Business Process Management 2022/2023

Group Project

In the project, process management must follow the BPM lifecycle approach taught in the course:

1. Be sure to clearly **identify the process**.

2. **Model the AS-IS business process**, i.e., design a detailed BPMN process model reflecting the current state of the process. This BPMN model should not only deal with the "normal course" of action, but also show how different types of errors/ exceptions are handled.

3. **Analyse the AS-IS process using qualitative and quantitative techniques**. Identify the issues/problems with the process, like non-value adding steps, wastes, bottlenecks, what-if analysis, scenarios based on simulations, etc. Register the issues and possible solutions in a suitable way.

4. Propose the **TO-BE** process model, identifying its advantages/disadvantages. Eventually you may specify what other alternatives/scenarios were possibly considered (COULD-BE processes).

Report Structure

The work should follow a **standard document structure** with introduction, background (eventually some literature review), development / content, limitations (if any), future work, and conclusions. You should use a Word or equivalent format.

Presentation

Prepare a short presentation (10 minutes + 5 for discussion). All group members should take part in the presentation. You need to send the presentation in PDF format with the main document, until final delivery date.

It is very important that you emphasize the most important parts of the document in the presentation. Do not spend too much time on the introductory/background stuff, however you should present the organization (you don't need to disclose its identity but rather its business) and the process, so that other students will be able to understand and follow the rest of the analysis.

Criteria for grading

Criteria for grading the project:

- How deeply you've thought about the assumptions
- Depth of the analysis
- AS-IS model accuracy
- TO-BE model feasibility and overall advantages
- Oral and written presentation

As a rule, all members of the group will get the same grade for the project work, however there may be some exceptions to this rule.

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Process suggested by the lecturers

Fresh Market

Fresh market is a well-known supermarket based in Lisbon, Portugal. This supermarket was found in 1998 and has more than 100 employees working in 10 different stores.

The focus of this project will be the process of preparing and delivering an order made through the supermarket website. A big portion of the Fresh market sales are done via website. As such, it is exactly this process that the supermarket wants to focus on and improve.

Some dissatisfaction of customers and even employees led the supermarket managers to decide to analyse their processes to overcome these difficulties and increase it efficiency.

The main problems that Fresh market identified in this process are:

- Customer dissatisfaction due to the non-compliant of home delivery schedules. Sometimes the delivery arrives to the address more than 30minutes late (in some cases, there is no one at home to receive the goods);
- In some orders, the customers complain about missing products;
- Customers would like to be informed about the exact delivery date;
- Staff is dissatisfied with the lack of efficiency when collecting the items of orders (is very manual and prone to errors)
- Each year, the supermarket spends a lot of money in paper (for the invoices) and plastic shopping bags. As such, the Fresh market also wants to reduce these materials, helping the environment and saving money;

The supermarket believes that with a more careful analysis, even more problems / situations for improvement will be identified.

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The process

The scope of this project is to understand, model, analyse, and redesign the process of preparing and delivering an order made through the supermarket website. Other processes exist within the supermarket, but they are outside the scope of this project. However, you may consider those in your project, making the proper assumptions.

Fresh market receives around 45 website orders per day. The order can be delivery at the customers house (80% of the cases), or the customer can pick up the order in the supermarket (20% of the cases). The supermarket is open from 10:00 am to 6:00 pm every day.

The employees responsible for this specific process are: 1 manager, 3 staff, 2 packager, 2 cashiers, 7 couriers, receiving each 1100€, 850€, 700€, 750€, and 750€ respectively.

Order organization

When the order is received, the manager need to go to the supermarket website to take and print the order description (document with some customer information and a list of the products selected for the order). Then, the manager makes the distribution of these paper documents through the staff.

On average, this process takes about 5 minutes to be performed, per order.

Order picking

After the delivery of the order document, the staff goes get a shopping cart to put the items in. He/she reads the list of products, goes to the correspondent corridor, and pick up the product, crossing out the product name of the list. The staff typically complain with the fact that the products list is not organized by corridor. As such, it takes some time to pick up all the products from the list (typically an estimated value of extra 5 minutes per order). When picking up the product, sometimes there is no stock of it (20% of the cases). In those cases, the staff can choose a substitute product*, if the customer has chosen the replacement mode**(65% of the cases). In that case, the staff pick up the new product and annotates by hand the new product barcode on the order document. When the customer does not select the replacement mode, the staff just annotates the missing product (that will not be charged). When the staff picks up all possible items of the list, he/she delivers the shopping cart to the packager.

On average, this process takes 15 minutes to be performed per order but has a big variation (depending on the number of items of the orders) (assume 7 min as standard deviation).

*Substitute product: is a product similar to the product chosen by the customer but typically, from a different brand. Even if the new substitute product has a greater price, the customer just pays the price of the selected product

**Replacement mode: this is an option the customer can choose on the website when making the order. This mode, allows the staff to choose a similar product to substitute the selected product in case of no stock

Order packaging

After receiving the shopping cart, the packager packages the products, putting the items in plastic bags, paying extra attention to the frozen and fragile products that need extra attention (glass products are wrapped in bubble wrap; products with liquid content are packed with adhesive tape on the opening lid). After that, the packager prepares the order for the delivery.

On average, this process takes about 7 minutes to be performed per order. This process time also has a big standard deviation (it depends on the number of items that are needed to package per order).

Order completion

When the order is ready to deliver, the manager needs first to update the order in the supermarket system, by registering the missing and/or substituted products. By doing this, the customer only pays for what will actually be delivered, not being charged for products that are not in stock. After that the system generates the invoice and the manager prints it.

On average, this process takes about 2 minutes per order.

Pick up order

When the order is ready for delivery, the customer may choose the pickup mode, which happens for 20% of the orders. In this situation, the plastic bags of each order are delivered to the cashier, that is responsible for the delivery of the order to the customer and the correspondent invoice.

On average, this process takes about 7 minutes per order.

Home delivery order

When the order is ready for delivery, the customer may choose the home delivery mode, which happens for 80% of the orders. In this situation, the couriers receive the plastic bags containing the order items, drive to the address selected by the customer, make the delivery of the order and deliver the invoice. This process always needs to be performed by 2 couriers per order, since just one is not able to delivery all the plastic bags at once.

On average, this process takes about 25 minutes per order.

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