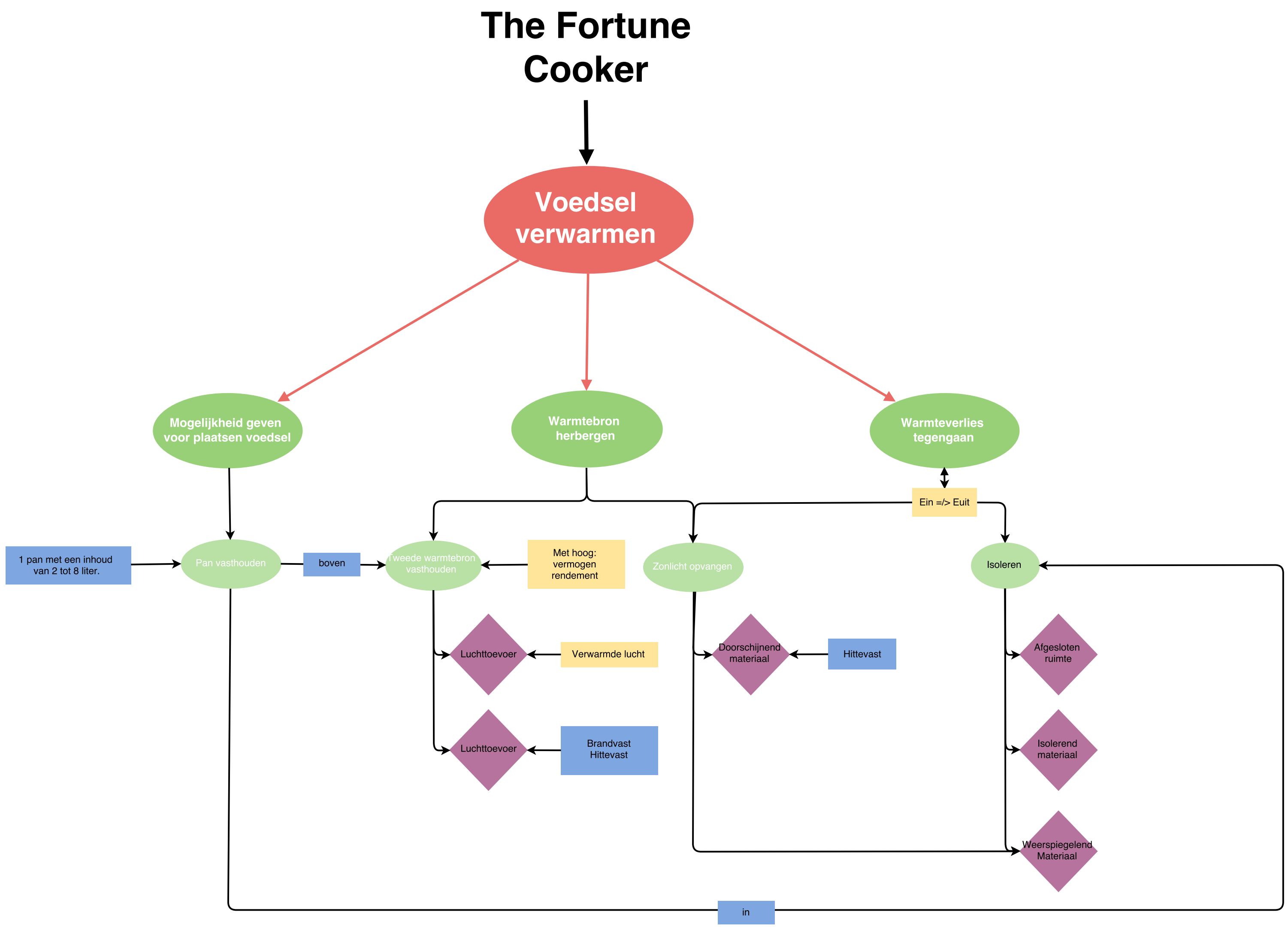
appendix

contents

1: function analyis fortune cooker



The Fortune Cooker is a cooking device that was initially designed with one sole purpose: to have a clean cooking device that will replace woodfire. During the design phase, the product has developed, but the main demand remains: it has to cook 'clean'. In this chapter we will discuss the most important functions of the product, identify the boundaries for iteration and combine those in a feasible test plan.

Level 1: Core functionalities

Function	*Room for iteration*
To accommodate the placement of food	No. Basic requirement for proper functioning.
To accommodate a heat source	No. Basic requirement for proper functioning.
To compensate loss of warmth	No. Basic requirement for proper functioning.

Level 2.1: To accommodate the placement of food

Function	*Clarification*	*Room for iteration*
Hold a pan	Research on Moroccan cooking habits shows that most families use one pan of approximately two to eight litres.	Yes. Even though the pan is probably a correct estimation of what is needed here, it is absolutely possible adapt this if it is required.
Pan should be above heat source	It should be possible to place the food directly above the heat source.	Questionable. In case of an open heat source (e.g. a gas burner, a woodgas stove or an induction plate), there's indeed no room for iteration. In other cases, it is possible.

Level 2.2: To accommodate a heat source

Function	*Clarification*	*Room for iteration*
Accommodate second heat source	In order to make the product usable when there's little to no sunlight, the product should have a second heat source.	Yes. It is not set in stone which heat source should be used. Various heat sources could be tested,
Accommodate air supply		No. (exception: when using induction plates)

Level 2.3: To compensate loss of warmth.

