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31/10/2018

IS1 - Final Project Report

Group 18

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2 Introduction

Our company provide musical festival services to both private and public customers. The vision of the company is “Music makes the difference”. The company’s focus is on the quality of the music and more in general on the service’s quality: we want to provide the best experience ever during a festival. From delicious food to best locations in the world, our company offers numerous experience to enjoy along with the music.

3 Value Network Analysis

3.1 VDML Diagram

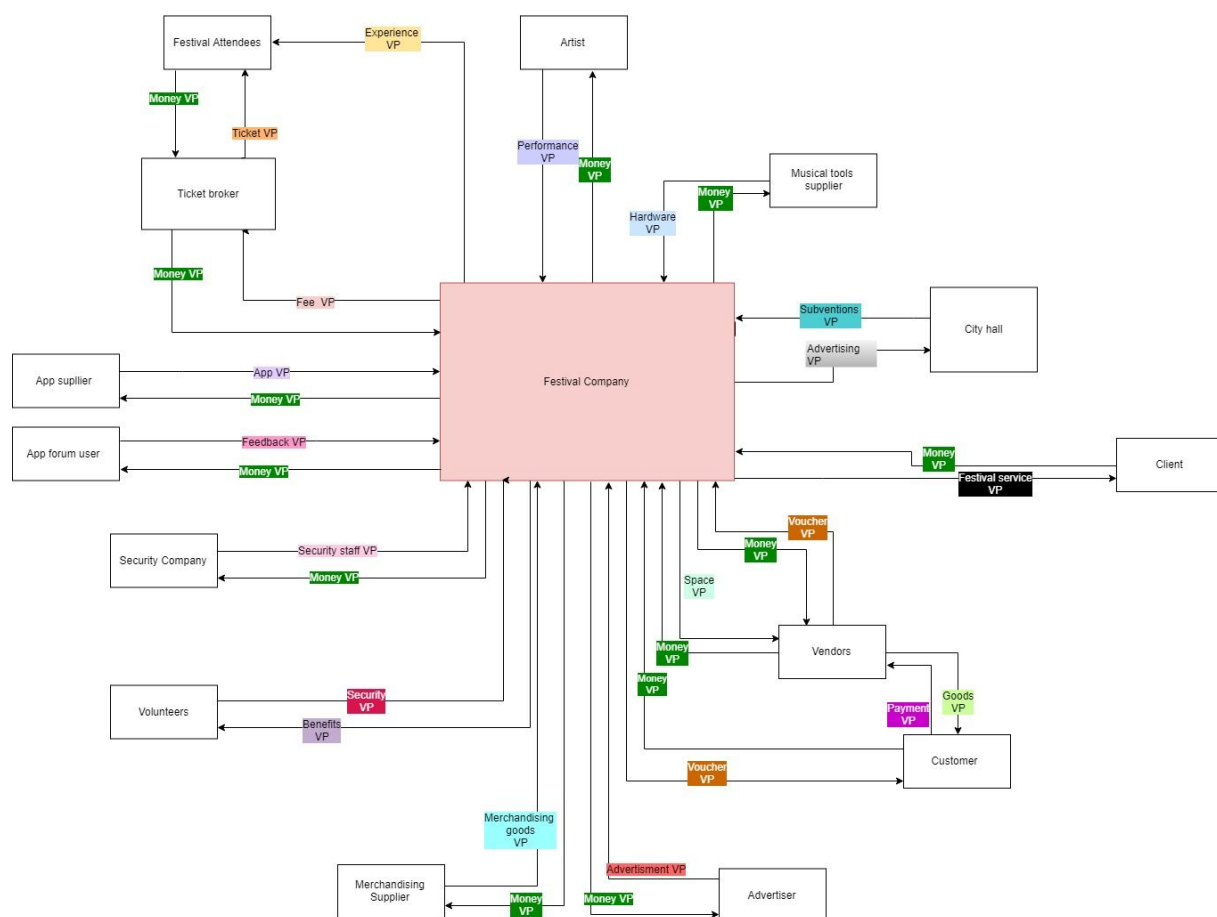


Figure 1 : The VDML diagram of the festival company.

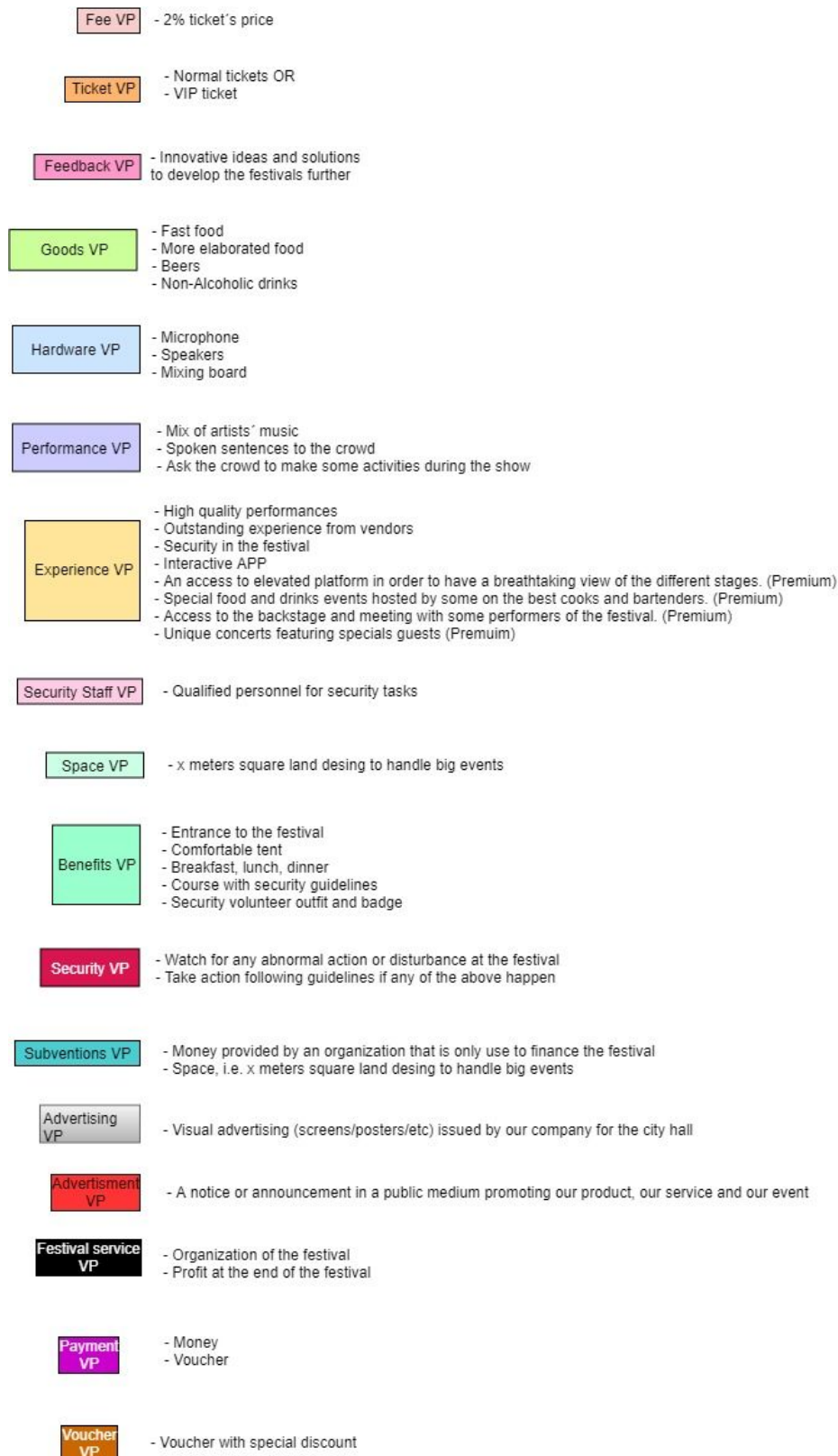


Figure 2 : A textual explanation of the different VP involved in the VDML diagram.

3.2 Textual explanation of the VDM diagram

Our festival company interacts with several stakeholders:

- Artists → Our company pays them to provide to the public a high-quality performance by playing music, entertaining the crowd with some activities and involving the public in the festival with some spoken sentences.
- Music tools supplier → Our company pays them to provide music hardware for the performance, such as speakers, microphone, mixing board, etc.
- City hall → Our company advertises them through posters and screens in order to benefit some subventions such as money for the festival or location for the events.
- Client → This stakeholder commissions the organization of the festival to our company in return of a payment.
- Vendors → On one hand, our company gives to them, in return of a payment, a space and the permission to sell goods in our festival as well as posters to advertise themselves, in the other hand, our company exchanges the vouchers for money.
- Customer → It is linked with two actors:
- Festival company → the customer may purchase from our stands the vouchers with special discount, as 100€ of vouchers are equivalent of 125€ of purchase;
- Vendors → the customer may purchase a meal from a fast food or a restaurant, in addition to several kinds of alcoholic and not-alcoholic drinks, in exchange for money or voucher.
- Advertiser → It promotes our events, products and services by means of notice and announcement on a public medium in return of payment.
- Merchandising supplier → It provides, in return of payments, official merchandising goods, such as special t-shirts, bracelets and sweatshirts, in order to sell them during the festival.
- Volunteers → They watch for any strange behaviors or disturbance during the festival in order to prevent or take action; in return, our company gives to them some benefits, as free entrance to the festival, comfortable tent to rest, 3 meals per day, a course for security guidelines, security volunteer outfit.
- Security company → Our company hires a qualified security staff from a security company.
- App forum users → Our company pays them to receive feedbacks about the festival to improve it further.
- App supplier → Our company commissions to them the official app of the festival, that includes customer satisfaction section, information about the artists, map of the festival and the schedule of the performances.
- Ticket broker → It gives to our company the revenue of the ticket sales in exchange for a fee, the 2% of the ticket price.
- Festival attendees → They purchase from the ticket broker the standard or VIP ticket; with the first one our company guarantees high quality performances, outstanding experience from the vendors, secure festival and the interactive app, moreover with the second one it guarantees as well the breathtaking view of the different stages, special food and drinks, access to the backstage to meet the artists or the special guests.

