

LAPLAND UNIVERSITY OF APPLIED SCIENCES

Catching Maupertuis

With LoQuiz

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Introduction

This is a report about our groups product development work. The goal for this project was to develop a small scale cultural heritage product for a chosen company. Our commissioner for this project is “On the Footstep of Maupertuis” foundation. The “On the Footstep of Maupertuis” foundation was founded in 2013. The aim of this foundation is to increase knowledge about Maupertuis within the local tourism companies and people by developing different tourism products related to Maupertuis in Tornio River Valley area.

Pierre-Louis Moreau de Maupertuis was a French mathematician and philosopher. Maupertuis made an expedition to Lapland in 1736 to measure the length of a degree of an arc of the meridian. After careful consideration we decided to develop a location-based quiz game. We used Loquiz as a platform to develop this game. Loquiz is an Estonian company which offers an opportunity to develop games. Our product is called “Catching Maupertuis”. It is a unique location-based quiz game which offers information about Maupertuis. Customers playing this game will also learn many things about Maupertuis and get some hints about where to go and what to do in Tornio. Also in the end of the game they will receive some vouchers to local companies based on their scores in the game. In this report we are going to discuss about operating environment of Tornio River Valley, target groups, pricing, service concept, marketing, distribution and the realization of our product.

Operating Environment of Tornio River Valley

Tornio River Valley is located at the border of Finland and Sweden. Our product is situated in Tornio city but in the future it will be easy to expand the product to the whole Tornio River Valley. Tornio is a unique city due to the fact that it is located right next to Haparanda and both cities formed a tourism destination called TornioHaparanda. The main tourism attractions in Tornio are its shopping

possibilities, nature attractions, churches, museums as well as art and design attractions. According to the accommodation statistics in Tornio River Valley area it is extremely important to develop tourism and travel (Anita Jaako, 2012). When developing new products for this area we thought that it is important to take into account the values defined in the Lapland Tourism Strategy. These values are authenticity, customer satisfaction, high quality, innovativeness, safety and respect for nature (Lapland Tourism Strategy 2011).

Our product offers a new way to discover the city. The “Catching Maupertuis” game will guide customers through the entire Tornio city while discovering different attractions, restaurants and bars. The cooperation with local companies is therefore necessary in terms of benefits and image. Vouchers in the end of the game are an additional way to market companies.

To make the product work, “On the Footstep of Maupertuis” foundation needs to find co-operating companies who will sponsor the game and in return the foundation can market those companies in the game. We have now developed the first version of the game with some possible co-operating companies in Tornio. Of course there can be add more partners e.g. also in Haparanda.

One main for the “Catching Maupertuis” game is that there are no companies in Tornio area which are offering this kind of product. Also digital media and games combined with cultural or traditional themes are becoming more important in tourism industry (Kylänen, 2007). Tornio would be the first city in Lapland which would offer this Loquiz game. There is only one event management company in Helsinki that uses Loquiz in Finland. We believe that Loquiz has a lot of potential. It is easy to use for customers; they can rent a tablet or they can download the Loquiz app on their smartphones. Playing the game is not difficult at all and by changing the questions or the locations it is simple and fast to make the game more suitable for special groups.

We found the history of Maupertuis very fascinating. Maupertuis was in Lapland with his expedition during the years 1736-1737. The aim of this expedition was to

investigate whether the earth was flattened at its poles. This expedition drew attention to Lapland in Central Europe and journals concerning this expedition provide information about the life, housing, customs and people of the 18th century. For us it was an interesting learning process, and we got to familiarise ourselves with those historical events. The main challenge for our product development work was the lack of information about Maupertuis among the local people in Tornio River Valley. This challenge can be solved with a good marketing plan.

We believe that Tornio has a lot of potential as a tourism destination. As it says in Tornio city's webpage, Tornio has boundless amount of possibilities. Tornio is very easy to reach for tourists; the road connections are good from Finland and also from Sweden, the airport is situated very close to the centre, bus connections are good and Tornio has a harbour.

Target Groups

To make the "Catching Maupertuis" game as good as possible, we realized during our tutoring meetings that it is important to define the right target group for our game.

Our main target group are Finnish and Swedish couples who are between the ages of 30-45. Our target group is interested in history, Finnish culture and physics. Those couples have double income and no kids. They know how to handle new technology and they are well educated. They are either only visitors or staying in Tornio for one night or more. We chose this target group because we thought it is the most potential target group for our product.