Function	*Clarification*	*Room for iteration*
$E_{in} \geq E_{out}$	In order for the product to function properly once the second heat source has stopped, the warmth going out should never be more than the warmth going in	No.
E_{in} : Collect energy/heat from the sun	The product should always be able to 'cook clean', therefore collecting sunlight is an undeniable function.	Yes. There's still room for iteration in the amount of sunlight to be collected.
The product should have lucid material to collect the sunlight.	It is very likely that the sunlight will be collected through lucid material.	Yes. It is possible different material turns out to be more effective. (sidenote: will this be one of our test objectives? Quite specific!)
E_{out} : Isolate	When compensating warmth loss, the first thing you do is to stop the warmth from getting out. Isolate!	Yes. The isolation material or way of isolating has yet to be decided.
Accommodate warmed air supply	The air supply of the second heat source can be lead through a tube first, in order to warm the air supply and reduce warmth loss because of cold air.	Yes. This is not a requirement for the product. (It is however a smart solution for this problem.)
Closed space		
Use material with good isolating properties		
Use reflecting material		

Technological requirements

1. The product should be able to accommodate the placement of food.
    1.1. The amount of food able to be placed should be enough to feed an average Moroccan family (5 to 8 people)
    1.2. In case of an open heat source: it should always be possible to place the food above the heat source.
2. The product should be able to accommodate a heat source.

Technological requirements

1. The product should be able to accommodate the placement of food.
1.1. The amount of food able to be placed should be enough to feed an average Moroccan family (5 to 8 people)
1.2. In case of an open heat source: it should always be possible to place the food above the heat source.
2. The product should be able to accommodate a heat source.
2.1. There should be fresh air supply to the heat source.
2.2. The heat source should be as 'climate-friendly' as possible
3. The product should compensate loss of warmth
3.1. The product should be able to be fully closed
3.2. Loss of warmth should primarily be compensated by energy from sunlight.
4. All the parts of the product that can reach a temperature higher than 50 degrees Celsius should be made of heat resistant material.

What to test:

In what temperature range is the product still functioning properly?
o Determine: what do you mean when saying the product is functioning properly?
Is it always necessary to reach 100 degrees celcius?
What is the maximum cooking time?
Does the sun really compensate for the loss of warmth?
What isolation material works best?
Does the prototype have the most useful dimensions?
Is the second heat source working properly?
Considering the above requirements, would this product still be affordable for the target group?

2: innovation analysis

Innovation Analysis of the Fortune Cooker in Morocco
To get an insight in the possibilities of the Fortune Cooker in Morocco an Innovation Analysis is performed. The eight functions by K. van Alphen have been researched for the project as Morocco can be seen as a developing country and the Fortune Cooker project can be seen as a bottom-up approach.

1.Entrepreneurial activities
Entrepreneurial spirit is very common in Morocco as the many small shops show. The government also started youth entrepreneurship programs. (Alaoui, S. 2015). Our product however focuses on the people in Morocco that mostly work in agriculture and are very poor. Their entrepreneurial spirit seems to be much smaller. The entrepreneurial activities within the project will mostly apply to those who already have shops or goods, for they could be possible suppliers or sellers of the product.

2.Creation of adaptive capacity
Morocco is one of the most developed countries in Africa and King Mohammed VI has started to reform the country slowly to a more modern state. The adaptive capacity within the country is still very dependant on the place you go to and the culture is well known for its preference of traditions. Every Moroccan has a mobile cellphone and they are used constantly, but many households in Morocco are not that modern yet. The user group of the Fortune Cooker lives within these rural areas and might not see the convenience of the product. They even might think of the Fortune Cooker as an abatement of technology when they used to cook with gas and the product reintroduces the use of wood as main fuel. Good education and information about the Fortune is therefore essential.

3.Knowledge diffusion through networks
As told above, every Moroccan has a cellphone and it is used often. Word travels fast within the communities and social media is also very popular in Morocco. Education in Morocco is quite good as well and the country knows many good universities. However many inhabitants of rural areas are still illiterate of which mostly women. As this is our target group, the marketing of the product within the country could be a challenge. Furthermore will we have contact with the university of Oujda to improve knowledge diffusion.

4.Demand articulation
The customer segment is most probably not aware of its needs. The Fortune Cooker was designed to introduce clean cooking, a value that does not spring to the minds of the women in rural areas. This is why our problem analyses and research focuses on research of the customer's need. Both to introduce an awareness of clean cooking and to discover the need of the customer.

5.Market formation
The moroccan society knows few environmental associations and few organisations for women. (Akesbi, A.2011) Currently rural households cook on wood fires and gas. We were told that the government plans to put a stop to the subsidies on gas. This means a big change in market formation and market opportunities for the Fortune Cooker.

6.Resources mobilization
To get an insight of the market possibilities of the Fortune Cooker, most materials will be bought on location. Sources tell these materials are accessible. Our challenge lies in researching if these resources provide business opportunities.

7.Creation of legitimacy / counteract resistance to change
It is our main goal to find out if the Customer Segment accepts the Fortune Cooker as a viable product. The Creation of Adaptive Capacity mentioned the possibility that users even experience the product as a technological abatement.

8.Infrastructure networks
One of our most important channels to reach the customer segment, is transport. Infrastructure throughout the country and even the Atlas Mountains is good and taxis are very cheap.

Conclusions
Many circumstances in Morocco as a country prove to be positive for the Fortune Cooker, but when taken a closer look to the probable customers the innovation analysis shows a bigger challenge. Though infrastructure and education are good, many rural areas to not have access to these services. The test plan should involve extensive research to the customer's needs. During the development of the Fortune Cooker we will make use of co-creation between us and the customer segment. Uncertainties from the innovation analysis can be explored by the method of co-creation.

How can your (successful) project contribute to development? Or in general: How, i.e. under which conditions, does entrepreneurship and innovation result in development?

- Cultural + Civil Society Analysis (1 page)
- What dimensions are enablers for the project?
- Which are barriers?
- How to take account of these in your project work?
- Innovation Analysis: National Innovation System (1 page) Institutions
- Which institutions are relevant for your project?
- Make an assessment of these institutions in terms of inclusive and extractive
- Which reforms are necessary to guarantee the development success of your project?
- Or, practical, what can you do to neutralize negative institutions?

Innovation Analysis: National Innovation System Institutions

Explanation of terms
Inclusive economic institutions are those that allow and encourage participations by the great mass of people in economic activities that make best use of their talents and skills. To be inclusive, there has to be secure private property, an unbiased law system and provision of public services. It has to encourage the entry of new businesses (Acemoglu & Robinson, 2012).

