use. In the souvenir shops there are digital cash desks, which work with another system: Freedom. This system is linked to the inventory system Futura. At this moment Dolfinarium does not really use Futura. Not all employees of Retail Dolfinarium know the procedures for stock transfers or know how to use the system to complete standard tasks. This causes that not all stock transfers are registered, which makes the data in the system inconsistent with the physical stock. As a consequence, Dolfinarium cannot use Futura properly, where other theme parks of CDA can.

Table 2 shows that Retail Dolfinarium, at the stock-taking of October 2012, had 188,185 products more in stock than expected, which is 90.7% of the actual stock. Table 3 shows this stock difference represented in Euros: in October 2012, Retail Dolfinarium had a total difference of €34,821. This implicates that the products have an average value of 20 cents, which is not the case. Further research teaches us that this difference can be explained by an incorrect use of the cash desk. When taking a closer look, see Appendix 1, we see that the differences between the shops and Warehouse are even bigger. For example, in October 2013 Warehouse had a difference of €-51,803, whereas Shop 1 had a difference of €48,871, which suggests transfers are not administrated correctly.

Table 4 shows that the percentage of the number of products that were on the exact same location physically as administrative in 2012 was 1.25%, in 2013 this was 1.74% and the total location accuracy in October 2014 was 6.18%. This is very low, it means that in October 2012 98.75% of the locations in Retail Dolfinarium had a difference between the physical and administrative stock.

	Expected stock in #	Actual stock in #	Difference in # (Actual – expected)	Percentage difference
2012	19,406	207,591	188,185	90.7%
2013	119,771	275,685	155,914	56.6%
2014	37,976	207,502	169,526	81.7%

Table 2: Difference in number of products between expected stock and actual stock, during yearly stock-taking

	Expected stock in €	Actual stock in €	Difference in € (Actual – expected)	Percentage difference
2012	249,035.76	283,874.83	34,821.07	12.3%
2013	448,120.14	453,380.25	5,260.11	1.2%
2014	372,330.23	365,574.30	-6,755.93	1.9%

Table 3: Difference in Euros between expected stock and actual stock, during yearly stock-taking

	# locations	# locations with correct stock	Location accuracy in %
2012	1841	23	1.25
2013	2295	40	1.74
2014	2507	155	6.18

Table 4: Location accuracy during yearly stock-taking

Right now it is not possible for Dolfinarium to compose a correct monthly financial report. For CDA this is necessary, since they need to be transparent for the French stock market. That is why the accountants of CDA check the correctness of the stock once a year.

Dolfinarium does not know exactly how much is sold of every product, because that is not registered correctly. Without this information, Dolfinarium cannot forecast how many products to order. This is a problem, because sold out products as well as oversupply, due to an incorrect forecast, are expensive for Dolfinarium. For example, some quick selling products were sold out at the end of August 2014. In Figure 2 a decrease in expenses is visible in September, which can directly be related to the absence of these quick selling products, because July, August and September normally are the busiest months.

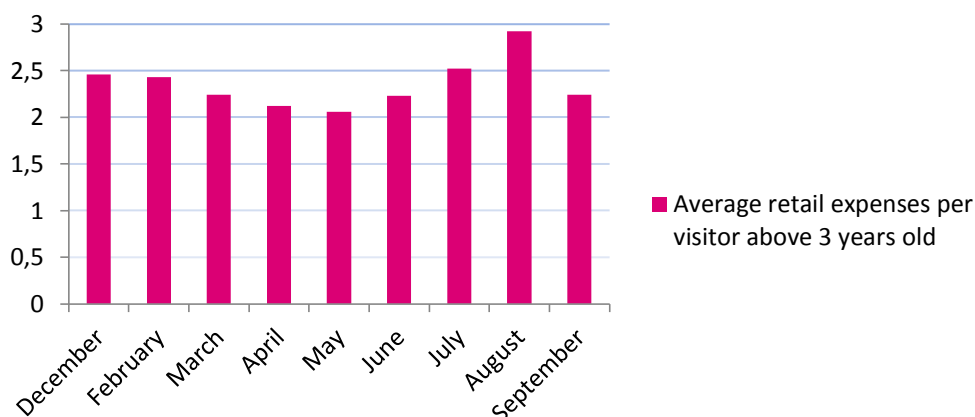


Figure 2: Average retail expenses per visitor per month of season 2014

The current situation and complication at Retail Dolfinarium is:

- Dolfinarium depends on the turnover of Retail;
- Registration in the system is incorrect;
- Location accuracy is very low;
- It is not possible to compose a correct financial report;
- There are sold out products, as well as oversupply;
- It is not possible to forecast demands.

From this situation, we conclude that there is an underperformance at Retail Dolfinarium, since the administrative stock is not consistent with the physical stock.

1.2 Research objective

The goal of this research is to improve inventory management at Retail Dolfinarium, ensuring the administrative stock to be consistent with the physical stock. To achieve this goal the theory of this research focuses on how to best manage inventory within a retail organization, regarding technical and human aspects. The technical aspects focus on processes within inventory management and the human aspects focus on the employees who work with the inventory.

1.3 Research question

The current difficulties at Dolfinarium lead to the following research question:

How can inventory management be improved at Dolfinarium to ensure the administrative stock to be consistent with the physical stock?

In this research we define inventory management as the management of the processes that deal with stocked goods at different locations within Dolfinarium, the amounts of these goods, the transfer of stocked goods, ordering of new goods, sales of goods, inventory valuation, and location accuracy. It includes an ERP system that reports the actual and projected inventory status. Therefore, this research is about the administrative system as well as the responsibilities of the people involved. Demand forecasting, and the determination of safety stocks lie out of the scope of this research. The importance of inventory management lies in correct data and transparency.

1.4 Sub questions

To answer this research question, the question is divided into several sub questions. In the description below the sub questions, the research method is briefly described.

To understand how inventory management at Retail Dolfinarium can be improved, it is necessary to first understand how Retail Dolfinarium currently is managing their inventory. Chapter 2 describes the first sub question:

1. How is the inventory of Retail Dolfinarium currently managed?

This question is answered by using information supplied by Dolfinarium, the Retail employees, the Warehouse employees and the inventory system. In addition, the information is gathered by working at the operational side of Retail Dolfinarium, by interviewing employees of Retail and Warehouse, by leading the yearly stock-taking, and by attending meetings. By interviewing the manager Warehouse, administrator, manager Retail, assistant manager Retail, team lead Retail, and some shop employees, we can find out what the current way of working with inventory is and if this is done the same by everybody. By leading the yearly stock-taking, we can find out how correct the administrative stock is right now.

Now it is clear how the inventory management of Retail Dolfinarium is managed currently, we investigate what the possible causes of the underperformance, explained in Section 1.1, are and if these are incidentally or frequent. In Chapter 3 we answer the second sub question:

2. What are possible causes of underperformance of inventory management at Retail Dolfinarium?

To answer this question, Chapter 3 starts with a definition of underperformance. In Chapter 2 the procedures of Retail Dolfinarium are described, this information is analyzed to answer the second sub question in Chapter 3. Therefore in-depth interviews are done, and stock differences are analyzed. These in-depth interviews are specific on certain stock differences. In addition, the practical experiences of comparable companies within CDA are investigated and described in the second part of Chapter 3.

After Chapter 3, we know what the current processes at Retail are and we have identified the problems that lead to the underperformance of inventory management. The next step is to study literature regarding solutions to these problems. This leads to the following sub question:

3. What is, according to literature, the best way to address the problems identified with sub question number two?

Which literature is used, is dependent on the outcome of sub question 2. Since it probably leads to changes within the organization, change management is one of the literature subjects. In this section we argue how to successfully implement a certain change within organizations.

Based on the advantages and disadvantages of the theoretical and practical models from Chapter 4, an inventory management model for Dolfinarium is developed in Chapter 5, which answers the sub question:

4. *What changes can best be implemented at Retail Dolfinarium to improve inventory management in order to obtain and maintain consistency between administrative and physical stock?*

The answer to this sub question is used to answer the main research question and to give recommendation about the best improvements for Retail Dolfinarium. These conclusions and recommendations are found in Chapter 6, as well as a discussion about the study.

2. Current inventory management at Retail Dolfinarium

This chapter answers the first sub question: *How is the inventory of Retail Dolfinarium currently managed?* In the first section the chart of Retail is described to understand how the department is organized. In the second section the current procedures of inventory management at Retail Dolfinarium are described and visualized, separated into three different processes: orders, internal transfers and sales.

2.1 Retail Dolfinarium

To describe how the inventory of Retail Dolfinarium is managed currently, one first needs to understand how Retail Dolfinarium is organized within Dolfinarium. Retail is a part of Operations Dolfinarium as shown in Figure 3.

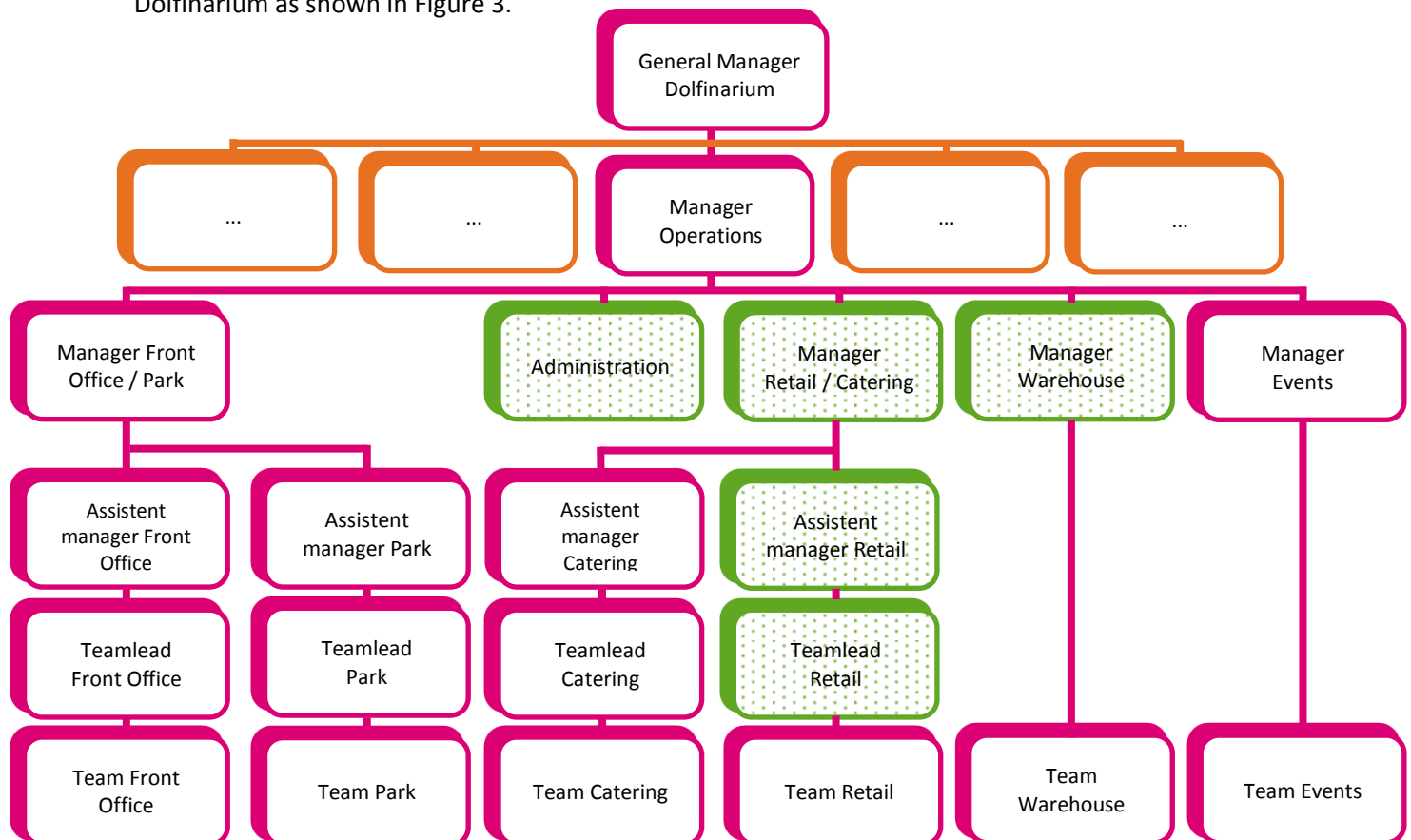


Figure 3: Chart of Retail within Operations, designed by author, season 2014

At the beginning of this research, Operations had one manager, who was responsible for the departments Front Office, Park, Catering, Retail, Warehouse and Events. Retail had one manager, who was manager for Catering as well. For Retail there were a manager assistant and two team leads. With the three of them they were responsible for the Retail team, the sales and turnover of Retail, the internal transfers of products and they used to be responsible for purchasing Retail products. Since the summer of 2014, Dolfinarium switched this responsibility of purchasing Retail

products to team Warehouse. The manager Warehouse has a better overview of how many products are still in stock and which products to order. The people who work with the inventory system, are the manager Retail, assistant manager Retail, team lead Retail, Administrator and the manager Warehouse, in Figure 3 they are indicated with the green shading.