Our secondary target groups are families, school classes, companies and local people. On both sides of the boarder there are over 800 000 people living and this forms a good customer group for our product (Körkkö, 2011). We believe that "Catching Maupertuis" is a good team building and get-together game for schools and companies. For school groups this game could be a learning process and of course it is possible to modify the game to be even more

educational. We believe that students will find this game more attractive than being in a normal history class. For families and elementary school groups it is possible to change the questions to be more suitable for children and changing the location to more peaceful areas, which would make it easier to avoid any risks concerning the traffic in Tornio city centre.

Due to the fact that local people do not know much about Maupertuis, playing this game would be interesting also for them. It is a new way to discover their home city and they will also learn something about new about its history.

Basically we believe that “Catching Maupertuis” game is suitable for everyone. Playing this game does not require any special skills, just a good motivation and a happy spirit.

Tourism Product

First we thought about developing a geo catching game for the whole Tornio River Valley area. We thought to hide “catches” in different spots in the Tornio River valley where Maupertuis has actually been and tourists have to find those “catches”. Our target group for this product would have been people interested in geo catching and hiking. During the developing process our group member Toomas Tammik came up with a better idea of using the geo catching concept and replaces those “catches” with questions. The solution was Loquiz. Loquiz is an Estonian company which offers the possibility to develop location-based games. After familiarizing ourselves with Loquiz technology we decided that using Loquiz would be more suitable for our product development work than geo catching. Loquiz is also a new kind of technology that would be unique in Lapland. We wanted to make playing the game suitable for diverse customer groups, so that is the reason why we chose Tornio city centre as operating environment. We also thought that locating the game to Tornio city centre would attract the largest possible amount of customers. Furthermore in order to increase customer loyalty the company could develop more games with different routes and questions. There

is a great potential to create games in the nature as well as integrating Sweden (Haparanda).

The owner of the “Catching Maupertuis” game is going to be Maupertuis foundation. “Catching Maupertuis” is a fun and innovative location-based game which is played with tablets. This game gives you an unforgettable experience in Tornio River Valley. You have a special opportunity to go back to Maupertuis’ expedition in 1736 and to get to know more about Tornio city and about Maupertuis’ life in Tornio River Valley. The idea of the game is to follow the notes of the map which brings you to a place where you have to answer questions correctly. Each location has its own puzzle that pops up when you are at the right spot. After that, the map will lead you to another point of interest where you answer the next question based on Maupertuis. Correct and incorrect answers move your team to different places. There is the possibility to play this game either within just one group or against other groups. In the end of the game each team will get special offers from different companies according to your teams’ result. People will discover the city of Tornio or the landscape of Tornio River Valley depending on the location while playing the quiz game. This product will increase customer’s knowledge about Maupertuis and Tornio’s history. “Catching Maupertuis” game includes the code to play the game and vouchers according to the scores of the game. As an appendix we have included into this report the map, questions and answers, blueprint and product card.

Sustainable Pricing

After familiarizing ourselves with different methods and approaches in tourism product pricing we decided to use gross price calculation to define the final price for our product.

First of all we started with the costs for our product per group. The calculation can be found in the excel file under the FIT-product. The amounts of clients we are going to expect are four people per team. The average use of the tablets is

the total groups we are expecting in the first year, which is 150 groups, divided through the amount of five tablets. The result is 30 units.

We will employ one intern who will work in average one hour per day to develop the games for 150 groups in the first year. The handling of the development is very easy and there is no need for any particular knowledge. Basically everyone can create a game within a short period of time. The salary per hour is 2,67 € which generates from the intern salary of 400 € divided through the 150 groups. In total it is 4,45 € for four people (see FIT-product table).

The variable costs are the equipment, codes and internet connection. We assume that our co-operating companies, like for example Tornio City Hotel, Art Museum, Café Kärkiäinen, will sponsor the costs for the codes which are in sum 2000,- € per year. We want to find at least ten companies in order to decrease the costs for every partner. In sum it is 5,86 €. Together with the development cost of 4,45 € it is 10,31 €.