4 Goal Design

4.1 BMM Goal Model

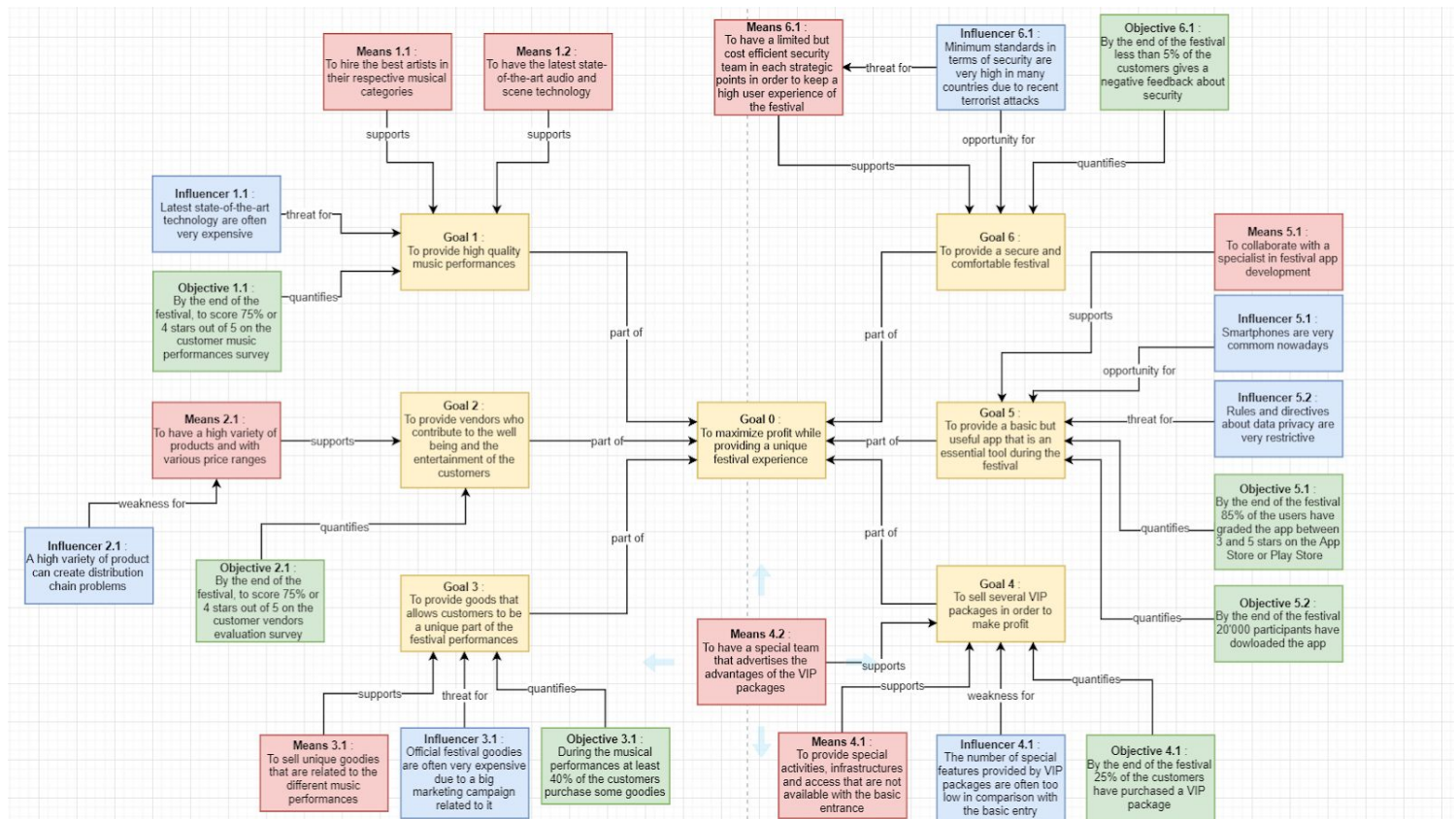


Figure 3 : BMM Goal Model

For a better view of the diagram [click here](#)

Our company's most important objective corresponds to the top goal described in the goal model: *To maximize profit while providing a unique festival experience*. From that top goal, we have developed six more sub-goals that focus on each one of the most important parts that our festival should have:

- To provide high quality music performances → Goal 1
- To provide vendors who contribute to the wellbeing and the entertainment of the customers → Goal 2
- To provide goods that allows customers to be a unique part of the festival performances → Goal 3
- To sell several VIP packages in order to make profit → Goal 4
- To provide a basic but useful app that is an essential tool during the festival → Goal 5
- To provide a secure and comfortable festival → Goal 6

Porter's models that relates with our goals:

Competitive Rivalry: Our service stands out respecting our competitors by offering vendors who contribute to the wellbeing and the entertainment of the customers, providing goods that allows customers to be a unique part of the festival and having a limited but cost-efficient security team in each strategic point in order to keep a high user experience of the festival.

Supplier Power: Every described goal is related to this force (except goal 4). Hardware suppliers, vendors, merchandising suppliers, app developers and security companies are not in shortage. There are a lot of possibilities to choose.

Buyer Power: the ticket sales and festival's name importance are the one that set the price of the tickets. Depending on the festival's name cache we will attract more or less people.

Threat of New Entry: Our principal attraction to the customers is creating a marvelous experience in every field of the festival; from the main concerts and shows to the vendors and security. If any new festival company is able to improve or even copy any of these aspects it would be a new competitor. However, the ability and experience required to simulate our service are very high.

5 Process Design

5.1 Conceptual schemas of the company

Here is an example of one of our conceptual schemas. This one represents the exchange and conversion processes between the festival company and the artists performing during the festival using the REA ontology.

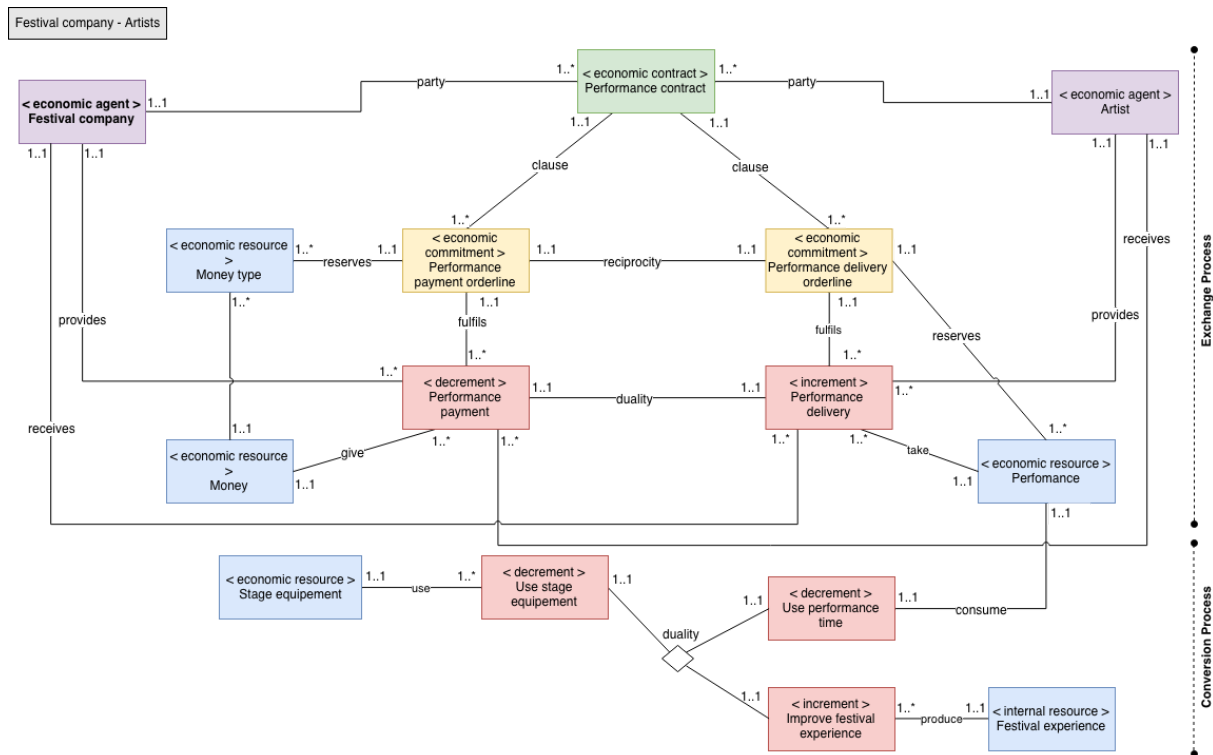


Figure 4 : An example of exchange & conversion processes using the REA ontology.

5.1.1 Exchange Process

The first part of this diagram is the exchange process between two different agents. The first agent is the festival company which is used as the point of view to build the diagram, and the second agent is the artist that will perform during the festival.

Both of the agents are related to an economic contract because we have planned that an artist could participate to various festivals that our company organize. Thus, they are also related to various economic commitments, events and resources that are in this case the payment from the festival company for a performance and the delivery of that performance from the artist.