2.2 Current procedures

To understand how the current procedures within Retail are, we conducted interviews with all the employees who have direct contact with the Retail inventory, which means everyone who is indicated with the green shading in Figure 3 and the employees of the shops and Warehouse. Those interviews in combination with working along at the operational side, led to the insight that procedures are not written down, that nobody knows the whole procedure for one workflow and that some procedures are explained differently by different employees. The first step is to write down how workflows are currently managed and to form them into procedures. We choose to show the processes with Cross-Functional Process Mapping (CFPM) (Rummler & Brache, 1990). This is a suitable method for the Retail Dolfinarium processes, because the processes cross several functions.

2.2.1 Orders

Within Retail Dolfinarium, there are two types of orders at suppliers: weekly or yearly. The weekly orders are at Dutch suppliers, who have the products in stock. The yearly orders are mostly at international suppliers who make the products especially for Dolfinarium.

There is a difference in process between the yearly orders and the weekly orders. For the yearly orders (Figure 4), in October/November the manager Retail decides how many to order of each product, sometimes this happens in co-operation with CDA. Most products are ordered at the same supplier as the year before. Once every three or four years, the manager looks around if there are better or cheaper suppliers. After the manager Retail decided how much he would like to order, he fills in a Purchase Order form (further mentioned as PO). This PO needs to be signed by the manager Operations, who has the end responsibility for the budget of Operations. Once he signed the PO, the manager Retail can order the products at the supplier, and the PO goes to Administration. The administrator inserts the purchase in the inventory system and sends the PO to Finance. When Finance also receives the invoice from the supplier, Finance compares this invoice with the PO and pays the supplier. Around February the purchased goods are delivered in shipping containers at Warehouse with a delivery note. The manager Warehouse checks the delivery with the delivery note and compares the delivery with the order in the inventory system. When the delivery is exactly the same, he can approve the order in the inventory system which ensures the administrative stock to

add up. When there is a difference in amounts, the manager Warehouse needs to change the order in the inventory system before approving it. After approval, the physical and administrative stocks at Warehouse are consistent.

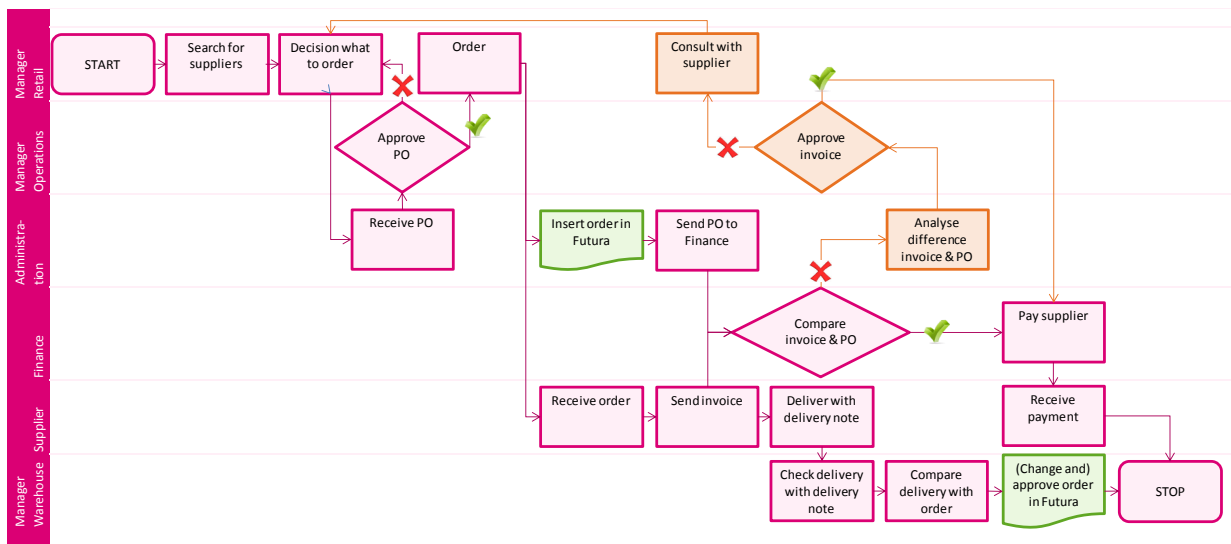


Figure 4: Current procedure yearly ordering at suppliers

For the weekly or monthly orders the beginning of the procedure is slightly different (Figure 5). The manager Warehouse decides what should be ordered, he does this based on gut feeling and experience. The manager Warehouse has to fill out a PO, this has to be approved by the manager Operations and after he signed it, the manager Warehouse can order the products at the supplier. The PO goes to Administration, where it is entered in the inventory system of Retail Dolfinarium and sent to Finance. The moment Finance also receives the invoice from the supplier, Finance compares this with the PO and pays the supplier. When the products are delivered at Warehouse, the manager Warehouse compares the delivery with the delivery note and the order and approves the order in the inventory system. This ensures that the stock is administrative and physical at Warehouse.

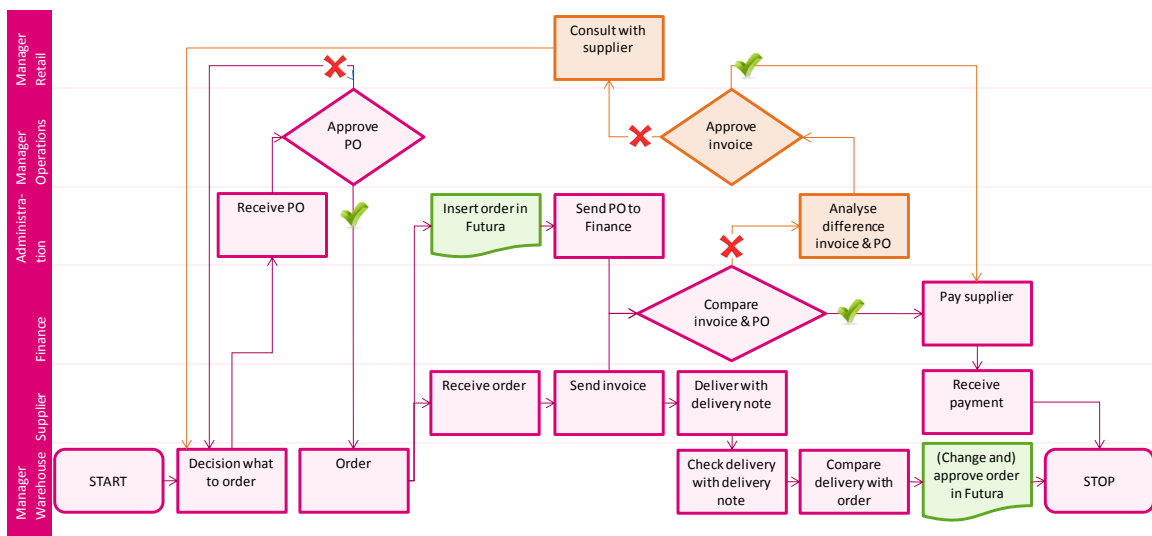


Figure 5: Current procedure weekly ordering at suppliers

2.2.2. Internal transfers

To get products from the warehouse to another location in Dolfinarium, for example a shop or a department, there has to be an internal transfer. The physical transfer is getting the products to the shop or the department. The administrative transfer has to be done in the inventory system. Nothing can be sold directly from Warehouse. There are three types of internal transfers: for selling at the shops, for departments using retail products and for group selling at entrance.

A shop is selling products to customers the whole day, at the back of the shop there is a small storage, so the shop employee can refill the shelves during the day. At the end of every day the shop employee decides what needs to be delivered from Warehouse to the shop to have enough stock for the next day (Figure 6). He fills in an order list, based on experience and gut feeling. He puts the order list on top of the crates that were delivered that morning. These crates go back to Warehouse. Together with the order list for tomorrow, the shop employee adds the ordered list of today. The employees of Warehouse drive to the shops every morning to pick up the crates together with the ordered list of yesterday and the order list of today. The order list of yesterday goes to the manager Warehouse, so he can insert the internal transfer of yesterday from Warehouse to the shop in the inventory system. With the order list of today the Warehouse employees fill new crates with the requested products. They put the actual delivered amounts of each product on the order list, then they drive the crates with the requested products and the order list to the shop. At the shop the employee has to check the order list with the delivered products, after which he can fill the shelves with the products. In the evening the order list again goes back to Warehouse, where the order will be processed in the inventory system tomorrow.

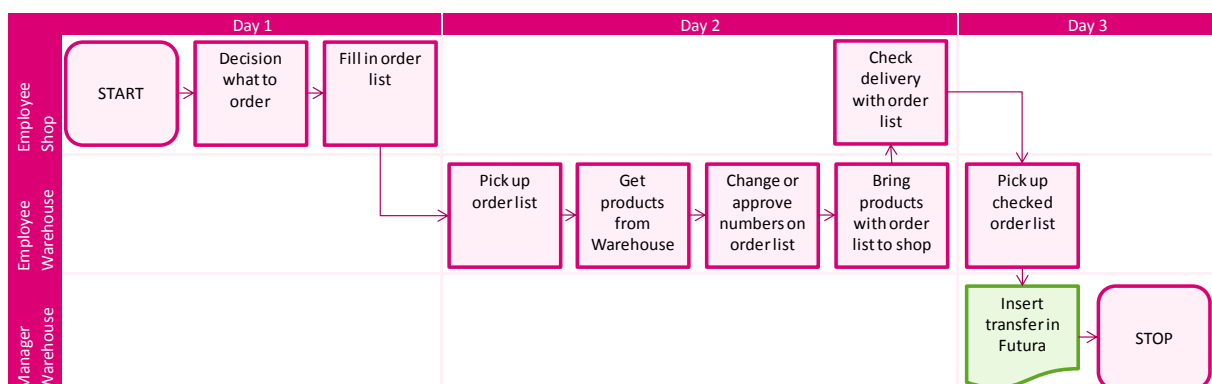


Figure 6: Current procedure internal transfer shops

It is also possible that other departments of Dolfinarium use some retail products, for instance to make a present for an employee, or to give to organizations or potential big customers. For these cases specific procedures are not yet available, while they are rather common. The used products should be registered in Futura at the right department, because every department within

Dolfinarium has an own payment number within Futura. In that way, at the end of the financial book year, each department pays their due to Retail. But in practice nobody really knows how this procedure works and nothing is registered and paid.

The same goes for transfers to groups. Sometimes a group of visitors orders not only entrance tickets, but also some extra souvenirs. For example an organization that wants a mug for all their employees. They pay this in front, together with the entrance tickets. Nobody from Retail exactly knows how to process this order and how to register this in Futura.

2.2.3 Sales

Before this season Retail did not always use the cash desks in the shops to scan each product; lots of products could not be scanned, because they were not in the system or gave an error. This season there is better data about the sales of each product, almost every product in the shop can be scanned at the cash desk. So Retail now starts to have an insight in how many of each product is sold within a certain amount of time. But on the cash desks are still buttons for each product, so the shop employee can always press a button for selling a product, instead of scanning the product. This happens for example when a child holds the toy and does not want to give it to the shop employee to scan, or when a barcode is fallen off the product. By pressing a button, the employee could easily choose the wrong button, because names of products are a lot alike. In this case another product is sold administratively than physically.

2.3 Current inventory management

In this chapter we studied the current procedures of Retail Dolfinarium considering inventory management. We conducted interviews with all employees involved, and worked along at the operational side to discover the processes and procedures. The most important conclusions are that not any procedure is written down, that nobody knows the whole procedure for one process, and that some employees explained the procedure differently than others. This means that the current procedures are not always exactly followed as described in the designed Cross-Functional Process Maps.

3. Possible causes of underperformance inventory management at Retail Dolfinarium

In Chapter 1 we showed that Retail Dolfinarium currently has an underperformance regarding inventory management. In Chapter 2 we described and visualized how inventory at Retail Dolfinarium is currently managed. In this chapter we analyze what possibly caused this underperformance and therefore we answer the second sub question: *What are possible causes of underperformance of inventory management at Retail Dolfinarium?*

Therefore we first need to define underperformance. Hommes et al. (2009) describes that underperformance occurs when a factual situation is in discrepancy with a desired situation. For Retail Dolfinarium we found that the location accuracy has been maximum 6.2%, which we defined as low. In Section 3.1 we identify where the exact problems are at Retail Dolfinarium and what causes the bad location accuracy. To compare this location accuracy we analyze similar organizations as discussed in Section 3.2. After this comparison we can define a norm for the performance indicator location accuracy at Retail Dolfinarium. When scored above this norm, we talk about overperformance, but when the location accuracy scores below the norm, we consider this as underperformance.

3.1 Internal research

By gathering information from the inventory system and comparing this with paperwork (order lists, delivery notes, invoices etc.), we can see what the performance of the current inventory management is and how correct the data are.

In addition, every week, we export a list from Futura with all products that have a negative stock. For each product we analyze what happened and how it is possible that the product got a negative stock. These lists are specified for each shop and for Warehouse.

At the end of September 2014, a stock-taking is done and the correct physical stock for each product is inserted in Futura. After this stock-taking, we analyze all the products that have a stock of zero; it is possible that some products are in the system twice with different reference numbers, or products are not in assortment anymore. In such way we can delete all the products from Futura that are not used anymore, which gives an overview of all the products of Retail Dolfinarium and gives structure to the administration.

From working along on the operational side of Retail Dolfinarium, from all the interviews and from the above mentioned techniques, we have found different examples of the underperformance. After listing them, we categorize the underperformances under 4 main subjects:

- Administration is not structured
- Employees do not know the procedures
- Employees do not know how to work with the inventory system Futura
- Employees do not follow agreed procedures

In Tables 5, 6, 7 and 8 those categorized examples of underperformance, and the number of occurrences, are listed. All these categorized examples are not accidental underperformances; during the study they occurred frequently, for different products, and by different employees.