Amount of clients	4	
Average use of tablets: total groups/5 tablets	30	
Product costs	Total costs	cost/person
Amount of workers	1	
working hours per day	1	
salary per hour	2,67 €	
Multiplier	1,67	
Sub-total	4,45 €	1,11 €
Variable costs		
equipment	0,73 €	
codes (2,08/pers. or 0,- sponsored)	0,00 €	
internet	0,73 €	
Sub-total	5,86 €	1,47 €
TOTAL	10,31 €	2,58 €

Image 1: FIT-Product table

The next table shows the calculation of our gross price (see excel file “gross price”). We want to reach a contribution margin of 29%. That means our price

without VAT is 14,53 €. We also need to consider the commission of 10% which finally brings us to the gross price total of 20,56 €. That means each member of a group has to pay 5,14 € with a minimum amount of four people which we are convinced is realistic and sellable.

Gross price per Person		5,14 €	
Gross price total		20,56 €	
- comission	10%	2,06 €	
- VAT	24%	0,49 €	
Net price		18,01 €	
- VAT	24%	3,49 €	
Price without VAT	100%	14,53 €	
- Cost price	71%	10,31 €	
Contribution margin		4,21 €	29%

Image 2: Gross Price calculation

Our incomes are generating from the gross price total 20,56 € multiplied by the total groups per year 150 which is 3081,31 €. Together with the income from the partners fees of 2000€ (200 codes x 10,- € for each code) we expect a total income of 5081,31 € in the first year. Our total costs are 3016,12 € (see further below). Finally we achieve a profit of 2068,20 € for the Maupertuis foundation.

For “Catching Maupertuis” we will need five tablets with covers and five pair of gloves for the cold winter season. Together it is going to cost 439,52 € exclusive VAT. We also need to invest money for the codes in order to get access to the game. There we have to subtract the Estonian VAT because those codes belong to the Estonian Loquiz company. Finally we also need an internet connection for each tablet as well as paying salary for developing the game. We decided to spend 400 € for an internship. Those 400 € with the multiplier for salary of 1,67 are 668,- €. The total costs are 3016,12 €.

Amount of tablets	5		Groups target	150
Amount of codes	200		Gross price total	20,56 €
Amount of internet for 1	60		Gross price per person (at least 4 people)	5,14 €
Developing salary/Intern	400,00 €		Sponsoring money	2.000,00 €
Multiplier salary	1,67			
VAT Multiplier Eston	1,20			
VAT Multiplier Finnlä	1,24			
	Cost Price incl. VAT	Cost Price excl. VAT	Cost price total	
Tablet leasing	84,00 €	67,74 €		
Cover	15,00 €	12,10 €		
Gloves	10,00 €	8,06 €		
Equipment Sum	109,00 €	87,90 €	439,52 €	
Loquiz code	10,00 €	8,33 €	1.666,67 €	
Internet	5,00 €	4,03 €	241,94 €	
Developing			668,00 €	
TOTAL COSTS			3.016,12 €	
Own INCOMES			3.084,31 €	
Partner FEES			2.000,00 €	
Profit			2.068,20 €	

Image 3: Profit table

In the next years the costs are going to be less because we don't need new equipment like gloves and covers and we also don't need to invest the same amount of money for developing the games. We expect more groups in the second and third year, which means that the company needs to buy more codes. On the other hand more groups means more income and the codes will be sponsored by our partners. In our opinion there is a high potential to make more profit in the coming years. The excel calculation file helps the Maupertuis foundation to change the items (only the yellow boxes) in order to calculate the Total costs, Gross price and the Profits for the next years.

Marketing Communication and Distribution

When thinking about marketing, the first step is to know who our target group is. This requires research about the target group, information like what these people buy and what they are interested in, which in our case are mainly 30-45 year old Finnish and Swedish tourists. It is important to connect the right service with the right audience.

When it comes to communication, we have to think what is the best way to reach our target group. Nowadays, the best ways to reach people are via internet and especially via social media, but also, to our target group, newspapers and magazines would be ideal. The first thing is to publish an advertisement about the product on the webpages of the “On the Footsteps of Maupertuis” – Project with the product card. At the same time the co-operating companies, which are essential for the game, will benefit from our marketing initiatives. If there are ten co-operating companies, that means ten times the marketing impact. Not only coming from the Maupertuis Foundation, but local restaurants’ webpages and Facebook accounts, the name “Catching Maupertuis” would stick in the consumers’ minds and this way it would create conversation and questions about that the product really is. Also, another good option for marketing is to have a stand in the shopping centre Rajalla, at the border of Finland and Sweden, where the service would be more easily accessible for not only Finnish but also Swedish people.

A possible problem with getting customers is the location of the service. Raju comments in his book that the location and the information given about the location are extremely important. As an example he suggests to provide customers with clear directions and recommending routes. (Raju, G.P. 2009, 13). This could be well applicable to our product, since Tornio is not so well-known anywhere other than near the border of Sweden.