Extractive economic institutions are designed to extract incomes and wealth from one subset of society to benefit a different subset (Acemoglu & Robinson, 2012).
Extractive political institutions concentrate power in the hands of a narrow elite and place few constraints on the exercise of this power. "A major dividing line between extractive political institutions is their degree of political centralization. Those without it will find it difficult to achieve even limited growth." (Acemoglu & Robinson, 2012)
In contrast, inclusive political institutions are those who are pluralistic, which means power is broadly distributed and subjected to constraints, the political power rests with a broad coalition or a plurality of groups (Acemoglu & Robinson, 2012). Another condition is a sufficiently centralized and powerful state.

In general
Firstly, Morocco is a constitutional monarchy, this means the country is reigned by a king and his power is enshrined in the Constitution. It's a former protectorate of France and has a liberal political influence. Morocco became independent in 1956. (Allaire, Ashta, Attuel-Mendes & Krishnaswamy, 2009) Commercial banks are stated owned, so does post. NGO's and Microfinance institutions are associations. There's no legal path for NGO's to transform into a NBFI (Non-Bank Financial Institution), which would enable them to attract more funds and grow. Finally, "Morocco is seen to have a well-developed financial system by regional standards." (Allaire, Ashta, Attuel-Mendes & Krishnaswamy, 2009)

Relevant institutions classified in terms of inclusive and extractive

The national government
Morocco's government is currently in a transition towards being an inclusive institution. It becomes more inclusive by carrying out free elections. (Ghanem, 2014) Also, there's a coalition government, headed by the leader of the party that won a plurality in parliament. One of the characteristics of an inclusive political institution is to be pluralistic. In this way the Moroccan government can be called inclusive. "However, the government remains weak, and there continues to be dissatisfaction with the formal political process. Therefore, it is likely that further democratic reforms will be needed in Morocco." (Ghanem, 2014) Thus, the government does not meet the requirement of inclusive political institutions of the existence of a powerful state and has therefore extractive elements.
According to Dris Ben Ali (n.d.), the associational life in Morocco isn't much involved in decision making. The elected elite perceives the associations of local development as instruments of political competition. Therefore they try to get involved as leaders of these associations to reduce these for the sake of their personal political agenda or that of a political party. This indicates a more extractive institution, as political power is not yet broadly spread. The palace of Morocco is a strong and credible institution that can lead the process towards full democracy (Ghanem, 2014), in the absence of a strong Civil Society.

Université Mohammed Premier, Oujda
Although there's not much information of the structure and board of the university, one could say in general that universities are likely to be inclusive, as they enable people to explore their talents and skills and improve education among the population, which contributes to development. However, the university can be extractive when only a narrow elite is admitted. This seems not to be the case, as the number of enrolled students is 35.217, 12.268 new enrolments and 450 foreign students. (Ump.ma, 2015)

NIMAR (Nederlands Instituut in Marokko)
NIMAR's dedication is to contribute to knowledge diffusion about Morocco and the region on behalf of government agencies, the business world, NGO's, journalists and the Dutch cultural diplomacy. (Instituten.leidenuniv.nl, 2015) Therefore NIMAR is inclusive. However it can be a barrier for our project, as license applications can take a lot of time.

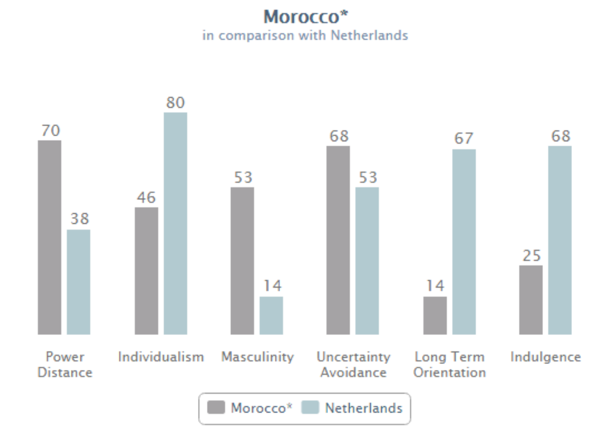
Which reforms are necessary to guarantee the development success of our project?
Further reforms on democracy will be necessary for a successful completion of our project, especially reforms on women's rights. According to Ghanem (2014) one should focus on building inclusive economic institutions that contribute to growth and equity, but also is important for democracy.

This could be done by enabling workers, smallholder farmers and other small stakeholders to have voice in economic and political debates. Therefore labor unions, farmer organizations, and in our case women's associations and environmental associations should be strengthened. In general, decision making processes should be more responsive to citizen demands. (Ghanem, 2014)

3: cultural & civil society analysis

Cultural + Civil Society Analysis

A cultural analysis of Morocco, based on the ten cultural dimensions, created by Trompenaars (2001), is made. Hofstede (Geert-hofstede.com, 2015) also mentions the cultural dimension of Long term orientation.



In this graph cultural dimensions of Morocco are ranked and compared with these of the Netherlands (Geert-hofstede.com, 2015). The assigned scores are partially based on assumptions derived from data representing similar countries in combination with practitioner experience.

We can see that Morocco is, with a score of 70, a hierarchical society. Everybody has a place in the hierarchical order and this needs no further justification. This reflects inequalities, centralization and the fact that subordinates expect to be told what to do (Geert-hofstede.com, 2015). In contrast, the Netherlands is far more orientated on equality, where everyone has a contribution and people don't particularly like to be told what to do.

Regarding the cultural dimension of individualism, we can note that Morocco is a highly collectivistic country, where people live in groups. This corresponds to the importance of family relationships in Morocco. In the Netherlands, we are more individualistic.

Also, Morocco is more masculine than the Netherlands. Firstly, this is due to the fact that the Netherlands is a welfare state, every citizen is obliged to have a health insurance and some people receive care allowance. Also, public health services are available for everyone and distributed well throughout the country. The access to health services is worse in Morocco, especially in highly rural areas. Secondly, the division of tasks between men and women is more fixed in Morocco, women have less rights than men, whereas in the Netherlands men and women are equal.