In the first column in the four tables it is stated how often these problems at least occurred in 2014, so we can categorize which underperformances are most important to change. In Table 5 there are two problems that are caused by another underperformance, in such way that it would not be useful to improve one of the caused problems, without improving the main problem.

Administration not structured	
Occurrences 2014	Underperformance
36 products	Purchase prices in Futura differ from actual purchase prices
1444 units	When a supplier retakes products, it is not registered in the order list (see App. 2.1)
	Retail uses different Excel lists (stock lists, order lists, location lists, supplier lists), the reference numbers of the products are not consistent on these lists (see App. 2.2)
4 products	- Products are twice in the system with different codes
9 products	- Barcodes are printed for the wrong product or with a typo → wrong barcode on product
79 products	Products do not have a barcode, and therefore cannot be scanned at the cash desk
6 products	The button on the cash desk is linked to a wrong reference number or wrong product

Table 5: Underperformance administration not structured

Employees do not know procedures	
Occurrences 2014	Underperformance
15x >100 units	Group of visitors wants to buy a Retail product in advance, together with their entrance tickets, transfer is not registered in Futura
3000 units	Products sold at dolphin show that are damaged and need to be returned to supplier (see App. 2.3)
Unknown	Other departments use Retail products and do not register this

Table 6: Underperformance employees do not know procedures

Employees do not know how the inventory system works	
Occurrences 2014	Underperformance
Daily	Internal transfers are not completed in Futura, because employees did not know it had to be done manually by a special button
Weekly	Damaged products are not inserted correctly in Futura
Weekly	In Futura an internal transfer automatically starts at Warehouse. When an internal transfer takes place from another location, the employee has to change this himself
Continuously	Employees do not know they can print all kinds of lists from Futura

Table 7: Underperformance employees do not know how the inventory system works

Employees do not follow procedures	
Occurrences 2014	Underperformance
Monthly	Employees already order at supplier before Operational Manager gives permission
Weekly	Deliveries are not checked with the order and the delivery note
Weekly	Deliveries are not validated and registered in Futura
Monthly	When there is a difference between an order and a delivery, this is not changed in Futura
Daily	Order lists from the shops are, in the shop, not checked with the actual delivery from Warehouse
Weekly	Order lists from the shops do not arrive at Warehouse and therefore are not inserted in Futura
Weekly	Employees take products from Warehouse without filling in an internal transfer list
Weekly	Products are transferred between shops without filling in an internal transfer list
115 units daily	Employees in the shop do not scan the barcode of a product, but use the button on the cash desk
11273 units	With the stock-taking not all products are counted

Table 8: Underperformance employees do not follow procedures

All the frequent underperformances were caused by the human impact. For the last three categorized subjects of underperformance this is more obvious than for the first subject. But the administration not being structured is also due to employees who once inserted this administration in the systems or made wrong lists. During the study we have found two accidental examples of underperformance that were not caused by the human impact, but by the system. Both of those problems were registered at the system developer, to be improved immediately.

The fact that employees do not follow the agreed procedures could be due to a lack of motivation of the employees or their attitude towards inventory management, but it could also mean a lack of leadership towards these procedures. During the research we worked along on the operational side and noticed that the team leads did not know the procedures as well and never taught their team about it. Several employees stated in the interviews that they did not follow procedures, “because

the stocks were not right in the inventory system anyway". So they have the feeling it does not matter, because the inventory management is not structured at the base. This is not only due to a lack of commitment and leadership, but also to a lack of knowledge and of insight in the inventory system and its importance. Since the procedures within Retail are not structured and incorrect, there are no strict procedures about Retail inventory within all the other departments of Dolfinarium. Therefore, other departments of Dolfinarium, such as the animal department, HR or Marketing, do not know what the procedures are about using Retail products.

3.2 External research

For this research, inventory management within Retail Dolfinarium is compared with inventory management within Catering Dolfinarium and with inventory management within Retail Walibi Holland, see Table 9. Although Walibi Holland uses the same system and is also a subsidiary of CDA, they possibly have different procedures. With these comparisons we can see if underperformances are due to employees, due to the inventory system, or due to both.

Catering Dolfinarium	Retail Walibi
Exact same people work with inventory system	Different people work with inventory system
Different inventory system	Exact same inventory system

Table 9: Comparison companies for external research

3.2.1 Catering Dolfinarium

Catering Dolfinarium also has inventory management: they have to order products, products are sold and there is even more waste of products at Catering than at Retail. But for some reason, the inventory of Catering is better organized; in 2014 the location accuracy was 84.7%, the stock differences are analyzed every month and the procedures are more known all over the organization. Catering Dolfinarium uses an inventory system, called Rest Office. This system is developed especially for catering departments. In Rest Office all products of Catering, but also combinations of products are registered. For instance when a cup of coffee is sold, this is a combination of a cup, coffee beans, and hot water. A specific problem with Catering is that purchase prices could differ each day for fresh products, which is also adjustable in Rest Office.

When comparing the procedures of weekly orders for Catering and Retail Dolfinarium, we can see that the exact same employees are responsible. The difference here with Catering Dolfinarium is that fewer departments are involved; at Catering the whole procedure is done by the Manager Warehouse and by Administration (see Figure 7). These fewer lines might cause a better overview in the process.

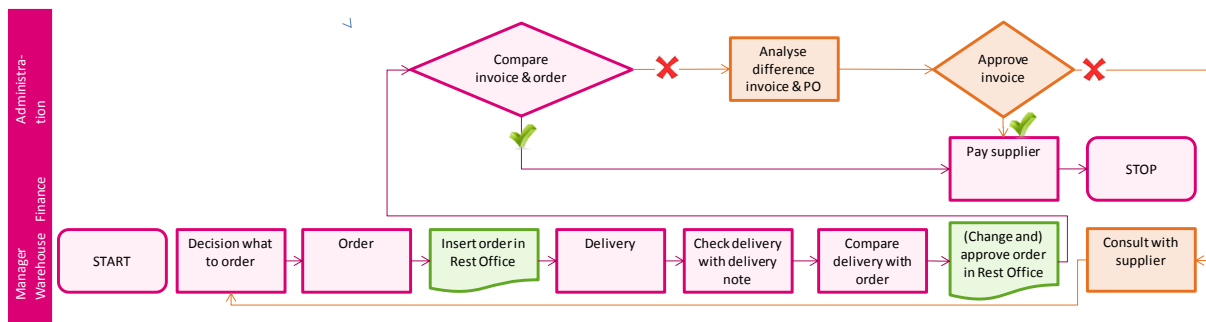


Figure 7: Procedure weekly orders Catering Dolfinarium

3.2.2 Comparison Catering and Retail

Rest Office is introduced by CDA, all the employees who were supposed to work with the system got courses and trainings. From that moment on Catering Dolfinarium was obliged by CDA to use the system. From CDA there are monthly audits considering Rest Office. Since CDA puts a lot of stress on Rest Office, the focus of Dolfinarium was also on Rest Office and less on Futura for Retail. Futura is also a system that has been introduced by CDA, but with Futura there was less stress from CDA to use it. The importance and the added value of using Futura was never explained. There also was no check on the stocks, there is not even a check if Retail Dolfinarium uses Futura. The people interviewed state that the employees of Dolfinarium work less seriously with Futura than with Rest Office, maybe because CDA did not make Futura as important as Rest Office. Retail Dolfinarium does not have to justify the stock differences like Catering Dolfinarium has to, so there was never motivation from Retail Dolfinarium to dive into Futura and fully understand the system. Because the system is rather devious and difficult to understand, Retail Dolfinarium never knew what the system was capable of.

Another difference between Retail Dolfinarium and Catering Dolfinarium is the way of counting the articles at stock-taking. Retail counts all articles exactly, were Catering counts the exact boxes and makes estimations about open boxes. This might cause a slight difference in the exact location accuracy. Where at Retail Dolfinarium the difference of one toy has an influence on the location accuracy, at Catering Dolfinarium the difference of one gram of coffee does not have influence on the location accuracy since it could be due to the estimation.

In the interviews about the procedures of Catering Dolfinarium versus Retail Dolfinarium, the Administration employee and the Manager Warehouse indicated that they had the feeling that the former Team leads Retail and Assistant Manager Retail wanted to have everything in their own hands; they maybe had a problem with sharing the procedure with the Manager Warehouse and with Administration. The Administrator and the Manager Warehouse had the feeling that the Team

leads Retail wanted to be the only ones responsible for Retail Dolfinarium. So the communication between Retail Dolfinarium and Administration and Manager Warehouse was not perfect and Administration and Warehouse were not always involved with procedures. At Catering Dolfinarium, these problems did not occur, because the Team leads Catering are not responsible for inventory management.

To conclude the biggest differences between inventory management Catering Dolfinarium and Retail Dolfinarium are not the people who work with the systems, but the systems and the way they have been used. This starts at the attitude from CDA, through the management of Dolfinarium up to Retail and Catering and the whole organization.

3.2.3 Retail Walibi Holland

Walibi is an attraction park and also a subsidiary of CDA. Retail Walibi has several shops and a warehouse on the park and they work with the same inventory system as Dolfinarium: Futura.

Retail Walibi has procedures for all the processes, and all Retail employees know what is expected from them considering these procedures. Retail Walibi has one employee fulltime responsible for registration in the inventory system and therefore Retail Walibi spends a lot of time in analyzing the data from this system. They do not only look at negative stocks, but also at sales numbers and differences in sales in the different shops: 'Why does a certain product not sell at one shop, but does it sell at another shop?' They compare these sales with the amount of visitors on that day, but also with who was working in that shop that day.

Walibi's most popular product is the picture sold at the rollercoasters, they make a lot of profit with this product and it does not have any influence on their inventory management. Because of this the turnover of Retail Walibi is higher than the turnover of Retail Dolfinarium. Therefore, Walibi has more space for personnel costs and has two Assistant Managers Retail, two Supervisors Retail and four Team leads Retail. This ensures they have more time to lead the Retail team and help the employees to develop themselves. This might explain why Retail Walibi employees are more familiar with the procedures, because the team leads are walking around between the different shops the whole day to lead the shop employees. They discuss the Futura analyses with the employee, they improve the employee on their active selling competences, and they check the shop and ask why the employees made certain decisions. In that way the employees learn how they are supposed to do their job, they know what is expected from them. For the Team lead this makes it easier to address the employee on their behavior and to point out the procedures for the employees. Also the use of

daily Futura analyses helps in coaching the team. With daily analyses the employee might remember what caused the occurred difference of the day before and immediately can learn how to handle next time.

At Walibi the Manager Warehouse is not working with Futura, he does not understand the system and rather works with an Excel list with all the products and their current stock. When there is stock movement, he changes the amount of the product in the list. The piece of paper with the stock movement goes to the employee who inserts them in Futura, so the stock in Futura is up to date as well. The Excel list the Manager Warehouse uses is actually more work, the Manager Retail mentioned in the interview that they have the intention that the Manager Warehouse will work with Futura as well at the end of this season. Hence, at Walibi there are three employees who work actively with Futura and two employees who occasionally work with the system.

3.2.4 Comparison Walibi Holland and Dolfinarium

The target audience of Walibi is different from Dolfinarium; their visitors are mostly teenagers, where Dolfinarium focuses on young families, and Retail Walibi makes a lot of profit with selling pictures at the rollercoasters. But as inventory system Retail Walibi also uses Futura, and Retail Walibi also has several shops and one warehouse. It is not possible to compare the location accuracy of Retail Walibi, since Retail Walibi does not want to share their location accuracy.

Retail Walibi has more space in their personnel costs due to the sales of pictures in the rollercoaster. Therefore there are more Assistant Managers Retail, Team Leads Retail and even Supervisors Retail. This gives Retail Walibi the opportunity to have time for their employees, to coach and improve them and to analyze data from the inventory system. Next to that Retail Walibi has one employee who inserts and analyzes all data in Futura. In that way Retail Walibi has a strong focus on their inventory management and insight in the stock differences. The only one who is not working with Futura, is the Manager Warehouse, he uses an Excel list for his stock, and the Futura employee inserts his transitions in the system.

3.3 Causes underperformance inventory management Retail Dolfinarium

To set the performance indicator of location accuracy, we wanted to compare this with similar organizations. Since Retail Walibi did not want to share their location accuracy, we can only use the location accuracy of Catering Dolfinarium as reference. Over 2014 Catering Dolfinarium had a location accuracy of 84.7%. Therefore the ultimate norm for performance indicator location accuracy would be 80%. But for a first step from 6.2% this could be unreachable, therefore we first set the

goal on 50%. This is the goal we want to achieve with the location accuracy of Retail Dolfinarium. When scored less than 50%, there is an underperformance. In Section 1.1 we found that the location accuracy of Retail Dolfinarium in the last three years had a maximum of 6.2%, which means this is an underperformance. In this chapter we studied the causes of this underperformance at inventory management Retail Dolfinarium. These causes are:

1. Administration is not structured
2. Employees do not know procedures
3. Employees do not know how the inventory system works
4. Employees do not follow procedures
5. Lack of control from CDA
6. Lack of leading the Retail employees and improving them
7. Problems with communication between Retail, Warehouse and Administration
8. Lack of analyzing data from inventory system

Some of these causes are closely linked to each other. For instance when employees do not know the procedures, they do not follow them either. And since the procedures are not followed, the administration is not correct and the team leads do not have data to use for targeted leading the team. On the other hand, because there is a lack of leading and improving the team, the employees do not know or follow the procedures. This shows that causes 2, 4 and 6 are linked with each other.