As for distribution channels, we first thought that the Tornio Haparanda Information office would be a good, easily accessible place for selling the product. After our second presentation seminar, our commissioner decided that the product should not be sold by the Information office, but directly from the Maupertuis Foundation, so that the game would be easier to apply to other areas as well, such as Pello and Ylitornio.

Realization of the “Catching Maupertuis” Concept

One of the best things about our product is that it does not need much of resources or prerequisites to get the product to production. The main things that are needed are the supplies for the game, which means a tablet, a cover for the tablet and gloves for the user of the tablet, per team. We are going to have five tablets for starters, for what a leasing contract should be made with the chosen company. For the functionality of the game, there needs to be internet access on each tablet, otherwise the game will not work. There also needs to be an internet contract, also made with the chosen company. We have taken all of this into account when creating the price for our product.

Next we need the codes for the games from Loquiz. Taking advantage of the offers they have in their webpages, 200 codes for 2000 euros, we are being more economical when thinking about the future of the product. One opportunity in order to save money would be to get sponsorship from our partners which means that every partner has to pay a cooperation fee in order that Maupertuis foundation can afford those codes.

There also needs to be someone who will design the games. This is the best part: anyone can do it. This is why instead of a programme designer we can take use of students that are looking for a place to do their practical training, leaving us with more capital. The games are rather easy and quick to create, so there can be as many games as wanted, the only prerequisite for this are the questions that are going to be asked in the games, which is something that requires research for accurate information.

The most important prerequisite for us are the co-operating companies. Our commissioner mentioned that there could be ten co-operating companies supporting our game. What these companies are after is marketing. This is why we have to keep this in mind when creating the questions for the games, since the location and the connection between Maupertuis and the companies in question are one of the main issues. What we get from the co-operation is a functioning product that has an advantage in marketing, since these companies would be promoting the product as well.

The game has some limitations that are obvious, like weather. It is clear that the game is played usually when the conditions allow it. During rain or a snowstorm most of the people wouldn't go out and play even though it would be possible because the tablets have a waterproof cover. The ideal time to play the game would be during summer time, although we do not have any seasonal limitations to play the game. Other limitations are group sizes, as for starters we only have five tablets and a group limitation of ten people per group that allows us to have a maximum of 50 people playing the game at the same time. But in the first year we just expect 150 groups so we are convinced that 5 tablets are enough for the start.

Other limitations could be a time limit for the theme since there is a question about how long can we keep the topic of Maupertuis interesting for the audience. A good thing about the game is that when the theme is no longer as attractive as in the beginning, the process of creating new games is really easy. The last limitation could be the lack of knowledge about Maupertuis, although as previously mentioned, it could be fixed through marketing and creating conversations between the local population and the tourists in order to inform the tourists about this man and his expedition through the Tornio River Valley. The information should be spread Tornio as well as in Haparanda. Prokkola states in her article how important it is to have good co-operation between the border cities in terms of developing a good tourism area. As an example, Prokkola gives the Twin City-festival and the shopping centre På gränsen (Prokkola, E-K, 2010). "Catching Maupertuis" could be a new thing connecting Tornio and Haparanda. When it comes to safety issues, there are not many problems related to it. The obvious safety issue could be not paying attention to the traffic while walking around with the tablet. For this, there could be some sort of warning/briefing before starting the game.

Conclusion

As a result of our project, we have successfully developed a location based game in Tornio River Valley based on Maupertuis, that will widen the cultural

heritage offering of Tornio. We hope that this will increase knowledge about Maupertuis and other cultural facts that take place in the area of Tornio River Valley, as well as increasing the offering on cultural tourism products.

The pricing was definitely the most demanding part of the learning process, since we wanted the game to be affordable, yet still profitable. We believe we ended up with a price that will work, and thanks to the co-operating companies our costs will be even lower.

Hopefully the “Catching Maupertuis”- product will increase the income for local companies and raise interest about culture among Finnish, Swedish and other tourists, as well as locals.