Another big difference between Morocco and the Netherlands relates to the degree of long term orientation. In Morocco, people are generally not long-term orientated. Whereas in the Netherlands it is far more common to think of the future.

Which dimensions are enablers for the project and which are barriers? And how to take account of these in our project work?

These said differences in cultural dimensions between Morocco and the Netherlands can influence our project in a positive or negative way. For instance, we have to take the hierarchical structure of Moroccan society into account, as this may lead to only a small input from people who consider themselves as subordinates, although we strive for an equal relationship.

Secondly the differences between men and women is also something we should adapt to, as we are used to being fully equal to men, but in Morocco there are clear restrictions on how to behave as a woman. The last dimension that can have a negative influence on the project is the low level of long term orientation in Morocco, as the mission of the product is one that can only be achieved within a long time span. Thus we have to put extra effort in explaining the long-time problems of cooking on wood fires.
On the other hand there's also a dimension that can be an enabler for our project, namely the collectivistic character of Morocco. As our project lays within the domain of cooking, the fact that family relationships are important contributes to the importance of eating together. Thus, cooking plays a big role in the daily life of Moroccan and therefore it's more likely they are open-minded towards improvements on this subject.

An eleventh dimension to those of Trompenaars, was added by Kroesen (2014):
11. Civil Society:
"Regrouping of individuals and organizations independent of family loyalty and state authority"

Akesbi (2011) analysed numerous Civil Society Organizations (CSOs), ten types of organizations were identified, which are divided in the following ten categories: (NB: all organizations with political are excluded)

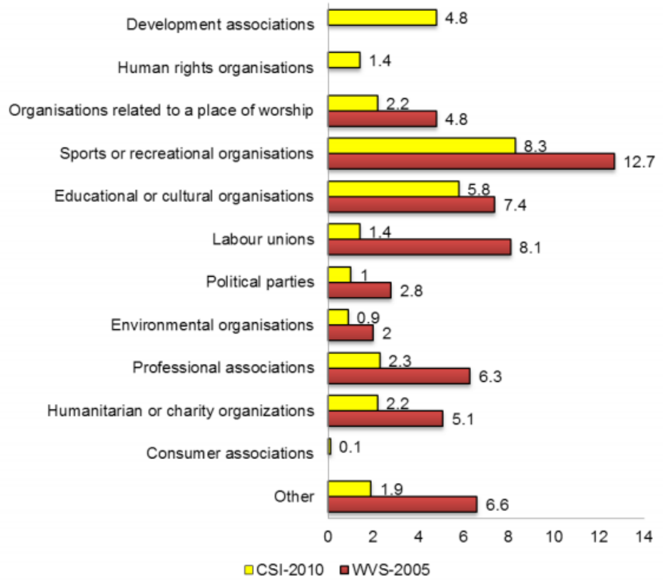
1. Human rights and advocacy organisations
2. Development and services organisations
3. Educational and cultural organisations
4. Labour unions
5. Church or religious organisations
6. Social movements
7. Zawayat (religious brotherhood)
8. Private media
9. Professional associations
10. Foundations

Only a small percentage of the whole population is member of a Civil Society Organization, non-members take up 91,7 to 99,9 percent of the surveyed population, depending on the type of organization. (Akesbi, 2011)

In the graph below, we notice a reduction of membership rates in each category, surveyed by the CSI (Civil Society Index) in 2010 and the World Values Survey in 2005. According to the respondents of the survey, this is due to bad time management, meetings at inappropriate hours that last too long and inefficiency. (Akesbi, 2011) Thus, civic engagement has an environment that sometimes sabotages participation. In order to encourage civic engagement and to ensure that memberships will last longer, structural reforms in Civil Society Organizations are needed.

To encourage engagement and thereby strengthen Civil Society Organizations, new members should be attracted as well. According the survey, the leading factors to participate are 'defending rights'(49,1%), intellectual interest (31,8%) and interaction with other people (27,1%).
Other factors are financial interest and, though marginally, political interest. (Akesbi, 2011)
One should respond to this factors by for example encouraging the need to defend one's rights.

Figure 4: CSOs membership comparison, WVS 2005 and CSI 2010



Source: WVS, 2005 and CSI Population Survey, 2010

Important for our project and what could be a problem, is the relatively low amount of human rights organizations and environmental organisations. The first one is important concerning women's rights to for example work or do other things beside the housekeeping and care of the children. Because one of the results of using the Fortune Cooker is that woman will have more time, it is essential that society gives them opportunities to use this time for different purposes. Otherwise there could be no use in utilizing the Fortune Cooker, as they have more than enough time that they may only spend on housekeeping and the care of the children. Secondly, growth of environmental organizations is of major importance for our project and its continuation, as such growth can achieve more awareness of environmental problems under the local society, which is essential to convince (future) customer segments of the benefits of the Fortune Cooker.

4: desk research

Recent history of Morocco (Suzanne)
Africa has a well-known history of European colonies. The modern state Morocco was constituted when it declared its independence of Spain and France in 1956. This occupation started in 1912 as the image shows. The heritage of these colonies is the use of the French language in many regions of Morocco and Spanish is fewer regions. The original inhabitants of Morocco were Berber and this, apart from Moroccan Arabic, is the vulgar tongue.
About fifty years ago a border conflict between Algeria and Morocco started. This war was fought to decide upon the borders between Morocco and Algeria. After the French colonization, France proposed to establish the final borders between both countries, but Morocco wanted to negotiate by itself. (Blonk, M., 2012).
This war has been over for long, but the southern borders

with Algeria remain unsettled. For we will live near the Northern border it is important to know of this background. Knowledge of the Moroccan languages is essential for communication. Therefore have we been practising French for the last couple of months.