From these causes the second cause 'employees do not know procedures' and the fourth cause 'employees do not follow procedures', result in the biggest stock differences and are therefore the most important causes of underperformance. Procedures can ensure unity in tasks, abate confusion and clarify a process (Reed, 2008), in that way administration should get structured. For Retail Dolfinarium this would result in consistency of administrative and physical stock.

From the interviews it became clear that the sixth cause 'lack of leading the Retail employees and improving them' is an important problem considering improving inventory management at Retail Dolfinarium. When there are clear procedures, management has guidelines to use for leading their team. Especially when data is analyzed from the inventory system, management knows where the biggest problems occur.

So the most important causes of underperformance that need to be improved are 'employees do not know procedures', 'employees do not follow procedures', and 'lack of leading the Retail employees and improving them'.

4. Literature background

Literature is described, to give an answer to the third sub question: *What is, according to literature, the best way to address the problems identified with sub question number two?* In Section 3.3 the most important current problems that cause underperformance in inventory management of Retail Dolfinarium have been described. The most important problems are:

- Employees do not know procedures
- Employees do not follow procedures
- Lack of leading the Retail employees and improving them

Hence for Retail Dolfinarium it is important not only to have clear procedures, but also to have all the Retail employees work and maintain working with these procedures and care about inventory management. This leads to a literature focus about creating procedures (Section 4.1), and about implementing change within an organization (Section 4.2). In Section 4.3 these two topics are combined to implement new procedures within an organization. When new procedures are implemented, they can be used as guidelines to lead the Retail employees and improve them.

4.1 Creating procedures

Where people work, mistakes are made, but within an organization it is preferable to have as few mistakes as possible. Lim et al. (2011) refer to implementing procedures to facilitate the integration of human factors within processes, since the human factor is the main cause of mistakes. Procedures are described as 'on going processes with unlimited ending time frames' (Howard, 2005), 'detailed, written instructions to achieve uniformity of the performance of a specific function' (International Conference on Harmonisation, ICH), and 'a document written to support a policy directive' (Smith, 2002). A policy is defined as 'the means or guidelines set by a group of people/institutions to achieve a goal or solve a problem through a defined set of activities and involving consensus' (Corkery et al. 1997). The procedure is designed to describe who, what, where, when and why by means of increasing organizational liability and transparency in support of the implementation of a policy (Dyson et al. 1999). The difference between policies and procedures is that policies provide guidelines, and the procedures tell how to practice these guidelines. Procedures are often instructional, precise, factual, short and to the point.

Corkery et al. (1995) state that there are eight stages of a policy process: problem recognition, agenda setting, problem formulation, formulation of evaluating criteria, creating alternatives, policy forming, policy implementation and policy evaluation. Clay & Schaffer (1984, p.4) add that 'the implementation of policy is a vital part of the policy making process'. According to Lindblom &

Woodhouse (1993, p.11) this is because ‘implementation always makes or changes policy to some degree’. The implementation of a policy is done by formulating procedures and having everybody work with these procedures, this is achieved by incremental steps (Lindblom & Woodhouse, 1993).

When creating procedures it is important to find a balance between too tight and restrictive procedures, which might cause bureaucracy, and vague procedures which are lacking in detail so the tasks are not clear for everybody (Dyson et al. 1999). It is important that there is a reason to create a procedure, not everything needs a procedure, because then they might be ignored (Manktelow et al., 2006). A written procedure is necessary only if the issue is important or if there is a significant benefit from clarifying a process. A procedure is needed when a process:

- Is lengthy
- Is complex
- Is routine, but it is essential that everybody strictly follows rules
- Demands consistency
- Involves documentation
- Involves significant change
- Has serious consequences if done wrong

Dyson et al. (1999) wrote a book on how to write policies and procedures. This book, together with the book of Daft (2001) led to 16 steps to write and implement procedures (see Table 10).

Part 1. Formatting procedure	
1.1 Choose format	<p>Use pre-existing procedures as a template. If there are none in the company, these are the options:</p> <ul style="list-style-type: none"> - A simple steps format. This is for routine procedures with limited possible outcomes. - A hierarchical steps format. This is for long procedures, involving a few decisions to be made. - A flowchart format. If the procedure is like a map with a large number of possible outcomes.
1.2 Consider the audience	<ul style="list-style-type: none"> - The audience’s prior knowledge. Are they familiar with the organization, its procedures and terminology? The language needs to match the knowledge and investment of the reader - The audience’s language abilities. Include annotated pictures and diagrams if there are readers who do not speak the procedure’s language. - The size of the audience. If multiple people at once are reading the procedure (those in different roles), the format of the document should more be like a conversation in a play: user 1 completes an action, followed by user 2, etc. That way, each reader can see what the bigger picture is.

1.3 Consider own knowledge	The one with the knowledge about this procedure should write it, he should know what the process entails. An inaccurate procedure reduces productivity and leads to organizational failures. If nobody has all the knowledge, interviews are needed with employees involved.
1.4 Decide between a short or long-form procedure	If writing a procedure for a group of individuals that are familiar with protocol, terminology, etc., and just would benefit from a short procedure that is more like a checklist, use a short-form.
1.5 Keep the purpose of the procedure in mind	Is there a specific reason why this procedure is particularly useful? Is it used on a day-to-day basis? Some reasons could be: <ul style="list-style-type: none"> - To ensure compliance standards are met - To maximize production requirements - To ensure the procedure has no adverse impact on environment - To ensure safety - To ensure everything goes according to schedule - To prevent failures in manufacturing - To be used as training document
Part 2. Writing procedure	
2.1 Cover the necessary materials	<ul style="list-style-type: none"> - Title page - Table of contents - Quality assurance / Quality control - Reference
2.2 Make sure to cover:	<ul style="list-style-type: none"> - Scope and applicability - Methodology and procedures - Clarification of terminology - Health and safety warnings - Equipment and supplies - Cautions and interferences
2.3 Make writing concise and easy to read	Keep it short and clear, otherwise the users' attention strays or they find the procedure formidable and hard to grasp.
2.4 If necessary, interview the personnel involved in the process on how they execute the task	Without the right information, the procedure is inaccurate. Therefore multiple sources should be asked, covering all roles and responsibilities. One team member may not follow standard operating procedure or another may only be involved in a specific part.
2.5 Break up large chunks of text with diagrams and flowcharts	Make a procedure easy to read with some sort of chart or diagram.
2.6 Make sure each page has control document notation	Probably the procedure is one of many procedures, in order to find each procedure, each page should have a short title or ID-number, a revision number, date and 'page # of #'

Part 3. Ensuring success and accuracy	
3.1 Test the procedure	Have someone with a limited knowledge of the process use the procedure to guide them. If they run across any issues, address the issues and make the necessary improvements
3.2 Have the procedure reviewed by those who actually do the procedure	Allowing the personnel to get involved and feel like they are part of the process makes them more likely to accept this procedure. They might have some great ideas as well.
3.3 Have the procedure reviewed by advisors and Quality Assurance Team	The advisors check if the procedure meets formatting requirements, if there is anything missing, and they make the procedure official.
3.4 Once approved, start implementing the procedure	This may include executing a formal training for the personnel involved
3.5 Be sure the procedure remains up-to-date	If the procedure gets out dated, update it, get the updates re-approved and documented, and redistribute the procedure as necessary.

Table 10: How to write and implement a procedure (Dyson et al. (1999), Daft (2001))

4.2 Implementing change

When implementing change, one first needs to have clear what change is. Quattrone & Hopper (2001) define this as follows: ‘Change is the passage of an entity, whether an organization or accounting practices, from one identifiable and unique status to another’. Ortiz (2006) describes change as a movement out of a current state, through a transition state to a future state. According to Kotter and Schlesinger (2008) ‘there is nothing more difficult to carry out, nor more doubtful of success, nor more dangerous to handle, than to initiate a new order of things’. Therefore, change needs to be planned for a successful implementation. Change management is the way of planning a change implementation. While change is about moving to a future state, change management is about supporting individual employees affected by the change through their own transitions (Ortiz, 2006).

In 1951 Kurt Lewin designed a 3-step model about organizational change. According to Lewin (1951) a successful change project involves three steps: unfreezing, movement and refreezing (see Table 11). The first step, unfreeze, is about unlearning old behavior. A way to establish this is destabilizing the current situation. The step of unfreezing creates uncertainty, hereafter employees can be moved in the new direction, which is the second step. In this step it is important for employees to understand why changing is important, and employees need to know how they can benefit from the change. This should lead to a new behavior. The third and last step is about refreezing this new behavior. This refreezing often requires changes to organizational culture, norms, policies and practices. In that way the new behavior becomes the status quo (Burnes, 2004). Lewin (1951) saw

behavior within organizations not as a static, motionless habit or pattern, but as a dynamic balance of forces working in opposite directions. According to this, change takes place when an imbalance occurs between the sum of the forces against change (restraining forces) and the sum of the forces for change (driving forces). A force field analysis assumes that any social situation is a balance between these forces (Lewin, 1951).

Organizations that want to apply organizational changes, but do not have the resources like time and money can use the tipping point theory (Kim & Mauborgne, 2003). This theory states that ‘once the beliefs and energies of a critical mass of people are engaged, conversion to a new idea will spread like an epidemic, bringing about fundamental change very quickly’. Within this theory, management is of great importance, because change requires leadership (Kotter, 1995); managers are the initiators of change. They have to make sure that the resources are used efficiently, that employees feel the need for change, that they mobilize the commitment of the organization’s key players, and that the most present pessimists are also involved (Kim & Mauborgne, 2003).

Kotter (1995) created an eight-step model to transform organizations, which reflects the tipping point leadership process. This model is developed to help organizations deal with the struggles of a change process. According to Kotter (1995) it is important that all steps in this plan are monitored, because it can have destructive effects on the organization when a step is skipped or not completed. In Table 11 we compared the 3-step model of Lewin (1951) with the eight-step model of Kotter (1995) and we see that the eight steps of Kotter fit in the three steps of Lewin. Whereas the 3-steps of Lewin are more general, the eight-steps of Kotter are more specific, in fact they explain how the steps of Lewin (1951) can be taken. Evans and Schaefer (2001) studied changes within organizations as well. They designed a ten tasks change model which is a lot like the eight-step model of Kotter (1995), but with a focus on employee movement.

Lewin’s Model	Kotter’s Eight-Step Model	Evans and Schaefer’s ten tasks
1.Unfreeze	1.Create sense of urgency	1.Appreciate the situation
	2.Build guiding coalition	2.Develop strategic alignment
	3.Form strategic vision & initiatives	3.Evoke change leadership
2.Movement	4.Enlist volunteer army	4.Expand understanding and commitment
	5.Enable action by removing barriers	5.Analyze processes
		6.Design process, work and boundaries
		7.Plan implementation
3.Refreeze		8.Establish metrics
	6.Generate short term wins	9.Manage transitions
	7.Sustain acceleration	10.Continuous learning and improvement
	8.Institute change	

Table 11: Comparing change models; Sources Evans & Schaefer (2001); Kotter (1995); Lewin (1951)

Kotter (1995) distinguishes three different reasons to change:

1. The company is in crisis and has to change to survive
2. The supplier or customer of the company demands the change
3. The company has a competitive vision and wants to change themselves

With the first reason it is rather easy to implement change, because the company does not have another choice, there will be minimal resistance. The second reason is a demand, so also not too hard to implement change, otherwise the company loses the supplier or customer. But the company does have a choice. With the third reason it is harder to implement change; the company does not have to change, this might lead to more resistance of the employees.

Kotter International's Advisory Services and Center for Leaders, a company of John Kotter, extended the 8-step change model on how to execute the 8 steps (see Table 12).

Kotter's (1995) 8-step model	Execution
1. Create a sense of urgency	Craft and use a significant opportunity as a means for exciting people to sign up to change their organization
2. Build a guiding coalition	Assemble a group with the power and energy to lead and support a collaborative change effort
3. Form a Strategic vision and initiatives	Shape a vision to help steer the change effort and develop strategic initiatives to achieve that vision
4. Enlist a volunteer army	Raise a large force of people who are ready, willing and urgent to drive change
5. Enable action by removing barriers	Remove obstacles to change, change systems or structures that pose threats to the achievement of the vision
6. Generate short-term wins	Consistently produce, track, evaluate and celebrate volumes of small and large accomplishments – and correlate them to results
7. Sustain acceleration	Use increasing credibility to change systems, structures and policies that do not align with the vision; hire, promote and develop employees who can implement the vision; reinvigorate the process with new projects, themes and volunteers
8. Institute change	Articulate the connections between the new behaviors and organizational success, and develop the means to ensure leadership development and succession.

Table 12: Execute Kotter's 8-step model. Source: <http://www.kotterinternational.com/>

As previously mentioned, management has an important role within the change process. However, employees are evenly important. Together with management, they are the main users of the change, but they must be willing to change. Metselaar (1997) states that willingness to change can be defined

as 'a positive behavioral intention towards the implementation of modifications in an organization's structure, or work and administrative processes, resulting in efforts from the organization member's side to support or enhance the change process'. Metselaar and Cozijnsen (2002) developed the DINAMO-model, which is based on the theory of planned behavior of Ajzen. In this model, they make a distinction between wanting to change, being able to change, and the need to change. The chance of a successful change process is greatest when all three conditions are met (Roovers, 2008). The 'need to change' and 'wanting to change' can be placed in the first step of Kotter's (1995) change model. 'Being able to change' is a condition that should be considered before step one of Kotter's (1995) change model.