5.1.2 Conversion Process

The second part of this diagram is the conversion process. Once the performance is paid by the festival company and delivered by the artist, there are two decrement events. The first one is the performance time that is *consume*, and the second one is the stage equipment that is *use*. This decrement opposed to the increment that is to improve the festival experience and *produce* an internal resource that is the festival experience.

5.2 Value Process Graph

This is how the entire value process graph looks like for the entire company. In the middle we have one main process which is the festival organization process, and this big process needs to consume multiple resources in order achieve our goals. These resources are produced by individual functions that are connected to it. Further down we will break this diagram into maller pieces and explain it.

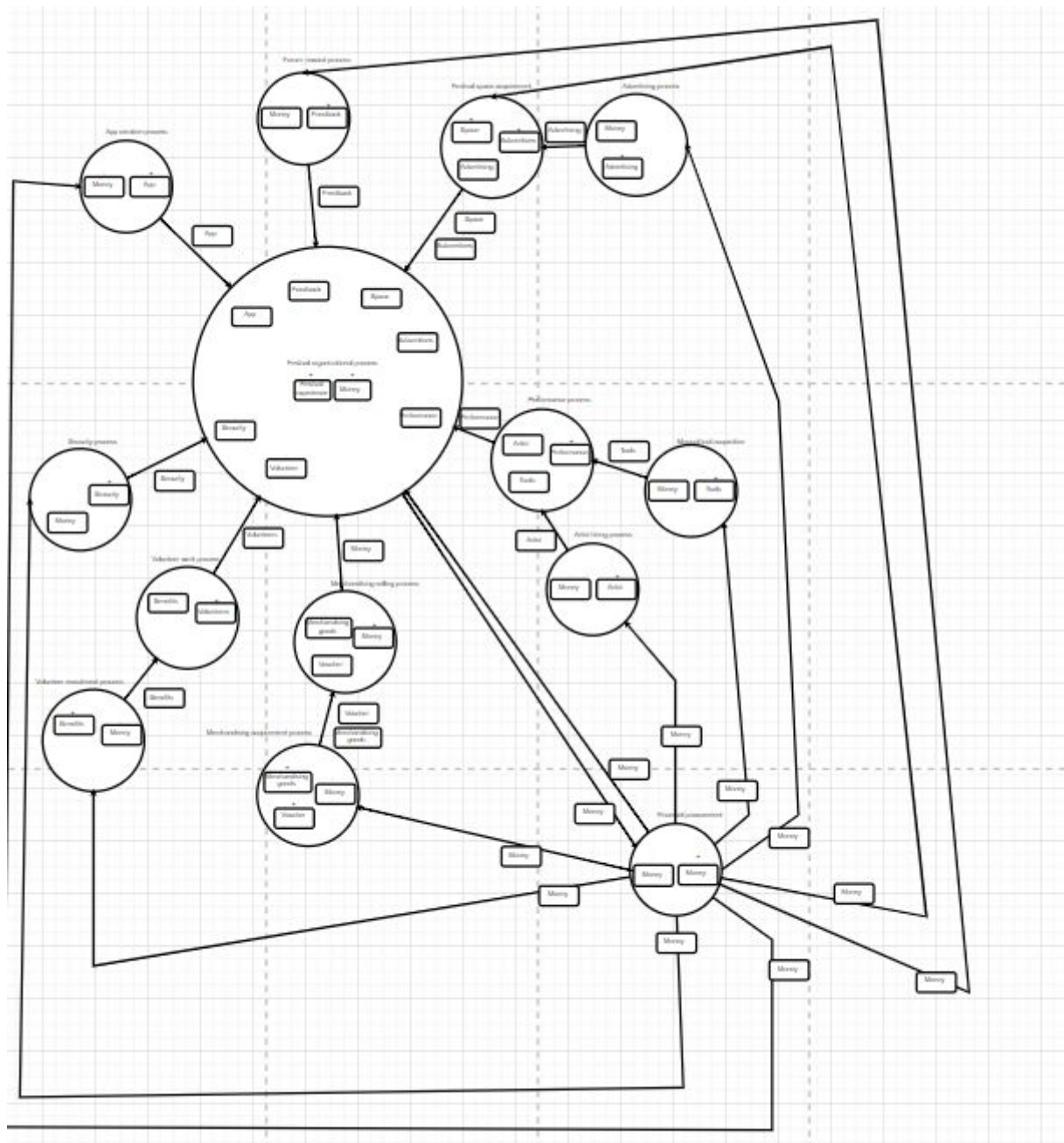


Figure 5 : The entire Value Process Graph of the festival company.

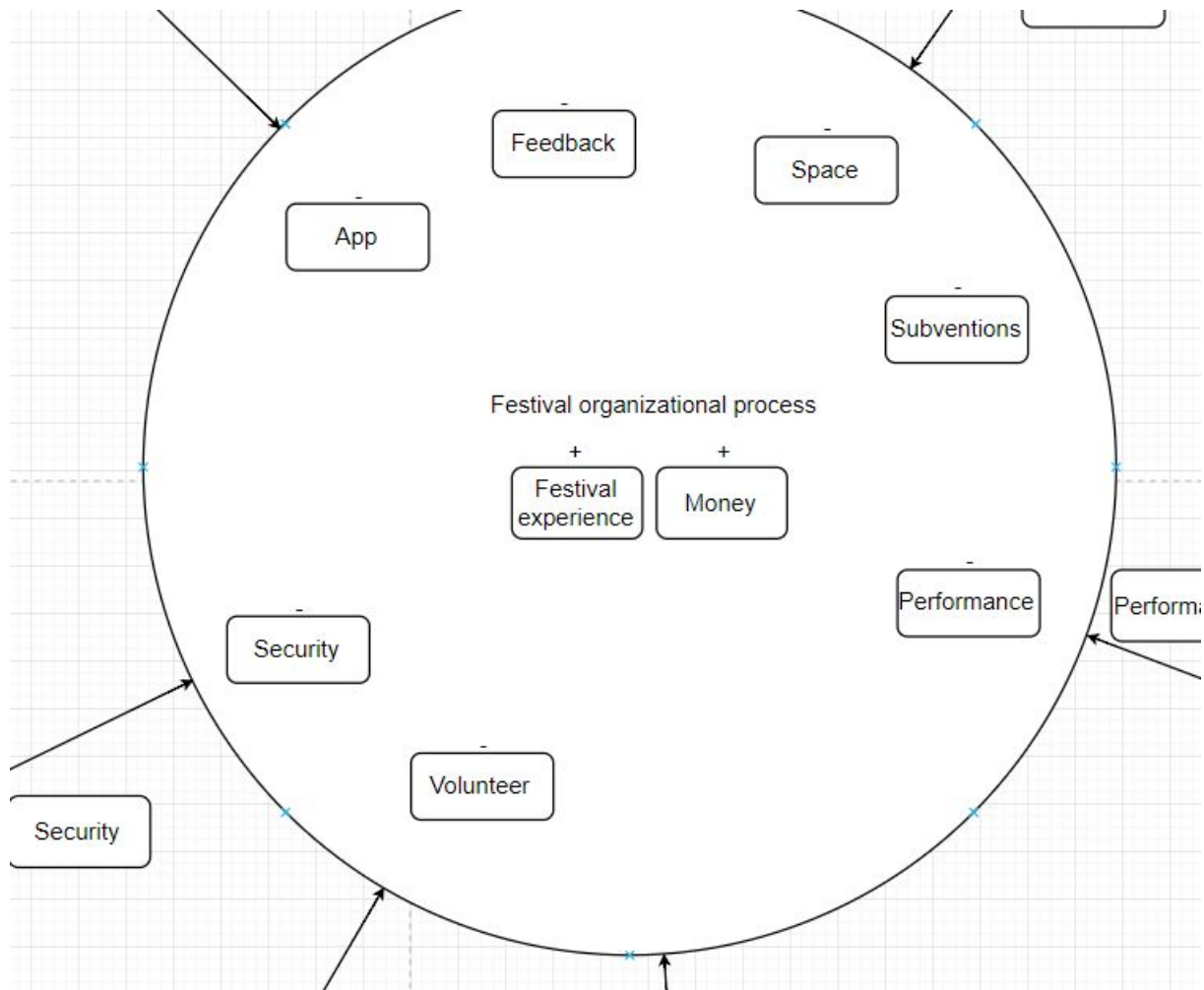


Figure 6 : The main process: Festival organization process.

In the middle our company has a main process called festival organization process where all the resources produced in order to support to main process are consumed. Our goal is produce the festival experience and money, and in order for this to happen we need to hire a security company, find volunteers, develop and use an app, organize the performance by finding artists and hardware (e.g. speakers), find and use the space in which the festival will be organized, and finally receive feedback from our attendees and reward them for it.