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Appendix

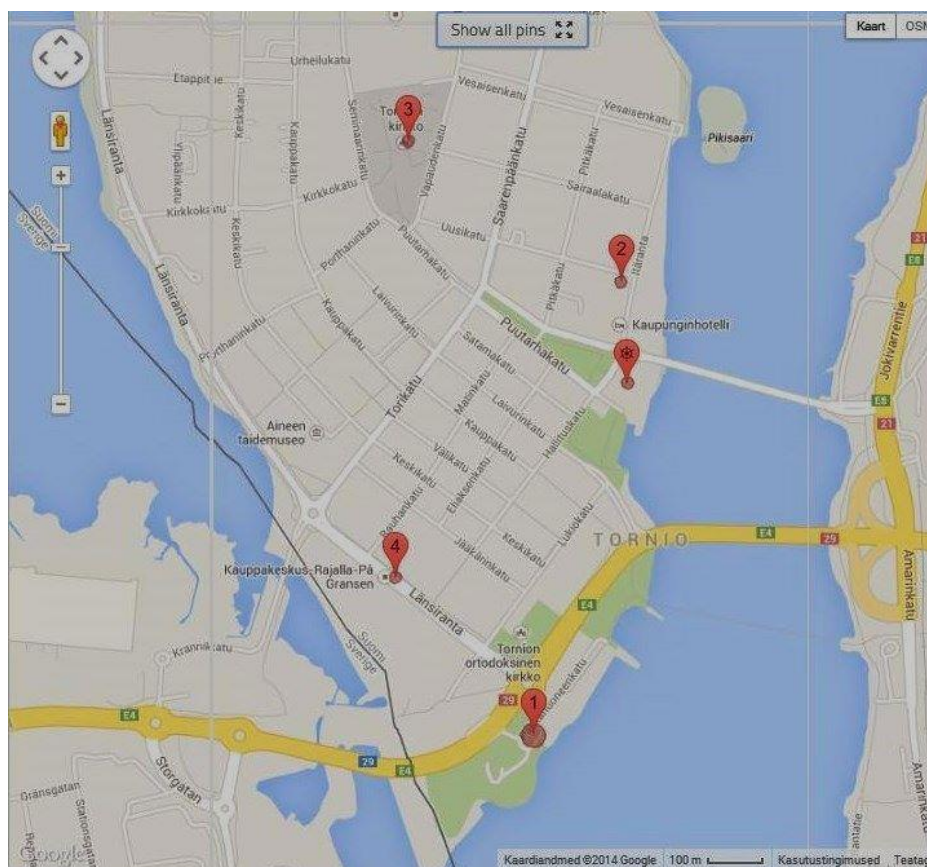
Examples from Game Developing

Questions: 5

①	Who convinced Maupertuis to come to Lapland and was also a me...	Friedrich Georg Wilhelm von Struve	Wolfgang Amadeus Mozart	✕		
②	What was one of the favourite drinks for Maupertuis after they run...	Beer and brandy	Koskenkorva vodka	Reindeer milk	Cranberry	✕
③	What's the name of the priest who was part of the Maupertuis exp...	Alexis-Claude Clairaut	Pierre Charles Le Monnier	Regnaud Outh...	✕	
④	What was Maupertuis forced to eat during his expedition?	Wild berries	Blood sausage	Reindeer eyes	Dry barley cakes	✕
⑤	What was one of the favourite dishes of Maupertuis in Lapland?	Fresh salmon	Reindeer meat	Karjalanpiirakka	Rieska	✕

Locations

①	20	m	📏
②	10	m	📏
③	10	m	📏
④	10	m	📏
⑤	10	m	📏



Product Card

Catching Maupertuis

Catching Maupertuis' is a fun and innovative location based game which is played with tablets. This game gives you unforgettable experience in Tornio River Valley. You have a special opportunity to go back to Maupertuis expedition in 1736 and familiarize yourself with Tornio city and Maupertuis' life in Tornio River Valley. After the game you will get vouchers to different companies according to your team's result!

Classification: Easy & Fun

Duration: 1-3 hours

Where: Tornio River Valley

When: All seasons

Amount of people: min. 4 persons/ group, max. 5 groups

Game languages: Finnish, Swedish, English, other languages
from request

Price: 5€ per person



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Blueprint

Blueprinting–Template

Concrete Elements (Tangible touch points)	In the tourism information	Tornio City	Tornio City	In the tourism information		
Customer Process/Journey	Information, equipment and code	Search for the right locations	Answering the questions	Return equipment		
Visible Service Process	Offer information and sells equipment and code	-	-	Check the results; count the scores and give vouchers		
Person responsible	Tourism office	-	-	Tourism office		
Time-table (duration)	0-10 min.	60-90 min.	10 min.	10 min.		
Time	14:00	14:10	15:40	15:50 > 16:00		