For successfully implementing change, most change researchers agree on appointing a change agent (Womack and Jones, 2003; Ortiz, 2006; Henderson and Larco, 2002). The change agent actually causes the change to begin, and is responsible for leading the change. Henderson and Larco (2002) state that every individual involved has to understand why the decision is essential, which is comparable with the first step of Kotter's (1995) change model. The change agent has to start with an analysis of the current situation by drawing a value stream map (VSM). The value stream gives the change agent a good understanding of the current situation and enhances the positive results of the change (Henderson and Larco, 2002). The most important part of the planning phase is communication; the change agent has to ensure that all involved employees know what can be expected.

Once an environment is created where people understand the necessity of the change, a transformation group is needed for effective implementation, which can be related to step four of Kotter's change model (1995). The transformation group reports to the change agent. The role of the change agent shifts to the role of navigator. (Womack and Jones, 2003).

Change involves training for employees. In combination with the training it is important that efforts are constantly evaluated to prohibit backsliding (Womack and Jones, 2003). Besides the training, companies have to remove obstacles that undermine the implementation (Kotter, 1995), such as persons or organizational structure (Step five).

As mentioned earlier, Lewin's Force Field Analysis (1951) is about the state-of-being of individuals or groups by forces for change and restraining forces. An organization is located in a certain position by positive and negative forces. The change agent has to determine these forces and install mechanisms to enlarge the forces for change and decrease restraining forces. Factors that make employees

resistant to change are risk, comfort level, and lack of control, necessity, trust, and leadership (Lewin, 1951). This can be related to step five of Kotter's change model as well.

The workforce should see things changing before their eyes, which is essential for the creation of momentum in the organization. Therefore it is essential that a company focuses on obtaining quick wins as well (Womack and Jones, 2003), which is related to step 6 of Kotter's change model (1995).

4.3 Implementing new procedures

The problem at Retail Dolfinarium was that there were no procedures on paper and that employees did not follow procedures. The literature in Section 4.1 and 4.2 describes how a change can be reached, which should ensure procedures are implemented and employees follow these procedures. First of all Manktelow et al. (2006) state that there needs to be a reason to make procedures; there should be a significant benefit from clarifying a process. When this reason is clear, it can be used to create a sense of urgency at the involved employees and the management. A change agent needs to be appointed; he causes the change to begin, is responsible for leading the change and is the one writing the procedure. The change agent should interview the personnel involved in the process, on how they execute the tasks and needs to make sure he has all information needed for writing the procedures. It is important that the change agent has enough communication with all involved employees, so they know what can be expected. Next to that he has to highlight the necessity, give employees trust in this procedure and guide the employees through the change. An important way to do this is to generate quick wins, in that way the employees see things changing and start believing in it. When writing the procedure, the change agent has to make the procedure easy to read, short and to the point. After the procedure is written, it has to be tested and reviewed by those who actually work with the procedure. In that way, the employees have the feeling they have input on the procedures and feel more involved. After the procedure is finished, it has to be implemented, therefore training for all involved employees is needed. Finally the procedure has to be evaluated and the change agent has to make sure the procedure remains current.

5. Solution and implementation

This chapter answers the fourth sub question: *What changes can best be implemented at Retail Dolfinarium to improve inventory management in order to obtain and maintain consistency between administrative and physical stock?* First some developments at Dolfinarium that had influence on the research are addressed in Section 5.1. In Section 5.2 we describe how procedures are created at Retail Dolfinarium and which steps are taken in this process. Section 5.3 elaborates on the implementation of change at Retail Dolfinarium.

5.1 Developments

During the conduction of the research there were developments at Dolfinarium which had influence on the research. Since the end of the season, in October 2014, the function of Manager Operations was no longer available. The Events department became part of the Sales/Marketing department and the Manager Warehouse now had to report to the Manager Retail/Catering. Next to that a new Assistant Manager Catering and a new Team Lead Warehouse were found. This resulted in the chart in Figure 8.

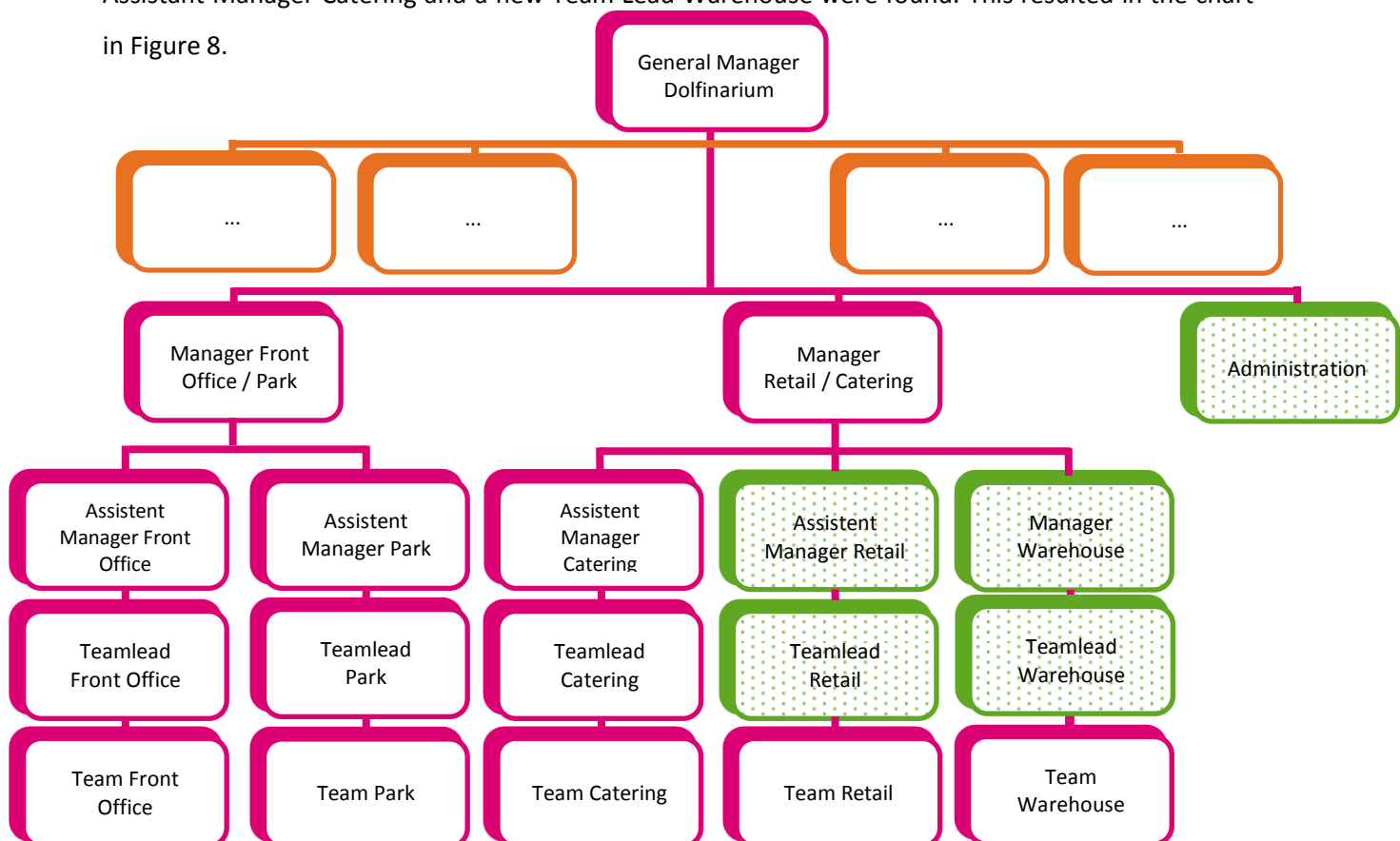


Figure 8: Chart of Retail within Operations, designed by author, season 2015

Additionally the Assistant Manager Retail and the Team Lead Retail were let go at the end of season 2014. Because of this, there was no management for Retail during the winter to prepare for the new season and a new management Retail needed to be formed. Furthermore, Dolfinarium was acquired

by Aspro Parks in January 2015. From this moment on Dolfinarium was no longer part of CDA. Aspro Parks had different wishes and requirements and it also meant that Dolfinarium could no longer use Futura, since this was an inventory system of CDA.

All those developments give the opportunity for Retail to have a clear starting point to implement the outcome of this research. This is comparable with the first reason to change, according to Kotter (1995). Since Dolfinarium belongs to a new organization, the need for change is high and the resistance is probably minimal. A new inventory system can be searched with requirements Retail Dolfinarium has, and all demands of Aspro Parks can be combined and implemented with the wishes of the new Retail management. This implies that it is a good moment to set up new procedures and implement change.

5.2 Creating Procedures for Retail Dolfinarium

In Chapter 3 we concluded that for Retail Dolfinarium it is helpful to have clear procedures on paper that involve the whole process. According to literature writing a procedure has to fulfil the steps in Table 10. We use these steps to create procedures for Retail Dolfinarium, see Table 13.

1.1 Choose format	At Retail Dolfinarium there were no procedures on paper yet, so a template was not available. We choose to use Cross-Functional Process Mapping (CFPM) (Rummler & Brache, 1990), see Section 2.2.
1.2 Consider the audience	The audience is composed of all employees of Retail Dolfinarium. They are familiar with the organization, the terminology and the Dutch language.
1.3 Consider own knowledge	At the start of this research there was nobody within Retail Dolfinarium who knew the complete procedures and nobody who knew exactly how the inventory system worked. Therefore we first focused on those two points. By talking with all involved employees, and by working along, we found what the current agreements were. By attending a course about the inventory system we learned how the inventory system worked. In that way we became the one with the knowledge about these procedures.
1.4 Decide between a short or long-form procedure	The inventory procedures for Retail Dolfinarium can be compact, since the audience is familiar with the protocol and terminology.
1.5 Keep the purpose of the procedure in mind	The procedures are required to create uniformity and to ensure every step is taken.
2.1 Cover the necessary materials	Procedures at Retail Dolfinarium are created without title page or table of contents. We created the Cross-Functional Process Maps to print them on a poster.
2.2 Cover scope, methodology, terminology, warnings, equipment and cautions	Not applicable, see 2.1.

2.3 Make writing concise and easy to read	We choose to write the procedures as maps, and therefore keep them short and unambiguous.
2.4 If necessary, interview the personnel involved in the process on how they execute the task	The focus of this research has been on this step. All involved personnel is interviewed and we worked alongside at every involved function of Retail Dolfinarium. There we experienced that not all employees operated according to standard procedures and nobody knew the whole process across all functions.
2.5 Break up large chunks of text with diagrams and flowcharts	Not applicable, since we choose to make the procedures with Cross-Functional Process Mapping.
2.6 Make sure each page has control document notation	Every poster contains the title of the procedure, author, version number, explanation of the symbols and revision date.
3.1 Test the procedure	A new Team Lead Retail and Team Lead Warehouse are trained with the new procedures. That way we can test if the procedures are clear and easy to understand.
3.2 Have the procedure reviewed by those who actually do the procedure	After all the procedures were created, they have been tested by the employees involved. First the Manager Warehouse and the Administrator started working with them, since they have the most tasks in the new procedures. They gave feedback and we decided some lines had to change to make the procedure easier. This was implemented immediately.
3.3 Have the procedure reviewed by advisors and Quality Assurance Team	The Manager Retail reviewed all designed procedures, he approved all procedures
3.4 Once approved, start implementing the procedure	This is the next step at Retail Dolfinarium. This means everybody within Retail Dolfinarium needs to work with the new procedures. The way all employees get acquainted with the new procedures is training for each involved employee and putting posters with the new procedures on a visible place. It is also important to make sure the employees keep working with the new procedures. This can be done by analyzing reports and by supervising employees.
3.5 Be sure the procedure remains current	The change agent keeps responsibility for updating the procedures

Table 13: Procedures implemented at Retail Dolfinarium

These steps are taken for the processes that already had some kind of procedure, although not on paper, explained in Chapter 2. As mentioned we wrote down the procedures how they were at that moment. After that we implemented the steps from Table 10 to see if procedures could be made more efficiently. When designing the improved procedures we took the following aspects into account:

- Demands and wishes of Aspro Parks;
- Requirements of the new inventory system;
- Wishes and feedback of the employees.

With these points in mind, we came up with procedures everyone can work with and that cause a correct and consistent administrative stock. But also for the processes that did not have any procedure, mentioned in Chapter 2, we took those steps and we put procedures on paper.

In Appendix 3 an example of the internal transfer-procedure from the shops to other departments is given. For this process there were no procedures or agreements and nobody really knew how to perform the task efficiently, which caused products not to be registered or paid (see Appendix 3.1). Using the above mentioned steps we designed a procedure (see Appendix 3.2), and from this procedure we also conducted an example of a work instruction (see Appendix 3.3). On the picture in Appendix 3.3 one can see that this procedure is fully implemented at Retail Dolfinarium right now. How this implementation occurred can be found in the next section.