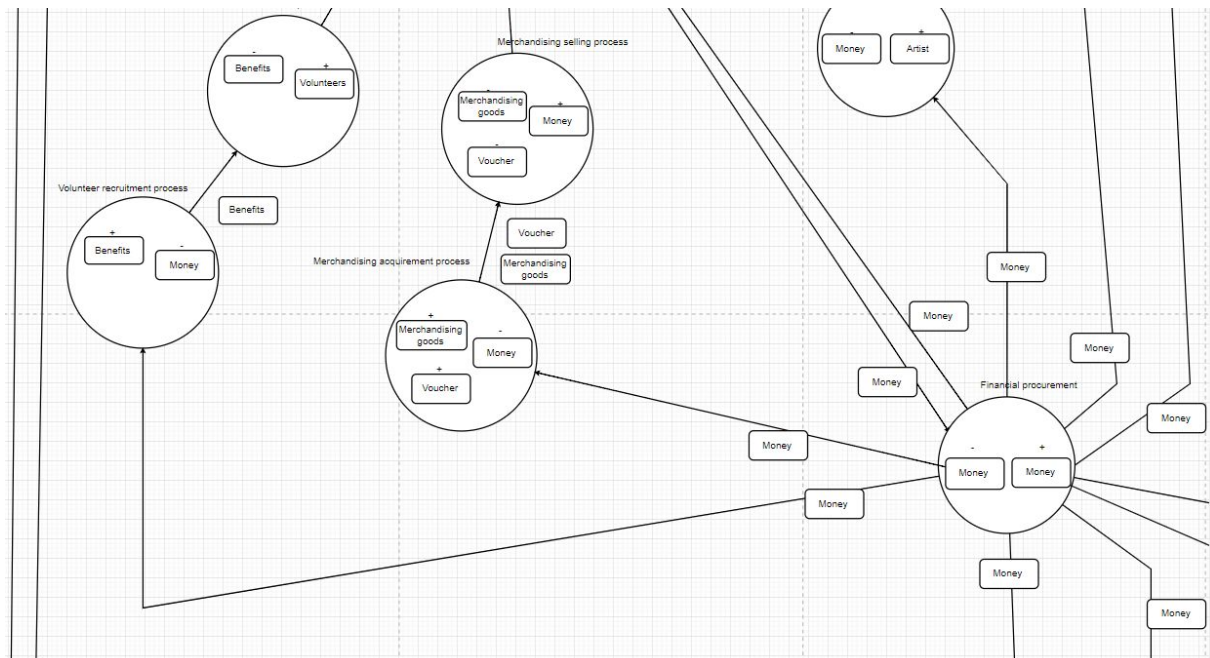


Figure 7 : The security, volunteers recruiting and merchandising processes.

To support the main process, we have the security process, the volunteer recruitment process and the merchandising process.

- The security process is related to the hiring of a security company in order to have a secure festival. Hence the process consumes money and produces security.
- The volunteer work process is related to finding people that are willing to volunteer in order to help us organize the festival. In this process we lose time and effort in order to find and train them, and we give them benefits (e.g. being able to stay on the festival grounds without a ticket for the entire festival period). In order to obtain the benefits that the volunteers get, the volunteer recruitment process spends money in order to create them.
- The merchandising sales process is related to the stationary and moving vendors that will attend our festival, and also to the different goods that we will sell with our festival brand on them. We also give customers vouchers in order to try to increase our final sales. The merchandising acquiring process uses money in order to obtain the vouchers and the merchandising goods.

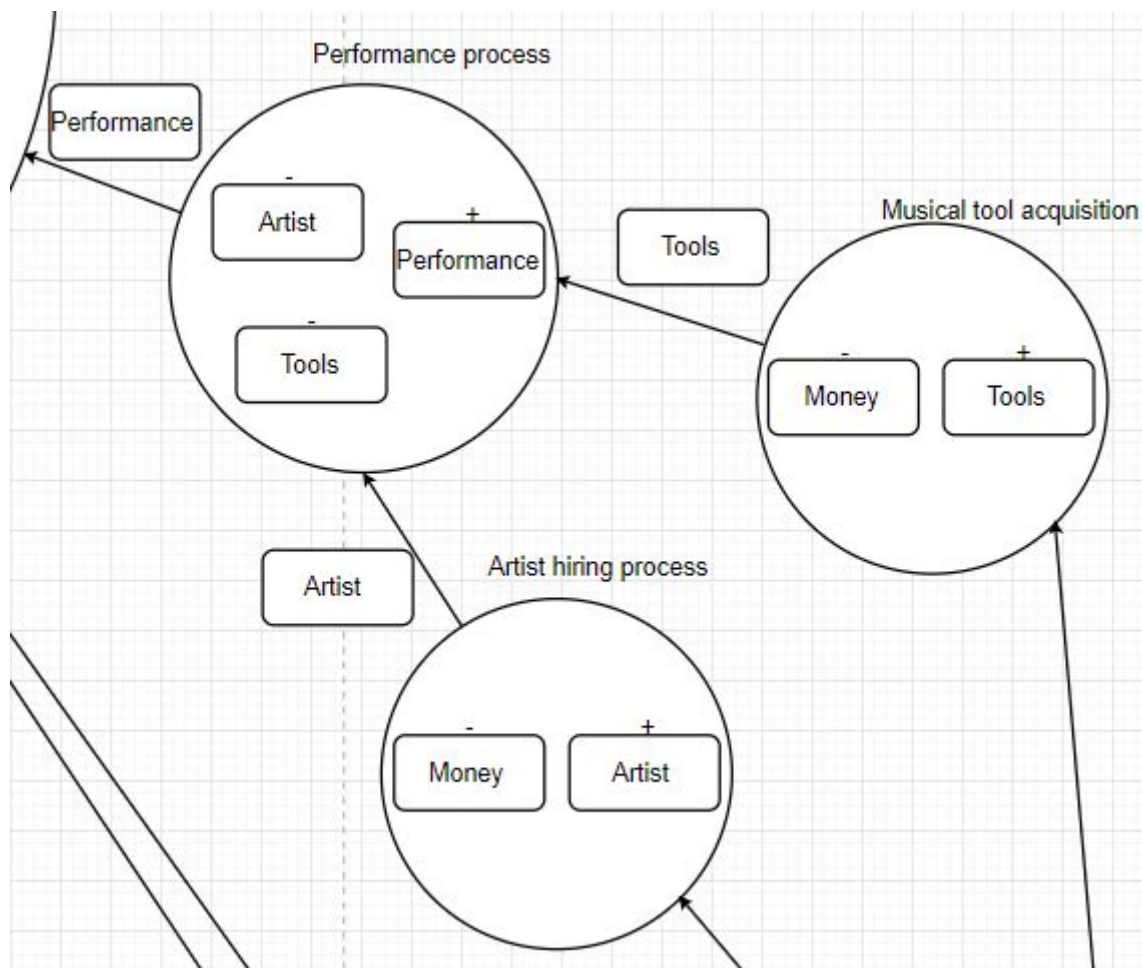


Figure 8 : The performance process divided into two sub processes.

In order to create the performance, we need to have a stage with proper musical equipment and we need to have the artists perform on them at allocated times. So, the performance process uses artists and tools (meaning the musical hardware and also the stage equipment), and in the artist invitation process and musical tool acquisition we use money to acquire those resources.

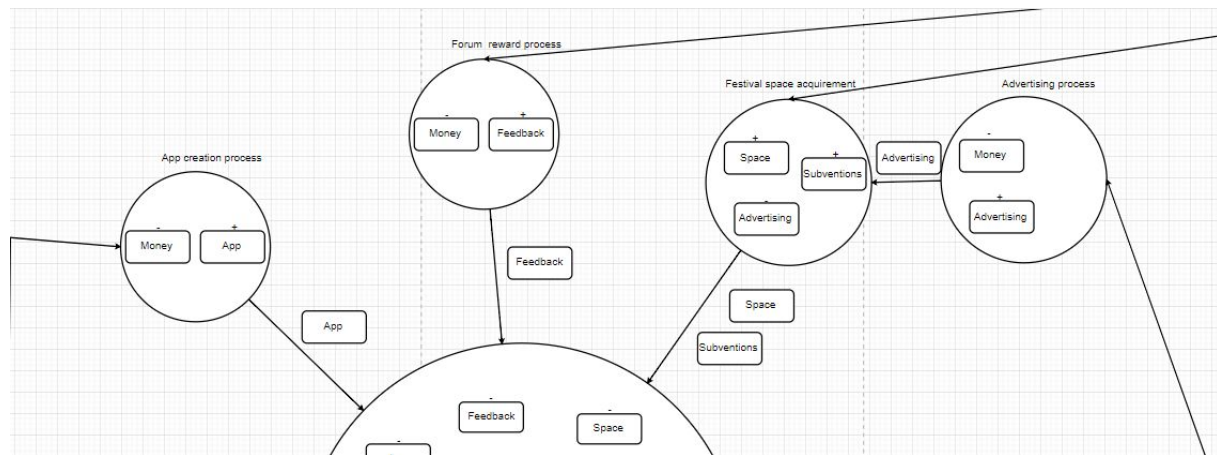


Figure 9 : The app, forum and festival space acquirement processes.

In order to have an app, we need to create it. In the app creation process we hire a company to create a festival app for us that can ticket purchases and displays the festival schedule. So, in the process, we give money to an IT company and in the end we receive the app.

Forum users are rewarded for their good contributions. In the forum reward process, it is displayed that the company gives them money, and they provide us with feedback that we can use in the future in order to improve the festival.

In the festival space acquirement process we gain “space” which means the right to organize the festival in a specific location. Usually this space is acquired from the city hall, and we provide them with advertising, meaning we put the city hall sigil on our merchandise. Also, because having a festival provides the city with a lot of job opportunities, tourism, and a lot of people willing to spend money at restaurants and other local businesses, the city hall wants to attract us by providing benefits to us.