Moroccan Politics
Morocco is a democratic, Islamic monarchy in which constitutional heritage occurs. Executive power is exercised by the government and legislative power lies with the government and the two chambers of parliament that consists of the Assembly of Representatives of Morocco and the Assembly of Councillors. Both representatives and councillors are elected. (El-Maarouf, M. D., el Fahli, M., Kuchejda, J., 2009)

The central element in Moroccan Politics is position of the king. King Mohammed VI reigns since 1999 and his portrait is to be found in many moroccan households. A hotel owner in the beautiful Vallée du Dàdes explained his gratitude for the King, for he provided many poor areas in Morocco of better infrastructure, electricity and internet. He titled his King 'un Roi des Pauvres' compared to his father, King Hassan II, who apparently never left the palace because of his old age. Nevertheless does the current budget of the palace include as much as the total finances of the ministry of Transport & Infrastructure, Youth & Sports, Culture and Housing & Urban Development combined. (Courrier international, 2013) The dominance of the King proves to be extensive considering he is both the secular political leader and the "Commander of the Faithful" being a direct descendant of the Prophet Mohammed . This dominance means it is in his power to appoint members of the government, he formally is chief of the military and no separation of powers. (Le Parisien, 2011) Though the state of Morocco is a democracy, it is not to be compared to many European democracies. The biggest obstacle is the strong position of the King which leaves the parliament and political parties to carry out his decisions. Previously this meant few interest for the elections, but this summer 1.1 million new voters registered. Female voters are on the rise as well. Possibly by the enactment of new 'Mudawana, family code, which allows women more power. (BBC News, 2015)

Morocco has a long way ahead to being a true democracy, for example due to corruption and women's right. Constructive reforms and political changes by the King are on the rise, but do not influence immediate living conditions of many of Morocco's inhabitants. (unknown, 2014)

Morocco's politics do not influence the Fortune Cooker project immediately, but it is helpful to take into account the current situation. For example to be very careful to discuss the matter in Morocco.

Religion
99.9 % of the religious affiliation in Morocco is Muslim. The remaining 0.1 % consists mainly of Christians and Jews. (Pew Research Centre, 2010)

For the Islam is the largest religion, this belief shall be explored further. Almost all Moroccans are Sunni Muslim. The five main pillars of this believe, observed by Muslims, are: making a public profession of faith, praying five times a day according to the position of the sun, fasting during the month of Ramadan, giving alms to those in need, and making a pilgrimage to Mecca once in a lifetime. In Moroccan culture it seems two unique features were added: Baraka and Murabitin. (Munson, H. 1993) Baraka refers to spiritual power that exists in the form of a blessing or good fortune,like good karma in Buddhism. Murabitin are the ones who possess good Baraka.

Leisure Activities (Suzanne)
To obtain a first impression of our possibilities and Moroccan habits on amusement, we looked at sports, music, film and theatre.

Football is a very big sport in Morocco and games are often watched in public places or shisha lounges. The National Moroccan male football team is nicknamed 'Lions de l'Atlas' and they were the first African team to qualify straight to the World Cup finals. (Los Angeles Times, 1986). The country also holds a female national football team. (Matuska, N., 2010)

Theatre is often performed in public spaces like medina or squares. The audience takes place all around the performers, unlike European theatre, and is entertained by the songs, dances, narratives or performances. This form of theatre affects the plays in theaters for they are very improvisational and self-reflective. (Amine, K. 2009)

There are many music genres, but it is very typical that music is often used to accompany dancing and storytelling. Saad LAmjarred is a very well-known singer throughout the Arab World. (Al Arabiya News, 2014) Striking is that his pop music has a resemblance to Western music, but the oriental influences can be heard clearly. (Guide to World Music, 2011)

Many movies, like The Gladiator, were shot in Morocco. The moroccan film industry rose in the 70's by the first generation of national directors. This year's submission for the Oscars is the drama Aida about a women, suffering cancer and living in Paris, that decides to spent her numbered day in her motherland Morocco. The movie has won three prizes on the National Film Festival in Tangier. (Richford, R., 2015)

Field Research in Tghassrout, Tagma, and Bini Bouala for the Solar Cooking Project
Considering the outcomes of the interviews done by Noor van der Vorst (2015), there is several useful information for our project. Firstly, it appears that women find it a big effort to collect wood and/or gas bottles and also the drying of the wood in wet periods is considered a problem. The wood gathering takes a lot of time, time that could be spend on other things when having to use little to no wood for cooking. This is a problem we can respond to quite well with the Fortune Cooker.

Another aspect of the cooking ritual we can respond to is the amount of cooking time. When using gas, the cooking time is quite short, but when cooking on wood fire, the cooking process can take up to three hours. This process will be much shorter using the Fortune Cooker.An aspect we should consider is their day rhythm, as this is much different from ours, so we should adapt our rhythm to theirs to get an understanding of how an average day looks like from the perspective of a Moroccan woman.

Summary of Field Research in Tghassrout, Tagma, and Bini Bouala for the Solar Cooking Project. Report by Interviews by Noor van der Vorst, University of Applied Sciences Van Hall-Larenstein, Rajae Gaamouche, University of Oujda, 29th of June 2015

The domain of the woman in Morocco is cooking, fuel, collecting of wood, etcetera. This is the reason why only women have been consulted. The women always prepare the meals. The average number of family members differs from 4 to 7.

The following number of women, representing their households, have been interviewed in the villages;

Tghassrout	>	5 women
Tagma	>	14 women
Bini Bouala	>	10 women

Access to fuel and food supplies
All the interviewees indicated to have sufficient access to fuel for cooking (gas and wood) but mentioned the big effort to gather wood and collect gas bottles as a problem. The drying of the wood during wet periods is also seen as a problem. However, there is always enough wood available. Wood gathering takes around 2-3 hours a few times a week. One wood package weighs around 25/30 kilos. Some families get their food supplies in Berkane, some have an own vegetable garden. The means they use for transport is by hand, by donkey, or by car.

Type of meals during the day and preparation
There are four times to eat during the day: breakfast, teatime, lunch and dinner. At breakfast they gave coffee, tea, bread, honey, jam, olive oil and butter for breakfast. The drinks are being prepared on gas, the bread in the wood oven. Tea time is similar to breakfast. For lunch (12 o'clock) they prepare vegetables in a pressure pan, on a gas bottle. For dinner (8 o'clock) they prepare soup, couscous, vegetables and meat on a gas bottle. The most used ingredients are sugar, flour, oil, vegetables, beans, potatoes, and water.