Example 1: New procedure internal transfers from shops implemented

5.3 Implementing change at Retail Dolfinarium

According to both Lewin (1951) and Kotter (1995) it is important to create a sense of urgency by all employees involved. This was an important part of our research: we talked to all employees that encounter the processes, we worked alongside in each function and we discussed what obstacles they encountered in their function with respect to inventory management. We also did analyses on the current state of inventory management, which showed lots of discrepancies between the administrative and physical stock. These discrepancies were analyzed and discussed with the responsible personnel. That way the employees became more and more aware of the current state of inventory management and that it needed to be improved. At some point employees came up with even more new things to improve, this was the moment we got the feeling the sense of urgency was created. To start a movement it is advised to appoint a change agent (Womack and Jones, 2003; Ortiz, 2006; Henderson and Larco, 2002). In this case there was nobody who fully knew the procedures, nor the inventory system. Therefore the researcher investigated by conducting interviews, working along, getting trainings and analyzing data. At that point the researcher became the one person with the knowledge about the inventory management, since the researcher was also the one who caused the change to begin and the one who was writing the procedures; the researcher was appointed as change agent. This meant that the researcher was also responsible for leading the change and for communicating with all involved employees about the current state of the change. The reason why all employees listened and wanted to work for the researcher, an intern at the company, was probably because the researcher gained respect and trust during the research. This respect and trust was created by working along on every aspect of the operational side, by having a human touch with all employees and by having natural leadership. The management trusted

the researcher as change agent, since the researcher first investigated everything, before implementing. The management learned to trust on the ideas of the researcher and agreed on them.

Considering the procedures, the researcher worked closely with Administration and the Manager Warehouse. At that point there was no Assistant Manager Retail or Team lead Retail, therefore the Manager Retail/Catering was involved as well. This became the transformation group; these were the employees who were most involved with inventory management. Since the Manager Retail/Catering is part of the top management, top management support was in the group as well. The transformation group sat together an hour per week and discussed inventory management, its changes, and the implementation of these changes. For example the researcher designed new procedures and during the meeting they were discussed and changed until they were finished. Administration and the Manager Warehouse were the first to start working according to the procedures, after which we did some improvements. In that way they felt they had input on the procedures and felt involved. We made the decision to involve the employees and to use their feedback, so that they had input and agreed on the change, since it was their own idea. This was also done, because the research showed that there was a lack of interest from the employees about inventory management. Next to the procedures we could also generate some quick wins, for example we cleaned all maps on the computers and started working with one product list, instead of different stock lists, order lists, location lists and supplier lists at Retail, Warehouse and Administration. Next to that we deleted all products from the inventory system that were not in assortment anymore. These actions led to a more structured administration. For example when the Manager Warehouse noticed this more structured way of working, he started believing in the positive sides of the change.

When the transformation group had the feeling the procedures were ready, they were tested on the new Team Lead Retail and the new Team Lead Warehouse. Here we could test if the procedures were easy to understand, since both employees were new and did not have any background knowledge about these processes. And we could see if they were sufficient or if there were still some parts of the process unclear. These tests resulted in a few minor adjustments, for instance no use of abbreviations anymore, since they did not know the meaning of them.

After the procedure was finished, it had to be implemented, therefore training for all involved employees is needed. This is the next step at Retail Dolfinarium. This means everybody within Retail Dolfinarium needs to work with the new procedures. The way all employees get acquainted with the new procedures is training for each involved employee and putting posters with the new procedures

on a visible place. We started with putting all procedures on posters and hanging them on the wall of Warehouse (see Figure 9), since this is a place where most products are taken from. Next to that we printed all procedures and put them in a book together with some specified work instructions. At every shop this book can be found at the cash desk (see Figure 11).

All products at Retail Dolfinarium start their journey on Dolfinarium at Warehouse. From there they are taken to the different locations. Mostly this is done by ordering at Warehouse via an order form, but sometimes products are needed during the day, most of the times by other departments. Therefore we designed huge posters and placed them on spots at Warehouse they cannot be missed: at the entrance on both sides and at the exit door (see Figure 9). These posters show that not a single product leaves Warehouse without being registered, and that the employee needs to fill out a transfer form. In that way all employees see the posters and know they have to fill in the form, the poster says where the form can be found. So now every employee fills in a transfer form when they get things from Warehouse and Warehouse registers these forms in the inventory system. Which results in that all products from Warehouse are registered, this was not the case before.

Example 2: Posters at Warehouse



Figure 9: Posters and procedures on the wall of Warehouse

It is also important to make sure the employees keep working with the new procedures. This can be done by analyzing reports and by supervising employees. Due to the new procedures the workload of Retail Management is more efficient, which results in time for analyzing the reports. The outcome of these analyses can be used for targeted guiding of the employees. Finally the procedure has to be evaluated and the change agent has to make sure the procedure remains up-to-date. Therefore the transformation group will remain to have a meeting weekly. In this meeting not only the procedures are discussed, but, due to this research, we also check analyses each week. Once a week a sample of products is counted for stock and the differences in stock are discussed in the weekly meeting. In that way we can study where differences come from, maybe products are incorrect in the system, employees do not follow procedures, or maybe there is another reason. To search for reasons, we also analyze negative stocks weekly, and we discuss how many and which products are damaged that week. By keeping analyzing these reports, we can say something about the inventory management, we can improve it and we can lead the team more targeted.

The transition to a new owner, Aspro Parks, lead to the fact that Dolfinarium could no longer use its inventory system Futura. This gave the opportunity to search for a new system. Therefore we helped with creating requirements for an inventory system for Retail Dolfinarium. Since Administration and the Manager Warehouse have to work with the system most, it was important to involve them in this decision as well. They were acquainted with Rest Office, the system Catering uses, and Dolfinarium already had licenses for this system. Since it was possible to buy some new licenses to fulfill the requirements of Retail, Rest Office was the best option and was implemented. The transition to Rest Office was included in the new procedures and in the training for all Retail employees.

In Chapter 3 we found that the administration at Retail Dolfinarium is not structured. At the start of this research Retail had 1500 different products in the inventory system. With that much products, of which some products looked almost the same, it was harder to have a structured administration, since it happened a lot that products were mixed up with each other or that the same product was in the system twice. Therefore we started with deleting double products from the system and products that were already out of assortment. This had as result that Retail had 800 different products in assortment. We than started with taking a closer look at the assortment, a lot of products had stock for more than two seasons, some even had a stock for twenty seasons. This stock costs money as well, this led to the idea to open a Euroshop where all these 'troubling products' are sold for one, two or three Euros. We made a calculation of the write-off of all those products when we want to sell them for a few Euros, and what would be the turnover. After a few adjustments top management approved and the Euroshop could be opened. When all these 'troubling products' are sold, the

Warehouse will have products in stock that are actually sold in the shops and the system is cleared as well. Another step in reducing the assortment is looking at the products in the shops; lots of products are almost the same, but Dolfinarium sells different types of them. For example a shop has 15 almost the same key chains, of which even the employee in the shop does not know the differences. This causes that the employee in the shop might register the wrong product on the cash desk, which causes stock differences. Therefore the assortment should be narrowed down; in the end the goal is set to have only 150 different products in the assortment of Retail Dolfinarium. This should give a more structured and clear administration. In that way it will be clear which physical product is which administrative product, this should narrow down the causes of underperformance in Table 5. First of all because products won't be double in the system anymore, all products will have the right barcode, since it all comes from one list. Next to that, when there are only 150 products in assortment, instead of 1500, it is manageable to insert all correct purchase prices in the system and to make barcodes for all products, so buttons on the cash desk are not needed anymore.

Example 3: Getting administration structured

6. Conclusion, discussion and advice

We studied how we can improve inventory management of Retail Dolfinarium, ensuring consistency between the administrative stock and the physical stock. In Section 6.1 the conclusions of this study are found, in Section 6.2 we will discuss some parts of the research and in Section 6.3 we give advice how Retail Dolfinarium can improve the inventory management even more.

6.1 Conclusion

The problem at Retail Dolfinarium is the inconsistency between the administrative and the physical stock, which leads to several problems like a low location accuracy, sold out products, oversupply, incorrect financial reports and no possibility to forecast demands. The goal of this research was to improve inventory management of Retail Dolfinarium, ensuring the administrative stock to be consistent with the physical stock. In Chapter 2 we described that at the start of this research there were no procedures on paper considering inventory management. By interviewing all employees who are responsible for a part of inventory management, we analysed how the inventory is supposed to be managed right now. From these analyses we found that:

- There is a lack of awareness regarding process procedures;
- For several processes, there are no procedures or arrangements;
- Procedure descriptions deviated among the employees involved.

For the processes that do have some sort of procedure, we clarified these current procedures by drawing them with Cross-Functional Process Mapping (CFPM) (Rummler & Brache, 1990), which is described in Chapter 2.

In Chapter 3 we analyzed what the exact problems were at Retail Dolfinarium and we compared inventory management with Catering Dolfinarium and with Retail Walibi. We found that Retail Dolfinarium has an underperformance in their inventory management. We also identified possible causes of this underperformance. In Chapter 3 we concluded that for Retail Dolfinarium it is helpful to have clear procedures on paper that involve the whole process, and to make sure all employees follow these procedures. When there are clear procedures, management has guidelines to use for instructing their team. Especially when data is analyzed from the inventory system, management knows where the biggest problems occur. In that way management can adjust to improve these problems.

From literature in Chapter 4 the most important conclusions were that employees need to be involved in change. This starts with the reason why something is changing, this should create a sense

of urgency at the management and the involved employees. To really make a movement, a change agent needs to be appointed. In this case procedures need to be written, these procedures need to be clear, easy to read and to the point, they need to be tested and reviewed. And when the procedures are finished they have to be implemented and evaluated. In Chapter 5 it is described how the design and implementation of the procedures took place.

During this research, we made procedures to make sure there will be no discrepancies between the administrative and physical stock. By involving all employees in this process, we also created a sense of involvement among the employees. By analysing the process and creating procedures we optimized efficiency and created support of the employee, since tasks cost less energy to perform. Therefore the employees noticed tasks could get easier with using the new procedures. By implementing some quick wins, the employees immediately saw. The procedures are designed so that every stock transfer is registered in the system. In weekly analyses we start to see less and less stock differences, but it is too soon to analyse real results.

6.2 Discussion

With creating, designing and implementing procedures we are not finished with improving inventory management of Retail Dolfinarium. The most important part is to keep using the procedures and to keep improving. When all transfers are inserted in the inventory system, we can perform different analyses on the data. The more periodic analyses there are, the better we can find where improvement is possible and those analyses can be used to lead and coach the team. That is the way to keep improving the inventory system. On the other hand, we can run that many different kinds of analyses from the system, it could become a fulltime job, which might end up in analyzing the analyses.

In Chapter 3.3 we set the norm for the performance indicator location accuracy at 80% for Retail Dolfinarium. This norm is only based upon the performance of Catering Dolfinarium, since data from Retail Walibi was unavailable. This has not a scientific foundation, since the sample is too small, and maybe all other organizations have an accuracy of 98%. On the other hand, performance indicators can be set on any wished number. Since Retail Dolfinarium had a location accuracy around 6%, it would be a rather big step to get a location accuracy around 80% immediately. Therefore a first step would be to reach a location accuracy around 50%. Once the next step is reached, the goal can be increased to have a performance of 80%. Once this percentage is reached as well, it could be investigated if it is feasible to set the performance indicator on a higher percentage. This should be done by more practical comparisons of other organizations.

6.3 Advice

For Retail Dolfinarium we not only recommend to implement the procedures as mentioned during this research, but also to keep improving inventory management. Therefore, we have some advices on how this improvement can be reached.

- After the procedures have been implemented and are formalized within the organization, the administrative stock should be the same as the physical stock. With the data analyses can be done, and with those analyses managing the Retail team can become more targeted. Therefore, we advise to focus the leadership on improving the employees and using analyses to lead them.
- Retail Dolfinarium already started using some analyses from the inventory system, to figure out which products are falsely linked in the cash desk or are registered incorrect by the shop employee. But we advise that Retail Dolfinarium also uses the analyses to take a closer look on sales, what are the influences like weather or shop merchandise on sales or how one employee sells in comparison with another employee. With that information the employees can be trained in selling techniques, which all can improve the turnover of Retail Dolfinarium. The amount of analyses from the inventory system could be limited to approximately 5 per week, otherwise all the analyzing would become a fulltime job.
- After the procedures are implemented and formalized within the organization, and the location accuracy is correct, it should be possible to forecast demands for products. In the future, for Retail Dolfinarium we advise to do research on demand forecasting.
- As discussed in Chapter 3.2, Retail Walibi sells pictures at the rollercoasters which increases their income significantly. Retail Walibi uses this turnover for more personnel costs in the Retail department, therefore management of Retail Walibi consists of six fulltime employees, whereas Retail Dolfinarium has only three. In that way management of Retail Walibi has more time to do analyses on the inventory system and use the results to optimize Retail. Retail Dolfinarium could learn from this, at Dolfinarium it could be possible to make pictures of the visitors with one of the animals, for instance a dolphin or a sea lion. At other sea mammal parks in the world this is also usual. This could really boost the turnover and profit of Retail Dolfinarium. Of course these pictures would take a lot of effort from the animal teams as well, so the discussion could be what the best destination would be for this extra money. We advise to start a try-out on selling pictures of the visitors with the animals. This should be prepared in good dialogue with the Animals department to see what the possibilities are.
- During this research a lot of 'trouble products' were found, and therefore, as described in Chapter 5.3, it was decided to open a Euroshop. With this Euroshop it should become

possible to outsell all the 'trouble products'. The problem with this shop is that it has a big impact on the turnover and the profit of Retail Dolfinarium. Also because the storage of all those products costs money, it is desirable to outsell the products as fast as possible. This would result in having the Euroshop open every day. On the other hand, having the Euroshop open will probably mean less turnover in another shop, with that in mind it would not be preferable to have the Euroshop open every day. Therefore we advise to only open the Euroshop on weekdays, these are the days a lot of school classes are on the park, and those kids only have a few Euros to spend. It is also advised to close Shop 2 during these weekdays, since most people will probably buy at the Euroshop, or else they can buy souvenirs at Shop 1. In the weekends the Euroshop can be closed and Shop 2 can be opened. During the weekends there are more families on the park and they have more money to spend, if the Euroshop would be open, it is possible they spend less money.