5.3 EPC Diagrams

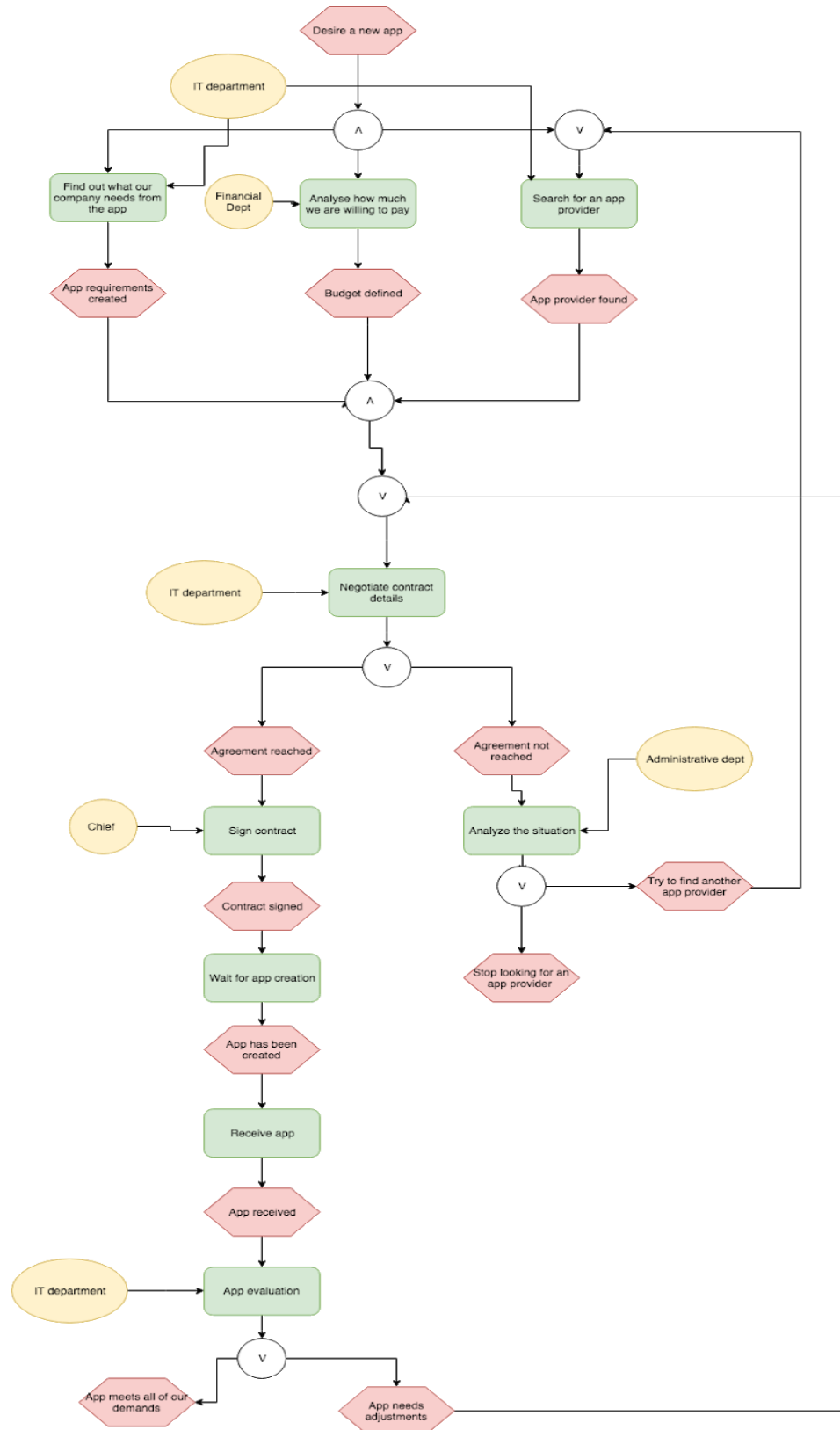


Figure 10 : The EPC Diagram of the festival app.

In this EPC diagram our first goal is to have a new app. So, we analyze what our app needs to have, how much are we willing to pay, and we search for an app provider. When all 3 are done, we can start to negotiate the contract detail with the app provider we found. If we agree on the details, we sign a contract and we end up evaluating the app. If the app does not meet our demands, we will negotiate contract details again. If an agreement with the app provider is not found, we search for a new app provider and we will repeat the cycle. Every function is done by a specific department in the company, related to them. This EPC diagram is related to the app company agent in the VDML where the app is their VP and the money is our VP.

5.4 Textual explanation of the different models

5.4.1 REA Diagram

The REA diagrams that we have modeled for the company help us to have a good representation on how the different goals can be accomplish. For instance, one of our goals is to provide high quality music performances and we use multiple REA diagrams (festival company relationship to artists, music tool supplier etc.) to represent the exchange and conversion processes between these actors in order to understand how we can achieve the different goals set up by the company.

5.4.2 Value Process Graph

The Value Process diagram helps in fulfilling the goals of the company by making it clear what our main process is (festival organizational process), what resources it needs to consume in order to produce the resources that we have to produce in order to achieve the goals of the company. It also shows the processes that support the main one, and the flow of resources between each process. Thus, it gives a top-level view of the organization in resource flow-oriented way.

The Value Process diagram has a few concepts that correspond to the REA ontology. Processes can be seen as economic events, and the units consumed or produced inside a process are economic resources. The connections between 2 processes showing the flow of resources could also be seen as an economic commitment.

The Value Process diagram is tightly connected to the EPC models. The Value Process diagram shows a top view of the processes and resource flows, while each EPC model shows how one individual process must be carried out.

VDML diagrams show agents and value propositions, while the value process diagram shows processes and resources. Basically, the VDML diagram answers the questions: **what** each economic agent gets and why is it valuable to them, while the value process diagram completely ignores agents and only focuses on **how** each resource is created. Resources and value propositions are connected but not identical, because the same resource can have different value in the eyes of different agents. Also, the resource just is (a tablet) while a value proposition further details it (a thin tablet).

5.4.3 EPC Diagram

EPC diagrams help fulfilling our company goals by doing a virtual schema of the procedure we follow in each process. This allows us to be better prepared for every situation and having a clear path to follow. This visual representation relates to our conceptual schema by explaining every process that we make in our company.

6 Rules Design

To support our business activity, we have created a set of behavioral rules and advice that will guide different agents in the process of doing their job properly.

6.1 Behavioral Rules

1. If a festival attendee buys 3 tickets, he must be given a 10% discount.
2. When a broker sells all the tickets, we give them, they get a bonus payment.
3. For very good feedback, the forum poster must be rewarded a bonus payment.
4. If an artist agreed to come but then changes their mind, they must find a replacement for the festival.
5. There must be 4 guards at every entrance at all times.
6. Security guards must wear gloves
7. Volunteers must wear the special volunteer jackets.
8. The acquired business space must be near a city.
9. The merchandising must arrive at least 2 days before the concert.
10. Guards must only search people of the same sex
11. The food must be checked by food quality assurance every day.

6.2 Advice

1. Customers can purchase VIP packages to get additional features.
2. Customers can buy official goods in order to support the festival.
3. Forum posts can receive up to 200% of the standard forum post payment to good forum posts.
4. Customers can use the ticket to enter the festival even if you miss the first festival day.
5. Tickets can be refunded if the attendee has serious health issues
6. Security can take breaks if 4 guards are still guarding the gates.
7. All festival attendants can post on the forum
8. All festival attendants can take photos on festival grounds
9. The app can be downloaded for free by anyone
10. Any person of legal age by law can register to be a volunteer
11. Artists can organize their performance however they want as long as it is within the scheduled time

7 IT Architecture Design

Business performance management (BPM) is the management philosophy adopted by our company. This approach aiming at optimizing an enterprise's performance, i.e. optimizing its business processes (quality of processes) and outcome (quality of goods and service).

The framework used for supporting BPM approach includes:

- a typical DW (Data Warehouse) architecture where an ETL tool (Extract Transform and Load) extract data from different OpS (Operational systems) and cleans/transforms/integrates them into a DW;
- BI (Business Intelligence) tools such as real-time tools or analytical ones able to transform data into valuable information;
- A Dashboard as strategic data visualization tool able to show (concretely) the right information to the right user.

The architecture continuously supports all the business process. First of all, the data from different sources are gathered, cleaned, integrated and stored in an ad hoc DW. Secondly, BI tools transform this data in useful and indispensable information for all the levels of the company. Finally, a dashboard shows this information to the specific user who needs to be updated about the performance of a process. The dashboard also includes the KPIs established by the board of the company. Given that, it is possible to keep track about all the process carried out and eventually adjust behaviors and strategies according to the gap between the KPIs and the performance achieved.

Since the company's focus is on the quality of the service, even though this architecture could require huge investment and a data culture, the board believes that the implementation is essential to create business value and competitive advantage.

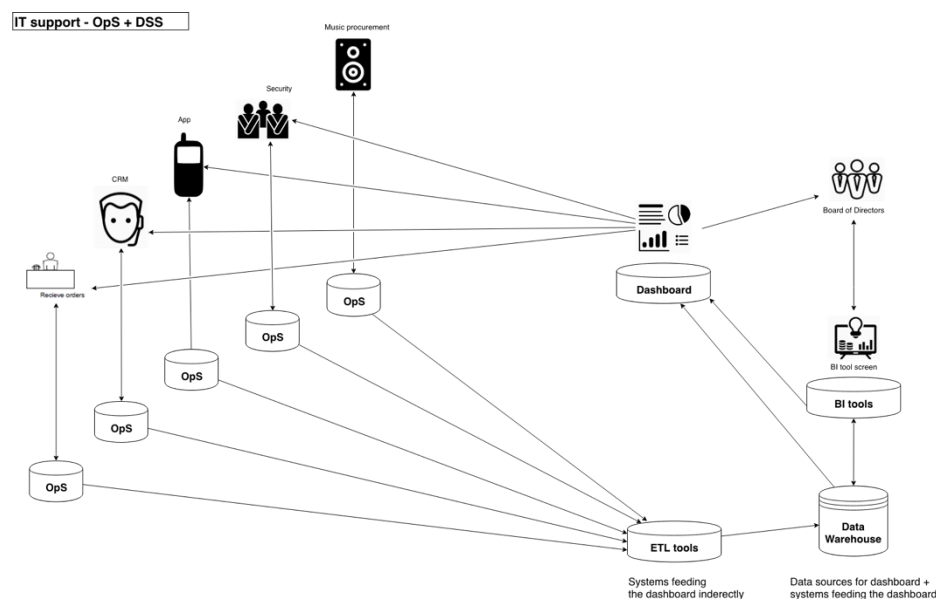


Figure 11 : The IT architecture of the festival company.