Availability of warm water
The families heat water for showering and washing their clothes on wood fire.

Day rhythm
Most of the people wake up around 5/6 o'clock in the morning and go to sleep around 9/10 o'clock in the evening.

Options of cooking devices
The cooking devices that are being used in the towns are; a traditional oven on wood to prepare bread, a modern oven on gas bottles, a traditional oven and an open fire place, modern heating supplies.

Used energy source
All interviewees indicated to use wood and gas for cooking and heating water. Households that are more poor, only use wood as an energy source. An additional option for the household is the use of charcoal, but this is used very sporadically because of the high cost.

Amounts of cooking time
Gas; 20-25 minutes for a pressure pan
Fire; 1-1,5 hours for a pressure pan
Fire; 1-3 hours for a pressure pan, depending on the ingredients (meat takes more time)

Other
Most of the women have electricity in their house, but some don't. Some women have a fridge and some have running water, this differs a lot between the towns. Almost all women have a table for preparation inside their house and also cook inside, except for baking bread.

All women have space for the Fortune Cooker outside and most of them have space for the Fortune Cooker inside. They indicate that it is difficult to move heavy thins from inside to outside in their house. Almost every woman indicates they use only one pan to prepare a meal.

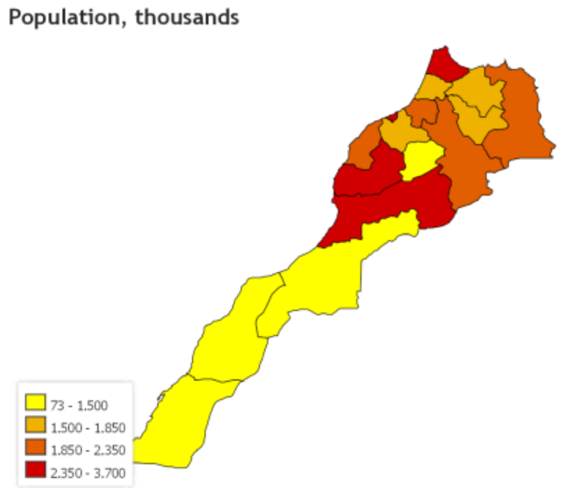
Social Economic and Social Demographic Context
Morocco has taken measurements to lower poverty rates and this has clear results, but the problem isn't yet solved. Poverty rates dropped from 15,3 percent to 6,2 percent between 2001 and 2011, but this also contributed to an inequality regarding different areas in the country and gender inequality (African Development Bank Group, 2015). For example, the income disparity coefficient raised from 39,5 to 40,9 between 1999 and 2007. Also, poverty remained mainly rural, whereas unemployment is an especially urban problem. The Moroccan government should continue essential reforms and speed up implementation regarding justice, taxation, land law and education. Looking at the region Oriental, where our project will be, unemployment rates and the percentage of households below poverty line are striking. The unemployment rate for urban areas in Oriental was 19,3% in 2013. The unemployment rate for women 17,9% and those for men 15,9% (Open Data for Morocco, 2014)
Considering this information on unemployment, an activity during the market research will be to explore opportunities on how to contribute to regional employment by for example involving multiple local businesses. Another aspect we should consider is also how to not reinforce unemployment by taking away markets on for example selling bottled gas etc.

Social Economic Context | North East Morocco
The African Development Bank Group (2015) mentions three statements on the economic outlook of Morocco:

- The economy has strong prospects for economic growth and measures to strengthen the macroeconomic base have reduced the budget and current account deficits.
- The government continued improving the business climate and adopted a 2014-20 industrial strategy to support structural change and boost the country's position in global value chains.
- Morocco has made great efforts to meet social challenges and regionalisation has speeded up to improve living conditions, but regional and spatial disparities are still considerable.

These three measures significantly resulted in poverty reduction and access to education and health care. Between 2001 and 2011 poverty rates dropped from 15,3 percent to 6,2 percent. However, this also contributed to inequality regarding different areas in the country and gender inequality. For example, the income disparity coefficient raised from 39,5 to 40,9 between 1999 and 2007. Also, poverty remained mainly rural, whereas unemployment is an especially urban problem. "To meet the challenge of persistent vulnerability and inequality, Morocco should continue essential reforms and speed up implementation of those already begun. The growth analysis by the African Development Bank, the government and the Millennium Challenge Corporation stresses reforms in justice, taxation, land law and education." (African Development Bank Group, 2015)

Social Economic & Social Demographic Data | Morocco



	Population, thousands	Population density, persons per sq. km	Area in km²
Grand Casablanca	3,616	2,239	1,615
Souss Massa Draa	3,095	44	70,880
Marrakech Tensift Al Haouz	3,088	99	31,160
Tanger Tetouan	2,460	213	11,570
Rabat Sale Zemmour Zear	2,349	245	9,580
Meknes Tafilalet	2,126	27	79,210
Doukkala Abda	1,978	149	13,285
Oriental	1,909	23	82,900
Gharb Chrarda Beni Hssen	1,850	210	8,805
Taza Al Hoceima Taounat	1,803	75	24,155
Chaouia Ouardigha	1,646	235	7,010
Fes Boulemane	1,568	79	19,795
Tadla Azilal	1,448	85	17,125
Guelmim Es semara	425	3	122,825

Unemployment rate (%)

1	Oriental	15.90
2	Oued ed Dahab Lagouira	13.00
3	Meknes Tafilalet	12.30
4	Tanger Tetouan	11.80
5	Doukkala Abda	10.80
6	Rabat Sale Zemmour Zeaı	10.80
7	Gharb Chrarda Beni Hsseı	10.70
8	Grand Casablanca	10.60
9	Tadla Azilal	7.80
10	Souss Massa Draa	6.90
11	Fes Boulemane	6.10
12	Chaouia Ouardigha	5.90
13	Marrakech Tensift Al Hao	5.60
14	Taza Al Hoceima Taounat	5.20

Looking at the graphs above we can remark a lot of differences between the regions within Morocco. The south of Morocco, known as the Western Sahara, is a remote area with very few inhabitants, whereas regions around cities such as Marrakech and Rabat and also regions in the north of Morocco are far more densely populated.