References

- Burnes, B. (2004). *Kurt Lewin and the Planned Approach to Change: A Reappraisal*. Journal of Management studies, 41(6), 977-1002.
- Clay, E.J. and Schaffer, B.B. (1984) *Room for Manoeuvre, An Explanation of Public Policy in Agriculture and Rural Development*. London: Heinemann.
- Compagnie des Alpes – www.compagniesdesalpes.com/en conducted on 18-09-2014
- Corkery, L., Land, A., Bossuy, J. (1997). The process of policy formulation: Institutional path or Institutional Maze? – A study based on the introduction of cost-sharing for education in three countries. Euopean centre for development policy management.
- Daft, R.L. (2001). *Organization Theory and Design*, 7th edition. South-Western College Publishing
- Dolfinarium – www.dolfinarium.nl conducted on 13-09-2014
- Dyson, A. (1999). *How and when to write policies and procedures* 2nd edition. Australian Council for the Rehabilitation of the Disables, Queensland Division.
- Evans, J. & Schaefer, C. (2001). *Ten Tasks of Change: Demystifying Changing Organizations*, San Francisco: Jossey-Bass/Pfeiffer
- Henderson, B.A. & Larco, J.L., (2002). *Lean Transformation: How to change your business into a lean enterprise*. Richmond: The Oakland Press.
- Howard, C. (2005). The Policy Cycle: A Model of Post-Machiavellian Policy Making? *Australian Journal of Public Administration*, 64.3 (3-13). Blackwell Publishing Limited.
- International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use (ICH) – <https://www.ich.org/> conducted on 11-02-2015
- Kim, W. C., & Mauborgne, R. (2003). *Tipping point leadership*. Harvard Business Review, 81(4), 60-69.
- Kotter, J.P. & Gestion, C. canadien de. (1995). Leading change: Why transformation efforts fail. *Harvard business review*, 73, 59–59.
- Kotter, J.P. (1996). *Leading change*. Boston: Harvard Business School Press
- Kotter International – <https://www.kotterinternational.com/> conducted on 05-03-2015
- Kotter, J. P., & Schlesinger, L. A. (2008). *Choosing strategies for change*. Harvard Business Review, 86(7-8), 130-139.
- Lewin, K. (1951). *Field theory in social science*. New York: HarperCollins

- Lim, A., Village, J., Salustri, F.A., Neumann, W.P. (2011) Process Mapping as a Tool for Participative Integration of Human Factors into Work System Design. *Human Factors Engineering Lab, Mechanical and Industrial Engineering Department Ryerson University, Ontario, Canada.*
- Lindblom, C.E., Woodhouse, E.J. (1993). The Policy-Making Process. *Prentice Hall*
- Manktelow, J., Brodbeck, F., Anand, N. (2005). How to lead: Discover the leader within you. Mind Tools Ltd, Hardwick House, Swindon UK.
- Metselaar, E.E., (1997). Assessing the willingness to change: Construction and validation of the DINAMO.
- Metselaar, E.E., Cozijnsen, A.J. (2002). Van weerstand naar veranderingsbereidheid: over willen, moeten en kunnen veranderen. Heemstede: Holland Business Publications.
- Ortiz, C.A., (2006). *Kaizen Assembly: Designing, Constructing and Managing a Lean manufacturing Assembly Line*. Boca Raton: Taylor & Francis Group.
- Quattrone, P. & Hopper, T. (2001). What does organizational change mean? Speculations on a taken for granted category. *Management Accounting Research*, 12, 403-435. DOI: 10.1006/mare.2001.0176
- Reed, M.S., (2008). Stakeholder participation for environmental management: A literature review. *Biological Conservation*, Vol. 141, 2417-2431.
- Roovers, W. (2008). *De veranderbereidheid van zorgprofessionals. Een casestudy binnen PsyQ Rijnmond*. Erasmus Universiteit Rotterdam, Rotterdam
- Rummler, G.A., Brache, A.P. (1990). Improving performance: how to manage the white space on the organization chart. *Management Series, Jossey-Bass Publishers.*
- Smith, K.B., (2002). Typologies, Taxonomies, and the Benefits of Policy Classification. *Policy Studiesjournal*. Vol. 30, No. 3 (379-395).
- Womack, J., Jones, D.T. (2003), *Lean Thinking: Banish Waste and Create Wealth for Your Corporation*, 2nd Edition, Simon and Schuster, New York

Appendices

A. Location accuracy

	Difference		Reality		Expected		Percentage		# locations		
	€	# products	€	# products	€	# products	€	#	# locations	right stock	location accuracy
2012											
Shop 1	€ 69.401,72	143193	€ 28.458,76	31570	€ -40.942,96	-111623	-143,9	-353,6	554	2	0,36
Shop 2	€ 20.815,39	22508	€ 19.109,13	18383	€ -1.706,26	-4125	-8,9	-22,4	338	8	2,37
Shop 3	€ 13.094,29	19342	€ 18.147,74	20061	€ 5.053,45	719	27,8	3,6	367	5	1,36
Shop 4	€ -722,46	43925	€ 7.673,90	13622	€ 8.396,36	-30303	109,4	-222,5	298	0	0,00
Warehouse	€ -67.767,87	-40783	€ 210.485,30	123955	€ 278.253,17	164738	132,2	132,9	284	8	2,82
	€ 34.821,07	188185	€ 283.874,83	207591	€ 249.053,76	19406	87,7	9,3	1841	23	1,25
2013											
Shop 1	€ 48.870,62	111483	€ 36.195,41	35522	€ -12.675,21	-75961	-35,0	-213,8	674	10	1,48
Shop 2	€ -659,13	-8656	€ 29.480,03	24241	€ 30.139,16	32897	102,2	135,7	497	5	1,01
Shop 3	€ -9.232,21	-9545	€ 18.158,51	20483	€ 27.390,72	30028	150,8	146,6	416	7	1,68
Shop 4	€ 18.083,81	97772	€ 9.453,75	18533	€ -8.630,06	-79239	-91,3	-427,6	236	3	1,27
Warehouse	€ -51.802,98	-35140	€ 360.092,55	176906	€ 411.895,53	212046	114,4	119,9	472	15	3,18
	€ 5.260,11	155914	€ 453.380,25	275685	€ 448.120,14	119771	98,8	43,4	2295	40	1,74
2014											
Shop 1	€ 6.965,02	84291	€ 31.662,78	26554	€ 24.697,76	-57737	78,0	-217,4	686	25	3,64
Shop 2	€ 2.694,83	2939	€ 21.787,68	16012	€ 19.092,85	13073	87,6	81,6	488	37	7,58
Shop 3	€ 1.710,52	1161	€ 13.951,23	13375	€ 12.240,71	12214	87,7	91,3	331	30	9,06
Shop 4	€ 10.049,74	70536	€ 8.568,54	6065	€ -1.481,20	-64471	-17,3	-1063,0	254	15	5,91
Photography	€ -7.645,85	1401	€ -	0	€ 7.645,85	-1401	-	-	122	0	0,00
Dolphin show	€ 1.295,94	852	€ 1.800,11	934	€ 504,17	82	28,0	8,8	35	7	20,00
Warehouse	€ -21.826,13	8346	€ 287.803,96	144562	€ 309.630,09	136216	107,6	94,2	591	41	6,94
	€ -6.755,93	169526	€ 365.574,30	207502	€ 372.330,23	37976	101,8	18,3	2507	155	6,18

Table 14: Location accuracy Retail 2012 - 2013 - 1014

B. Explanation Categorized examples of underperformance

2.1 When a supplier retakes products, this is not registered in the order list

The supplier of jewelry comes in each shop twice a month during the season. He fills the shelves with new jewelry, but he also takes back some necklaces to change the assortment. All the necklaces have one barcode and for Dolfinarium, their name is just 'Necklace 7.95'. Therefore it does not matter what kind of charm is on the necklace or what color it is. The fact is that the supplier brings 50 new necklaces, but takes away 20 necklaces. So actually there are 30 necklaces added to the stock of this shop. On the order list the supplier fills in that he brings 50 necklaces and on the other side of the order list he fills in that he took 20 necklaces. When this order list gets to the administration department, they only fill in the 50 new necklaces, this causes a stock difference of 20 necklaces. This goes for all the different jewelries, in three different shops twice a month, during the whole season of 2014 he took away 1444 pieces of jewelry, which were not registered.

2.2 Retail uses a lot of different Excel lists, the reference numbers of the products are not consistent on these lists

There are three different departments who have to do with the inventory of Retail: Warehouse, Administration and Retail. Those three departments all have their own computer drive, so each Retail list is stored on three different drives. When something changes for products (they cannot be delivered anymore, the supplier changes, the purchase price changes, the barcode changes, etc.), the employee who knows about this change, processes this in the list on his drive. But the same lists that the other departments use is not changed. In that way the other departments are still doing administration on wrong information and maybe use another product or a wrong barcode. This causes stock differences and unstructured administration.

2.3 Products sold at dolphin show that are damaged need to be returned to supplier

The dolphin show is between two and five times a day, depending on the expected amount of visitors that day. At this dolphin show a Retail employee is selling light sticks. These light sticks are often broken, because one light does not work, or the stick has cracks. With the supplier of this product, Dolfinarium has an agreement that all the broken light sticks can be send back and Dolfinarium gets their money back. The problem is that the employee who is selling the sticks does not know that he has to register how many sticks are broken today, and then has to bring the broken sticks to a box in Warehouse. Most of the employees only bring the sticks to the box, but do not register this. Some employees do register this, but there is no procedure for who registers this in the inventory system. In 2014 33,000 light sticks were sold and approximately 3000 light sticks were broken.

C. Example new procedure Retail Dolfinarium – Intern transfer from shops

3.1 Current situation

It is possible that other departments of Dolfinarium use retail products, for instance to make a present for an employee, or to give to organizations or potential big customers. For these cases specific procedures are not yet available, while they are rather common. The used products should be registered at the right department, because every department within Dolfinarium has an own budget. In that way, at the end of the financial book year, each department pays their due to Retail. But in practice nobody really knows how this procedure works and nothing is registered and paid.

3.2 New procedure

Since this is a rather common situation and there is no procedure at all, we choose to design and implement this procedure the first. There are two possibilities: the products can be taken from the shop, or they can be taken from Warehouse. Since most of the cases consider a few products, the procedure from the shop is more needed the first. It started with analyzing the situation, studying what is needed to get correct data and discuss what the wishes are from all involved people. We also studied what possibilities were on the cash desk and found we could get a license for registering products on a certain registration number. By combining these registration numbers to the right department it became possible to buy a product in the shop on the budget of a specific department. Each department has one person who is responsible for the budget of that department, therefore that person needs to approve the purchase. So we asked the Marketing department to design a voucher that shows that there is approval for a certain purchase for a specific department. And, together with Administration and Finance, we figured out what the best way is to register the purchase. All together this came to the procedure in Figure 10.

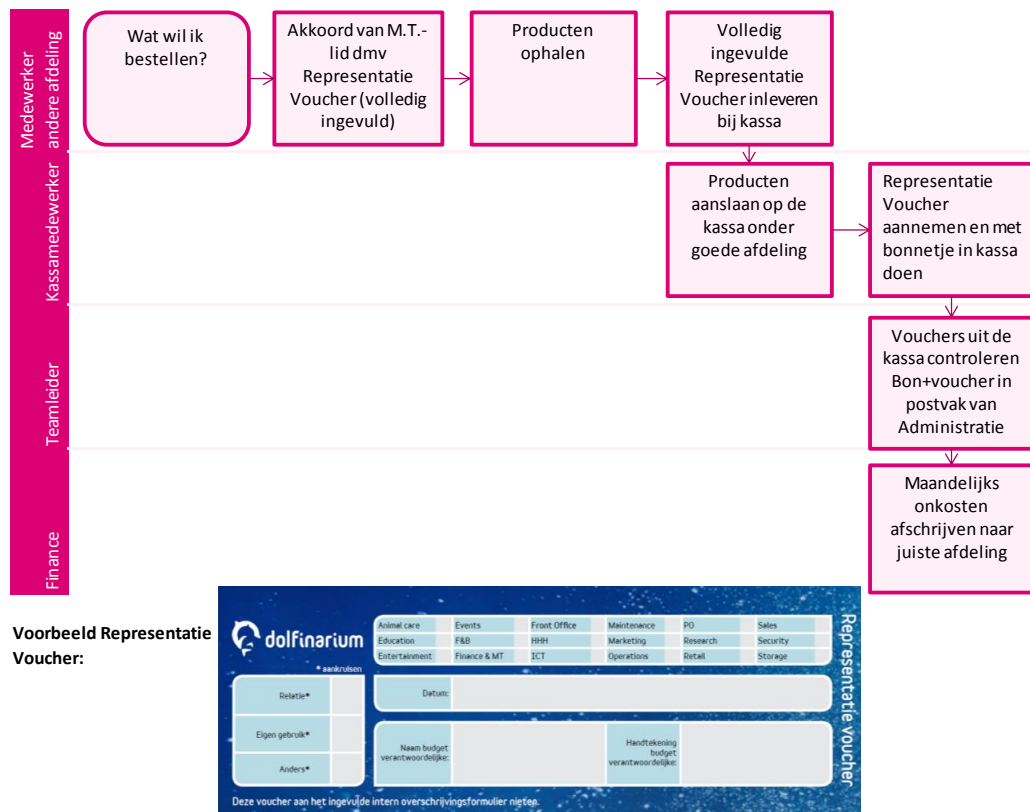


Figure 10: New procedure - internal transfer from shop

This procedure, together with a pile of vouchers was sent to all employees who have the responsibility over the budget of their department. Next to the procedure with an example of the voucher was mailed to all employees of Dolfinarium.