8 Process Measurement

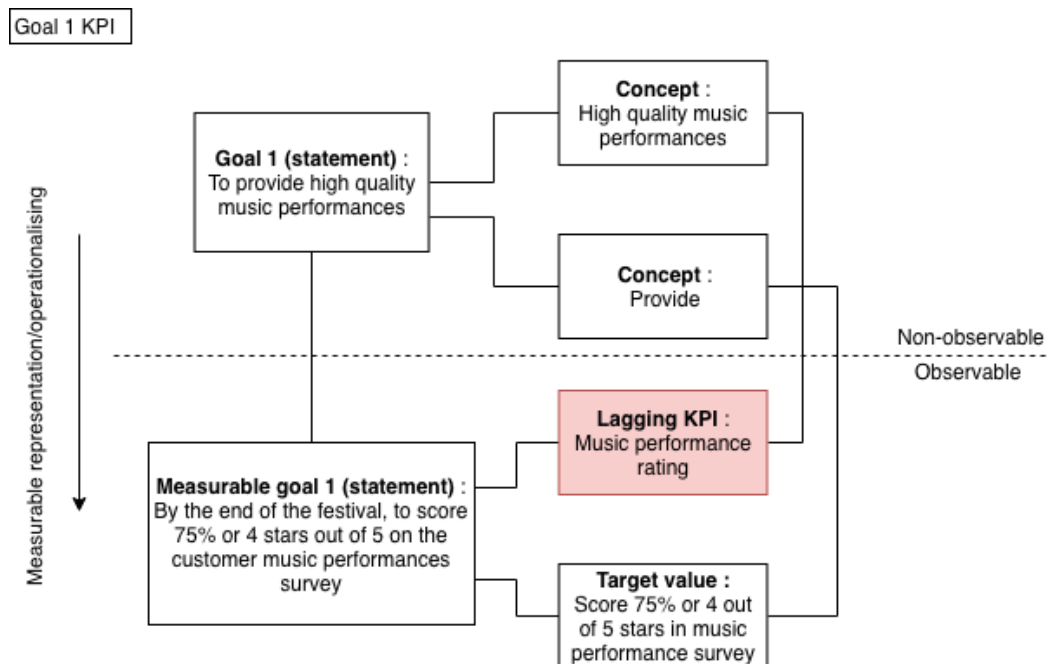


Figure 12 : Goal 1 lagging KPI.

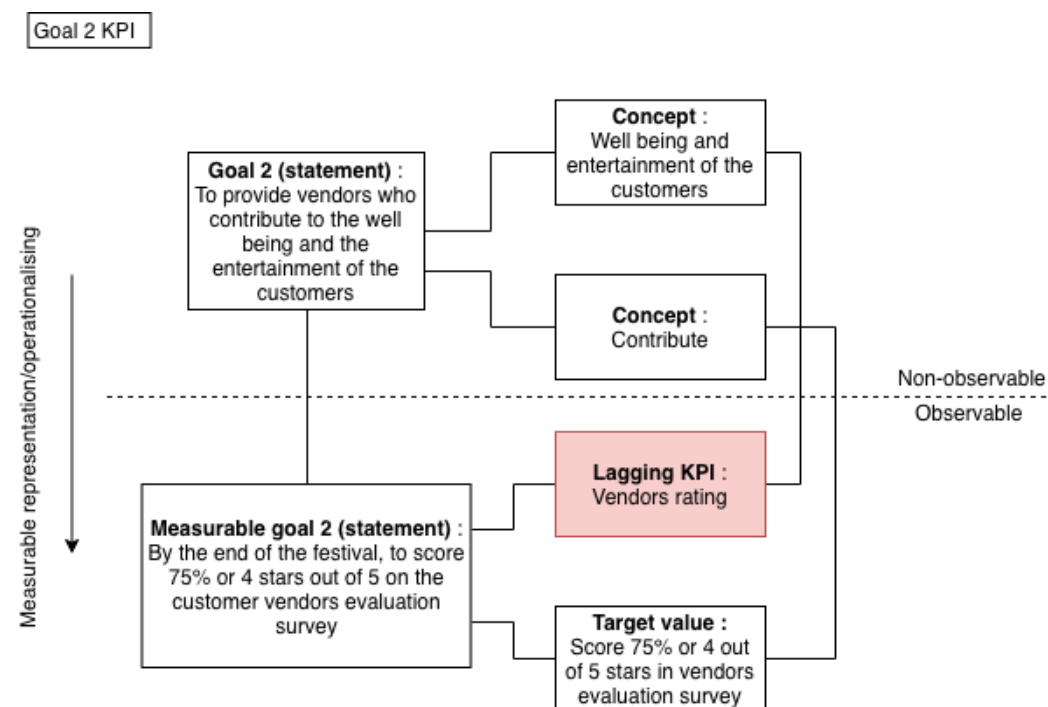


Figure 13 : Goal 2 lagging KPI.

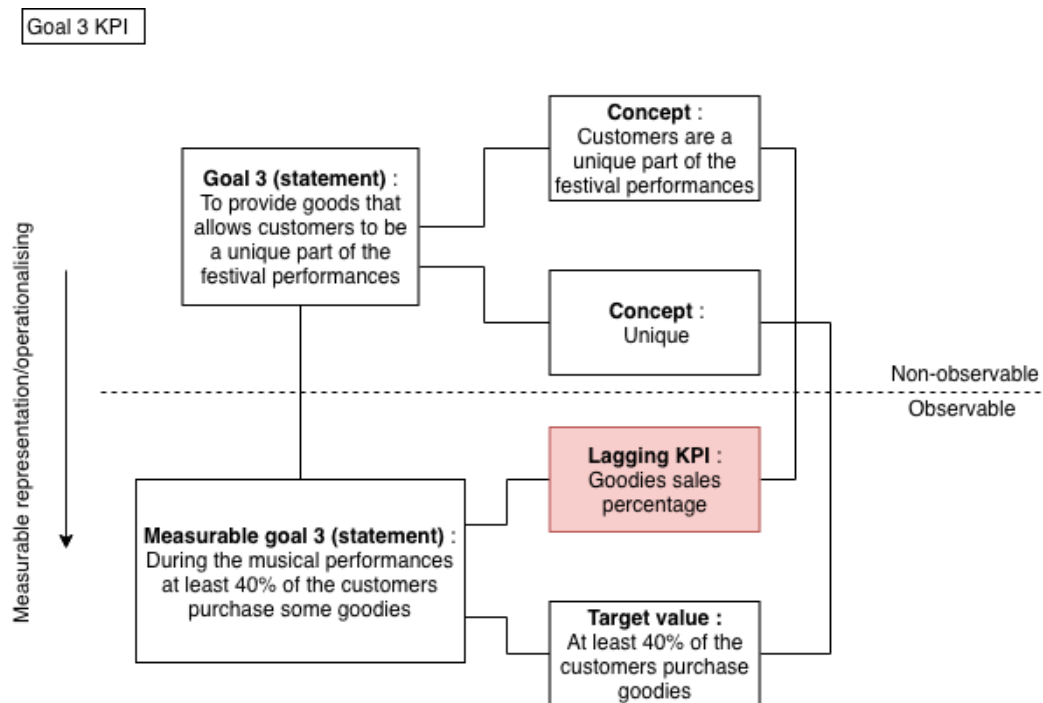


Figure 14: Goal 3 lagging KPI.

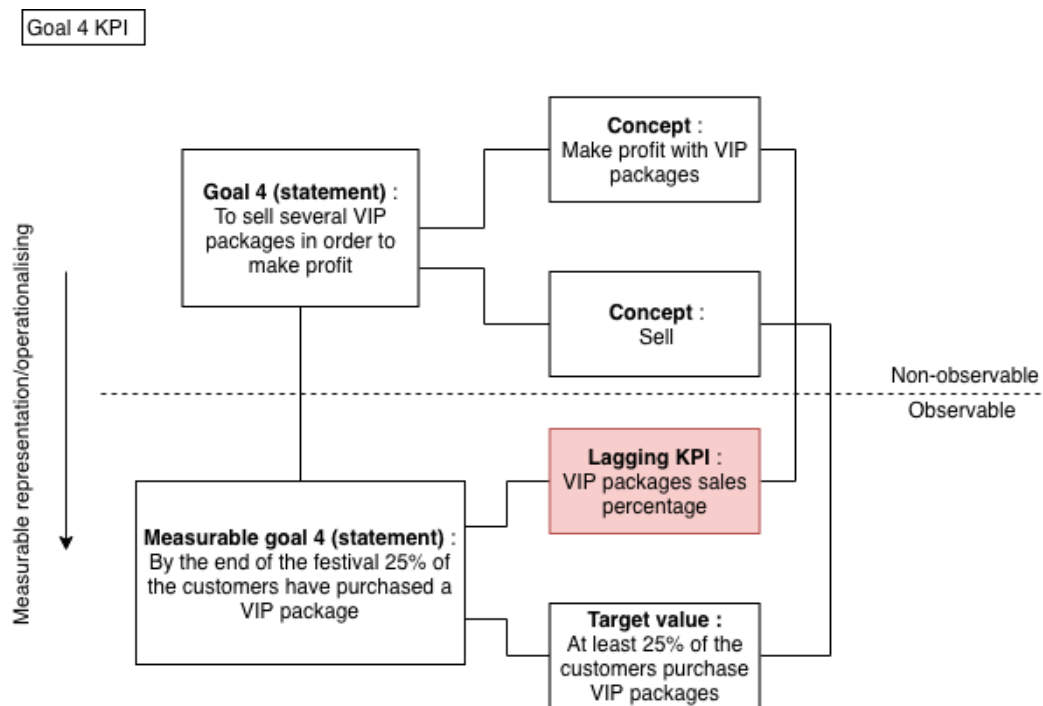


Figure 15 : Goal 4 lagging KPI.