As our project will take place in the region Oriental, our focus will be on this region. We can see its unemployment rate being the highest of Morocco. Therefore we provide more information and data on this topic below. With a population density of 23, the region Oriental is one of the most thinly populated areas in Morocco. The percentage of households that are below the poverty line is 17,9 percent, which is a relatively high percentage. This fact is also a reason to carry out the project in this area.

Social Economic & Social Demographic Data | region Oriental

Considering all the data given in the graph above, we can note that unemployment in general has been reduced in the last couple of years. However, urban employment has a consistent high rate. Also remarkable is that, despite the fact that women are still more often unemployed, the difference between the unemployment rate of men and that of women has become smaller every year. This could indicate a progress in gender equality.

Taking the information on unemployment in the region Oriental into account, a part of the project will be to explore opportunities that can contribute to regional employment.

Oriental

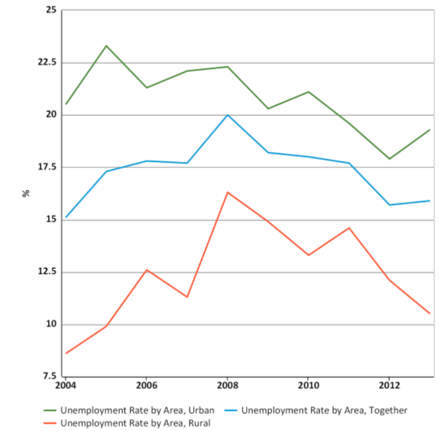
	Units	All time
Population	Population	1,908,905.00
Population Density per km2	Population Density per km2	23.03
Area in km²	Area in km²	82,900.00
Birth Rate (per thousand)	Birth Rate (per thousand)	17.70
Average household size	Average household size	5.00
Unemployment rate (%)	Unemployment rate (%)	15.90
Poverty rate (%)	Poverty rate (%)	10.10
Vulnerability rate (%)	Vulnerability rate (%)	15.00

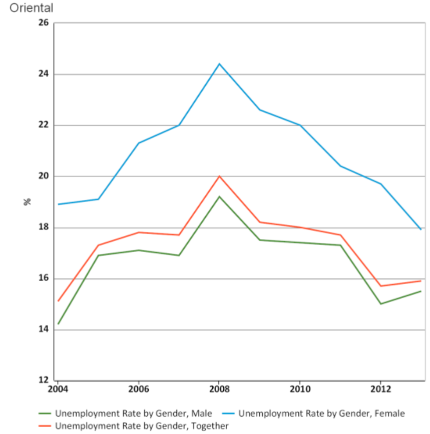
Oriental

	Unemployment Rate by Gender, Together	Unemployment Rate by Gender, Female	Unemployment Rate by Gender, Male
Units	%	%	%
2004	15.10	18.90	14.20
2005	17.30	19.10	16.90
2006	17.80	21.30	17.10
2007	17.70	22.00	16.90
2008	20.00	24.40	19.20
2009	18.20	22.60	17.50
2010	18.00	22.00	17.40
2011	17.70	20.40	17.30
2012	15.70	19.70	15.00
2013	15.90	17.90	15.50

Oriental

	Unemployment Rate by Area, Urban	Unemployment Rate by Area, Rural	Unemployment Rate by Area, Together
Units	%	%	%
2004	20.50	8.60	15.10
2005	23.30	9.90	17.30
2006	21.30	12.60	17.80
2007	22.10	11.30	17.70
2008	22.30	16.30	20.00
2009	20.30	14.90	18.20
2010	21.10	13.30	18.00
2011	19.60	14.60	17.70
2012	17.90	12.10	15.70
2013	19.30	10.50	15.90





5: focus group

FOCUS GROUPS

A Focus Group is a group interview in which several topics concerning a specific product or issue are discussed. Focus Groups often consist of people from the target group of the product or service that is being developed.

When can the method be used?
Focus Groups are used in several phases of the development process – in the preliminary phase in order to gain contextual information about product use and opinions about existing products, in the idea generation phase, and when testing product or service concepts. A Focus Group can be used to choose one out of several concepts or to gather recommendations for further development. Focus Groups provide a quick overview of consumers' opinions about a subject and insights into the opinions and needs of the target group. Part of its value lies in the unexpected findings that can come from a free-flowing discussion in the group. When deeper and more individual information is needed, interviews should be used – see Interviews.

How to use the method?
At least three Focus Group sessions should be conducted so that outcomes can be generalised to some extent. A Focus Group consists of 6-8 participants, a moderator and someone who is in charge of collecting the data. The moderator has a vital role, so experience in moderating is very helpful. Perform a pilot Focus Group, so that you can improve your list of topics. A Focus Group can be combined with making collages or sensitising tasks such as keeping a short diary – see Context Mapping. Online Focus Group sessions are possible as well. The end result depends on the goals of the sessions – for instance, insights into consumer needs within the product area, ideas for new products, or insights into consumer acceptance and perceived (dis)advantages of certain product/service concepts.

Possible procedure
STEP 1
Make a list of topics you want to address (topic guide), containing broad issues or specific questions.
STEP 2
Test the topic guide in a pilot Focus Group. Make changes if necessary.
STEP 3
Invite the respondents, people from your target group(s).
STEP 4
Perform the Focus Groups. A session typically takes one and a half to two hours and is usually recorded for transcription and analysis.
STEP 5
Analyse and report the findings by indicating the main opinions and the range in opinions for each topic/issue.

Limitations of the method
- If participants do not have experience with the product they are confronted with, Focus Group sessions are less suitable.
- Group processes might influence the results. For example, a dominant person might push his or her opinion on the other participants. That is why the quality of the results depends on the quality of the moderator.
- A session has a small number of participants. If you want to know to what extent people share the same opinions, you should perform quantitative research, such as by using questionnaires.