3.3 Work instruction

For each function in the Cross Functional Process Map we can make a work instruction. Not for all functions it is important to know what other departments do in the process, and sometimes it might make the process look complicated. Therefore we made an example of a work instruction for the Retail employee in the shop, when somebody wants to buy products with a voucher for their department. This work instruction can be found in Figure 11. We chose to attach the work instruction to the procedure, since we think it is important to understand how the whole procedure works and to see why it is important to follow each step. In that way the employee can see the whole procedure and has an instruction for his own actions.

Werkinstructie caissière – interne transfer afdelingen

Van toepassing als een afdeling retailproducten nodig heeft voor eigen gebruik. Bijvoorbeeld afdeling Personeelszaken die een geboortepakketje wil.

- Medewerker van een andere afdeling komt bij de kassa met producten die hij/zij nodig heeft en geeft aan dat het een interne overboeking betreft.
- Vraag aan de medewerker naar een volledig ingevulde Representatie Voucher. Zonder deze voucher kunnen er geen interne overboekingen plaatsvinden
- Controleer de Representatie Voucher op volledigheid, ieder veld moet ingevuld zijn.
- Scan alle producten, druk op 'Subtotaal', druk op 'Interne overboeking' en druk op de juiste afdeling (staat aangekruist op de Representatie Voucher)
- Het bonnetje komt uit de kassa en de kassa is klaar voor de volgende transactie. Bevestig de Representatie Voucher aan het bonnetje en doe ze samen onderin de kassa
- De medewerker van de andere afdeling kan de producten nu meenemen

Bij vragen of onduidelijkheden over deze werkinstructie kun je terecht bij je teamleider.



Figure 11: Work instruction Shop employee - internal transfer departments

D. New procedures Retail Dolfinarium

For most Retail processes we finished the procedures. They can be found in Figure 12-18, these are the procedures that are tested and approved, and are being implemented at the moment. Next to that we adapted these procedures for Catering as well. Catering works with the same system, so the differences are not that big anymore. The procedures for Catering are finished, and are being tested.

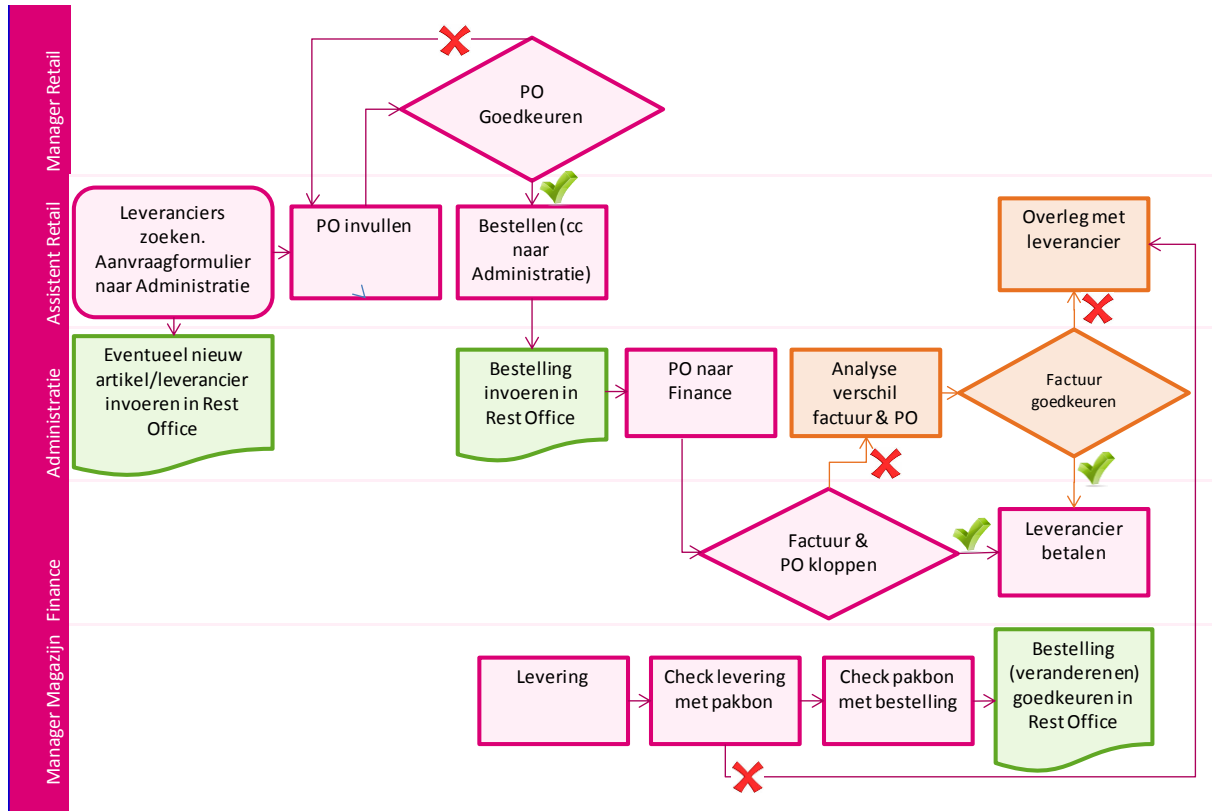


Figure 12: Procedure yearly order

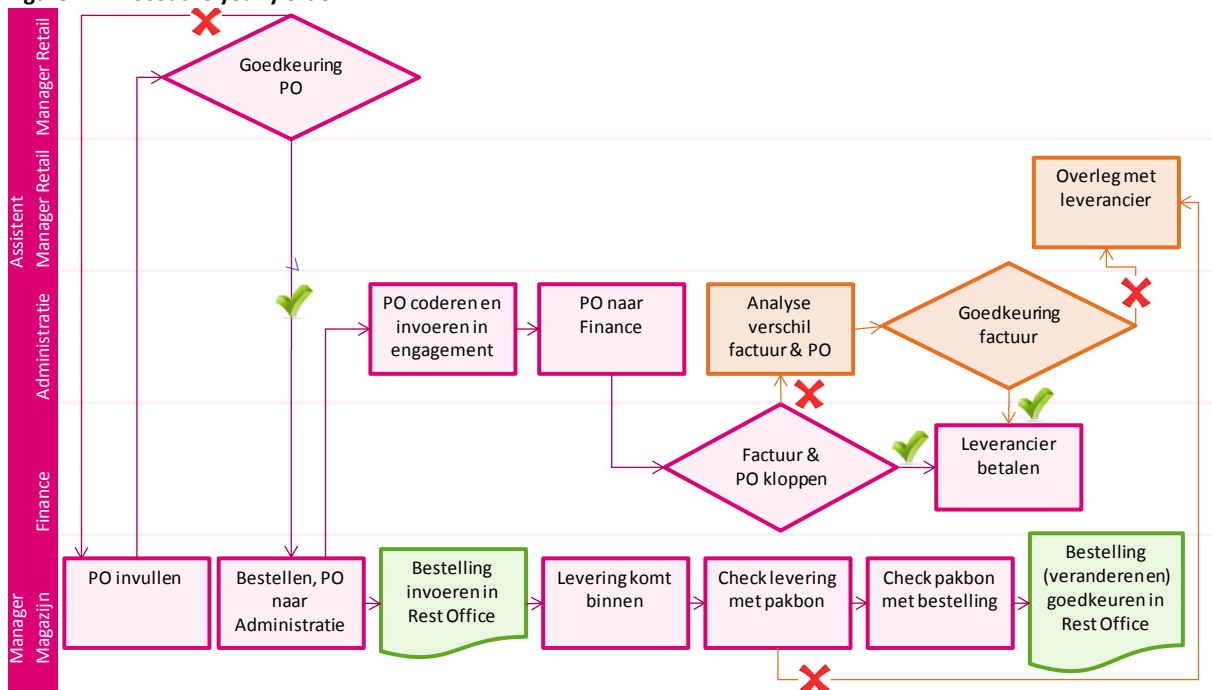
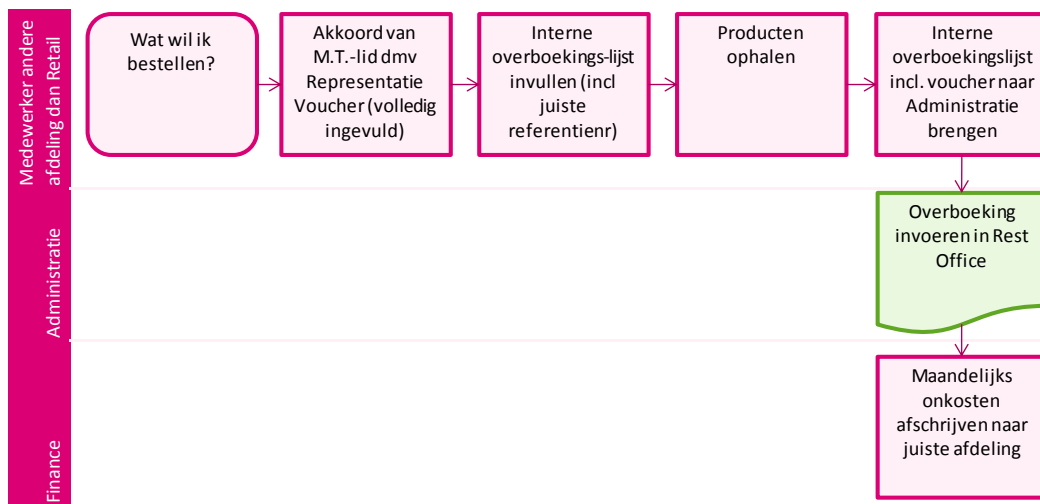


Figure 13: Procedure weekly order from Warehouse



Voorbeeld Representatie Voucher

The image shows a 'Representatie voucher' form from Dolfinarium. It includes a department grid, fields for relationship, date, and budget, and a signature line.

Animal care	Events	Front Office	Maintenance	PO	Sales
Education	F&B	HHH	Marketing	Research	Security
Entertainment	Finance & MT	ICT	Operations	Retail	Storage

* aankruisen

Relatie* ☐ Datum: _____

Eigen gebruik* ☐ Naam budget: _____ Handtekening budget: _____

Anders* ☐ verantwoordelijke: _____

Deze voucher aan het ingevulde intern overschrijvingsformulier niet toe.

Figure 17: Procedure internal transfer Warehouse → Departments

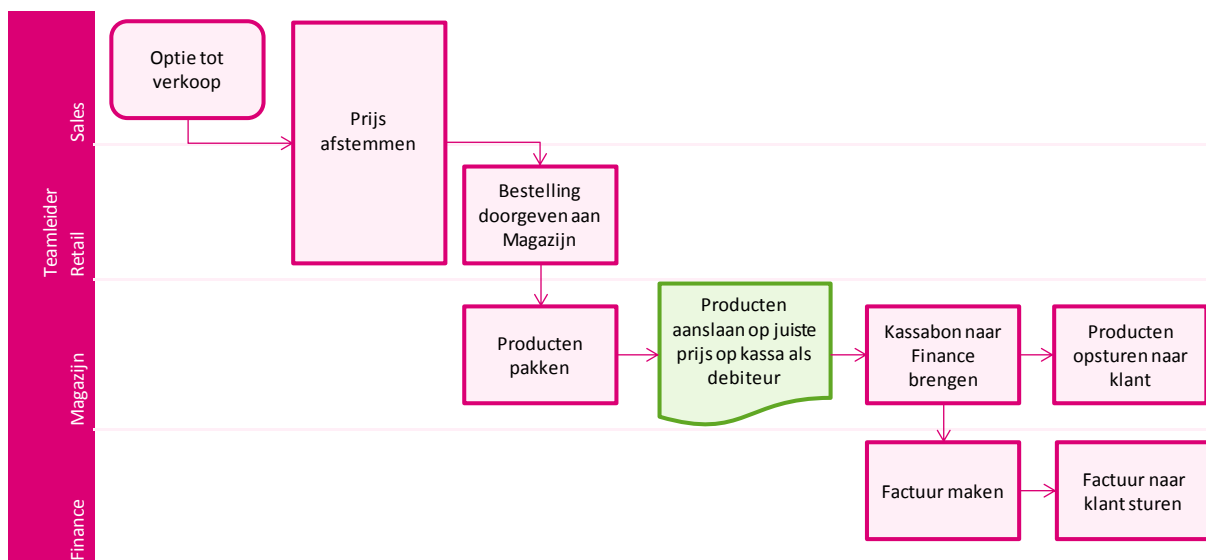


Figure 18: Procedure group sales