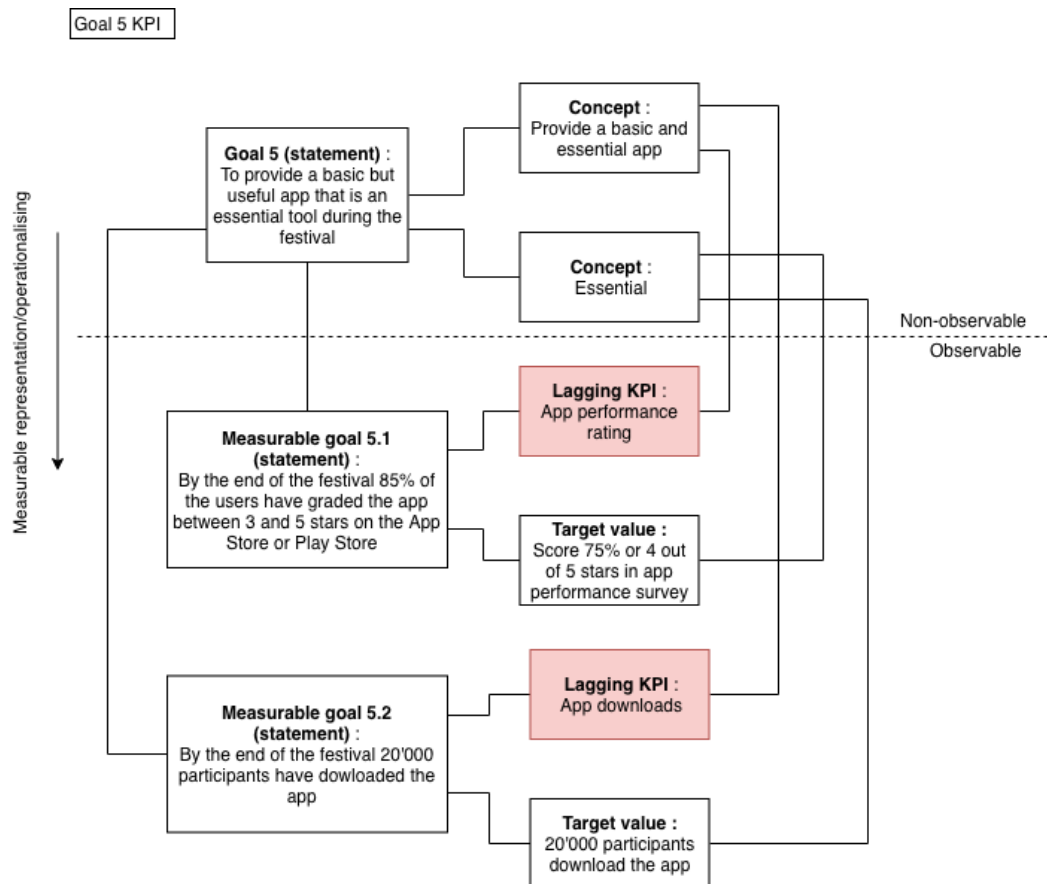


Figure 16 : Goal 5 lagging KPI.

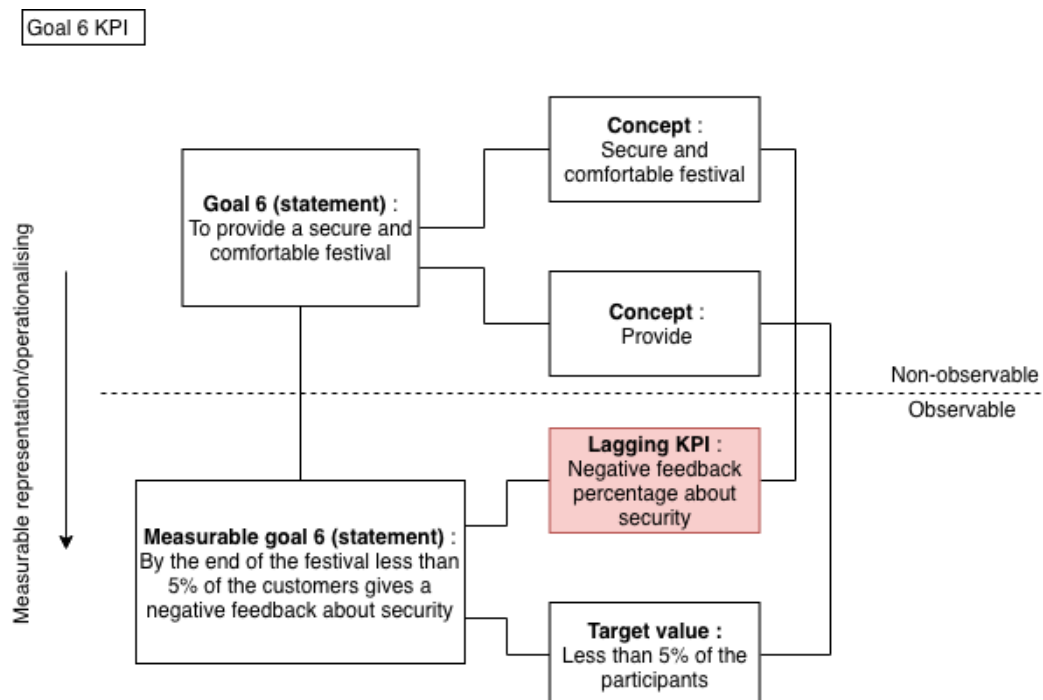


Figure 17 : Goal 6 lagging KPI.

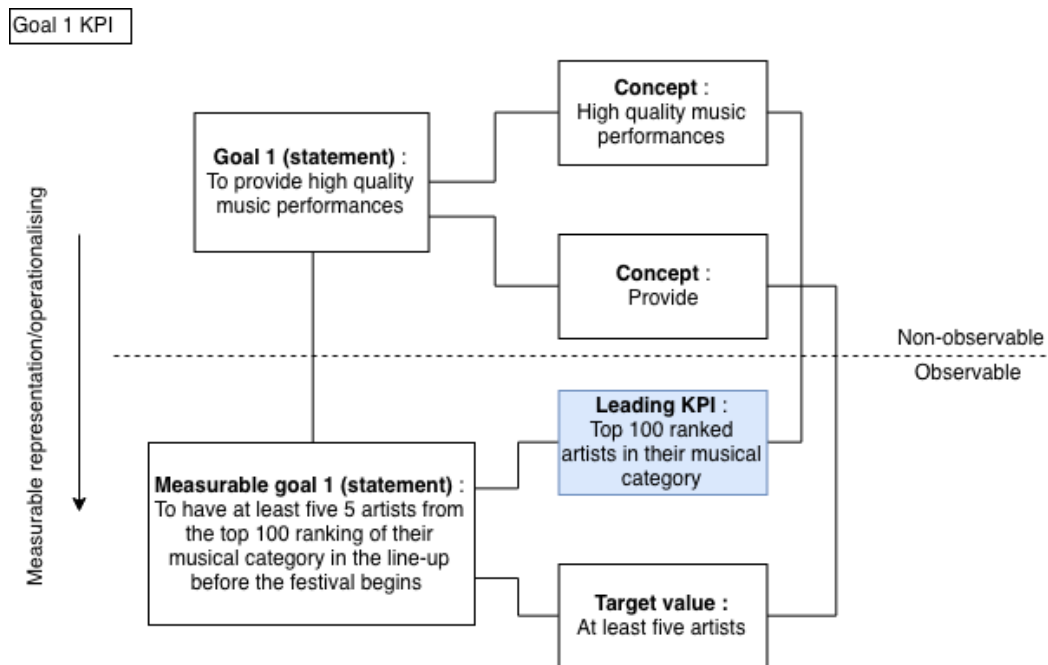


Figure 18 : Goal 1 leading KPI.

9 EA Evaluation

In order to ensure that we can achieve our goals and provide the promised value proposition based on the economic commitment of the ticket purchase, we have to make sure that we can provide a good festival experience under any circumstances. To achieve this, we have developed a capability diagram. In the top left we have a context set, and in the middle the capability and variations.

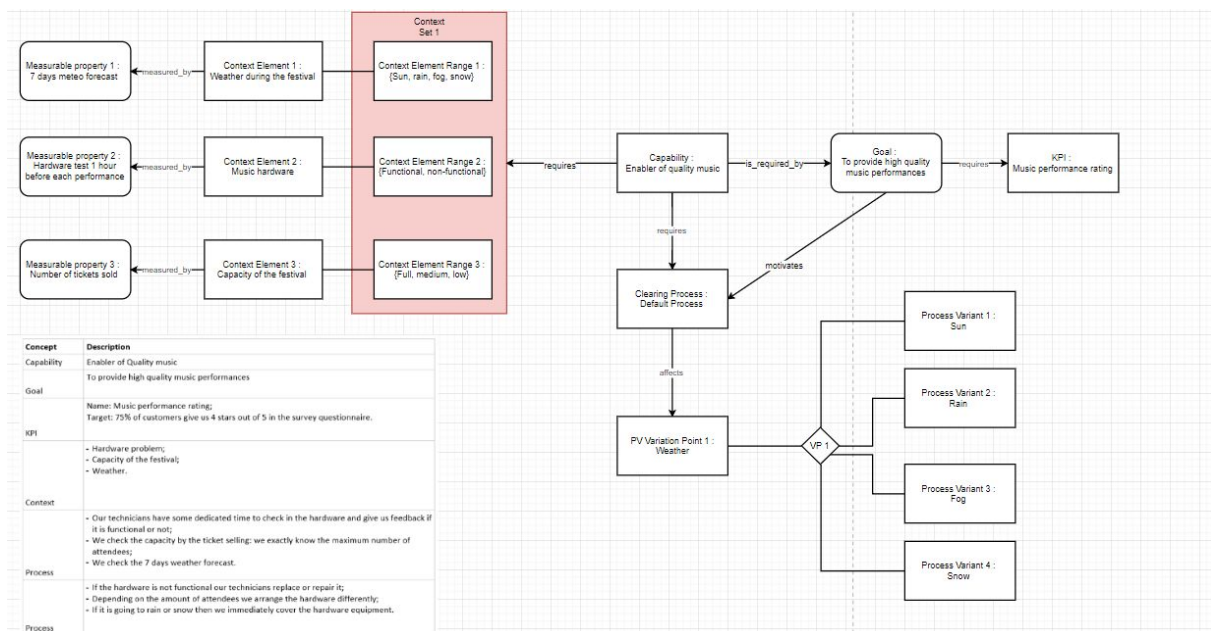


Figure 19 : The capability diagram of the festival company.

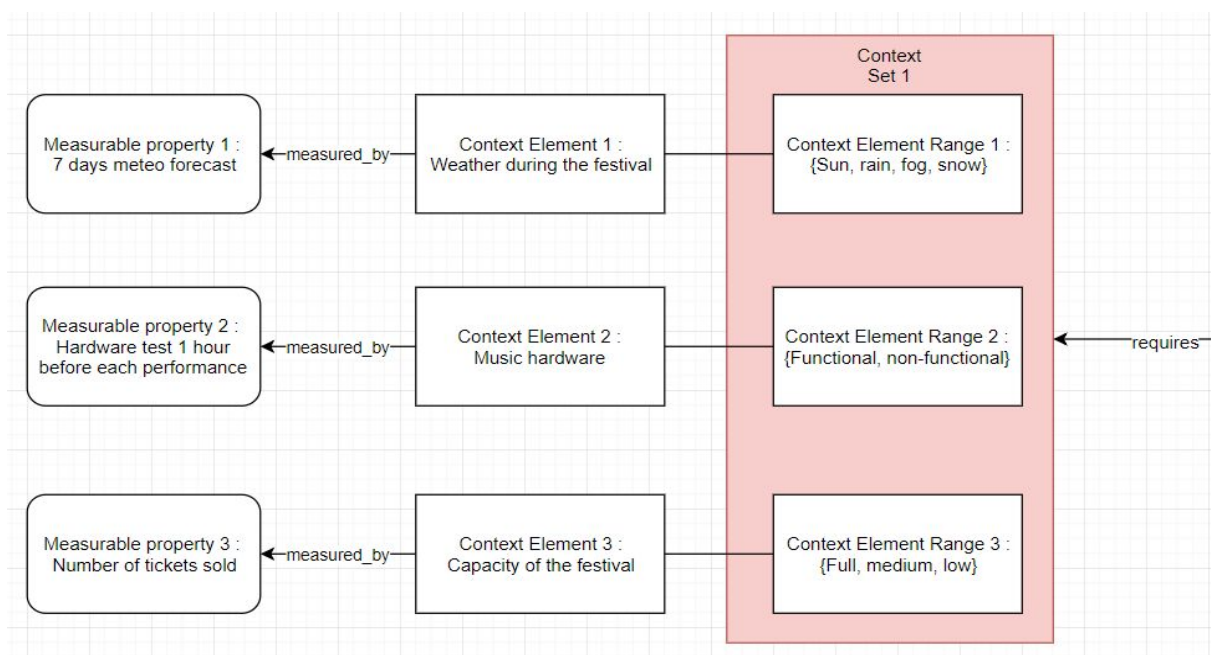


Figure 20 : Capability diagram's context set, element and measurable properties.

The context set covers different factors, such as weather, hardware functionality and festival capacity. The first context, weather, defines elements that we have to adapt to, such as rain or snow because it could potentially ruin the hardware equipment and destroy the festival experience. We also check the functionality of our current equipment, and have processes ready to replace them, and based on the festival capacity, we reorganize the speaker positions: if the festival is full, we spread the speakers as much as we can to cover a big area, but if the capacity is low, we use all the speakers near the stage itself.

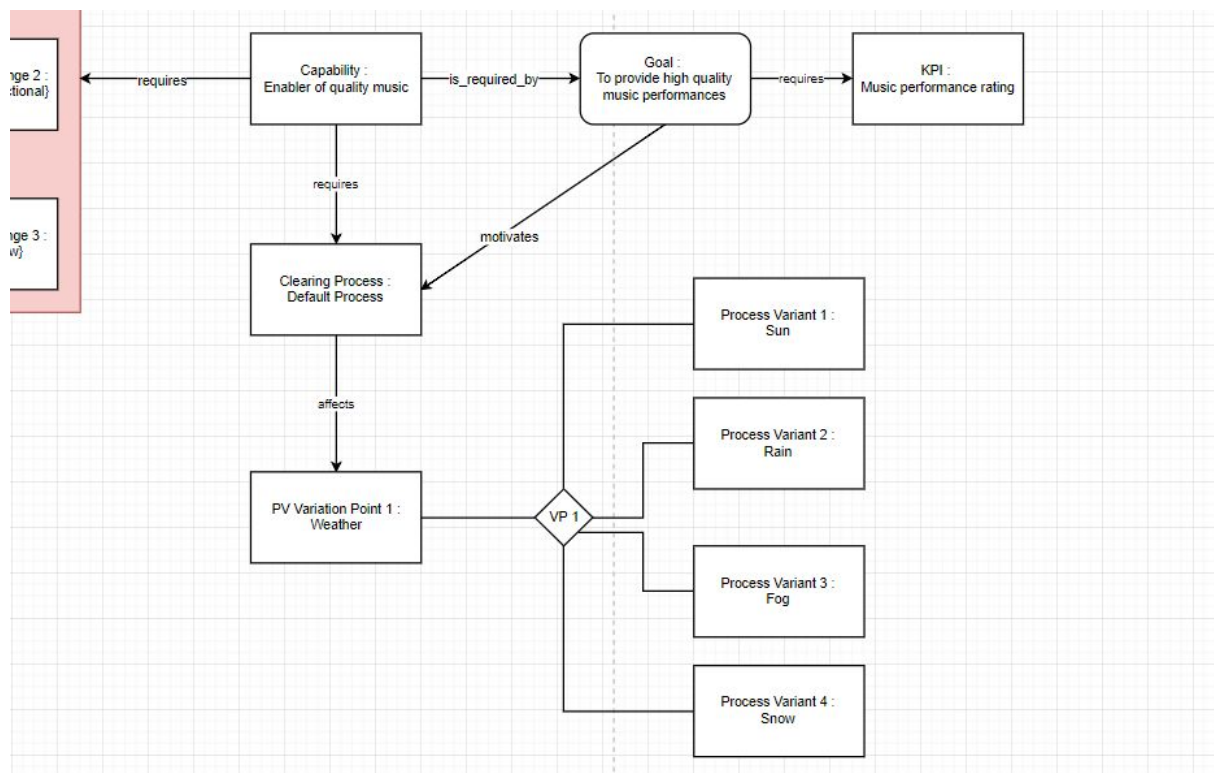


Figure 21 : Capability diagram link to goals and process variant.

The capability we are achieving is providing quality music under the contexts we have covered. The capability is linked to the goal of providing high quality music performances, which separates us from our competition. The process variations cover the weather context, and it describes what do our workers have to change in their normal process routines if it is sunny, rainy, foggy or snowy.

This is the Capability Elicitation Template that is related to the capability diagram that we have developed.

Concept	Description
Capability	Enabler of Quality music
Goal	To provide high quality music performances
KPI	Name: Music performance rating; Target: 75% of customers give us 4 stars out of 5 in the survey questionnaire.
Context	<ul style="list-style-type: none"> - Hardware problem; - Capacity of the festival; - Weather.
Process	<ul style="list-style-type: none"> - Our technicians have some dedicated time to check in the hardware and give us feedback if it is functional or not; - We check the capacity by the ticket selling: we exactly know the maximum number of attendees; - We check the 7 days weather forecast.
Process Variants	<ul style="list-style-type: none"> - If the hardware is not functional our technicians replace or repair it; - Depending on the amount of attendees we arrange the hardware differently; - If it is going to rain or snow then we immediately cover the hardware equipment.

Figure 22 : The capability Elicitation Template for the festival company.

10 Improvements from the modelling session

We didn't have a lot of improvements ideas during the modelling session, because our two companies were operating really differently. The only improvements that we can state in this report could be some extra services that our company didn't propose like for example a service of shuttle buses that takes the festival attendees to the festival location for a certain cost.

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