Tips & Concerns
- Start with general topics, for example product usage and experience, so that participants get into the right context before asking opinions or presenting new concepts. When testing one or more concepts with consumers, the presentation of these concepts is crucial. The concepts should be clear, so start by asking participants whether they have questions before asking about their reactions.
- Carefully plan how much time to allocate to each topic in order to avoid having to rush through the topics at the end of the session, which are often the most important ones. In your report, illustrate the findings with verbatim quotes from the participants – this makes the outcomes engaging.

REFERENCES & FURTHER READING: Bruseberga, A. and McDonagh-Philp, D., 2001. ***Focus groups to support the industrial/product designer: a review based on current literature and designers' feedback'.*** Applied Ergonomics, 1 Augustus, 33(1), pp. 27-38. / Creusen, M.E.H., Hultink, E.J. and Eling, K.*, 2013. ***Choice of consumer research methods in the front end of new product development.*** International Journal of Market Research, January, 55(1), pp. 81-104. / Malhotra, N.K. and Birks, D.F., 2000. ***Marketing Research: An Applied Approach.*** Upper Saddle River, NJ: Pearson Education Ltd.

6: interview

INTERVIEWS

Interviews are face-to-face consultations that can be useful for understanding consumer perceptions, opinions, motivation and behaviour concerning products or services, or to gather information from experts in the field.

When can the method be used?
Interviews provide insights and thus enlarge your understanding of a particular phenomenon, a specific context, a problem, certain common practices, extreme and extraordinary situations, consumer preferences, and more.
They can be used in several phases of the new product development process and for different purposes. In a preliminary phase, they can help you to obtain contextual information about product use and opinions about existing products, or to gain expert input about issues. Interviews can also be used during concept testing of products or services in order to collect detailed consumer feedback. This helps you when selecting concepts or improving them.
Compared to the focus group method, interviews take more time but provide you with deeper insight, because you can probe further into the answers given by the interviewee.
Interviews are most useful for projects in which the products or services under development are not completely new to consumers. For really new products or services, other methods, such as Contextmapping and Observations, are more appropriate.

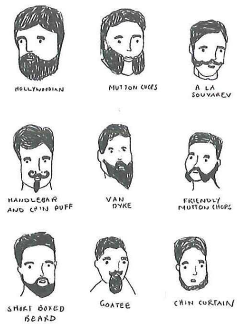
How to use the method?
Before an interview, make a topic guide to ensure that you will cover all the relevant issues. This guide can be very structured, such as a questionnaire, or un- or semi-structured, with the questions depending on the answers given. It is recommended to do a pilot interview and to practice first.
The general guideline for the number of interviews is to stop when you feel that an additional interview will not yield new information. Research shows that for the assessment of consumer needs, 10 to 15 interviews will reveal about 80% of the needs.

Interviews can be combined with collages or sensitising tasks such as keeping a short diary, as in Contextmapping.

Possible procedure
STEP 1
Make an interview guide, including a list of topics, based on your research questions. Test this guide in a pilot interview.
STEP 2
Invite the right interviewees. Depending on your objective you may interview three to eight people.
STEP 3
Carry out the interviews. An interview typically takes about one hour and is usually voice recorded.
STEP 4
Either make transcripts of what was said or make summarising notes.
STEP 5
Analyse your transcripts and draw conclusions.

Limitations of the method
- Your interviewees can respond only to what they know consciously. Latent or tacit knowledge can be gained by observation or by using generative techniques, such as in Contextmapping, making use of images and other stimuli to evoke stories.
- The quality of the result depends on your own skills as an interviewer.
- Your interview results are qualitative and from a limited number of respondents. To collect quantitative results from a large number of respondents, use questionnaires.

Tips & Concerns
- Perform the interview in a relaxed atmosphere without distractions and provide refreshments.
- Start with general topics such as product usage and experience, and not, for example, by presenting new concepts. In this way you sensitise your interviewees to the context.
- Distribute your interview time among your topics in advance to ensure that you will have enough time left for your final topics, which are often the most important ones.
- When using visuals, such as drawings of your concepts, the quality of the visuals is crucial. First check if your interviewees understand what you are asking from them and if they have questions.



REFERENCES & FURTHER READING: Byrne, M., 2001. ***Interviewing as a data collection method.*** AORN Journal, Augustus, 74(2), pp. 233-235. Creusen, M.E.H., Hultink, E.J. and Eling, K.*, 2013. ***Choice of consumer research methods in the front end of new product development.*** International Journal of Market Research, January, 55(1), pp. 81-104. / Griffin, A., 2005. ***Obtaining customer needs for product development.*** In K.B. Kahn, S.E. Kay, R.J. Slotegraaf, S. Uban (eds.), ***The PDMA Handbook of New Product Development.*** pp. 211-227. Hoboken, NJ: John Wiley & Sons, Inc. / Rubin, H. and Rubin I., 2005. Qualitative interviewing, ***the art of hearing data.*** Sage, CA: Thousand Oaks. / Sleeswijk Visser, F., Stappers, P.J., van der Lugt, R., & Sanders, E.B.N. (2005). ***Contextmapping: experiences from practice. CoDesign:*** International Journal of CoCreation in Design and the Arts, 1(2), 119-149.

7: user observation

USER OBSERVATIONS

User Observation helps you to study what your intended users do in a specific situation. Observations enable you to understand phenomena, influential variables or other elementary interrelations in 'real life'.

When can the method be used?
Depending on the discipline there may be different hypotheses and research questions to be answered, and thus very different data to be assessed and analysed. Human Sciences mainly focus on the behaviour of people and their interactions with the social and technical environment. Using well-defined indicators, you can describe, analyse and explain the relations between observable and hidden variables.
Observations are helpful whenever you have no or hardly any understanding of phenomena, influential variables or other elementary interrelations, or want to see what will happen in 'real life'. Different observations will confront you with both expected and unexpected situations. When exploring the design problem, it is helpful to articulate the aspects that influence the interactions. Observing people in their daily routines leads to a better understanding of what makes a good product or service experience. Watching people interacting with your prototypes will help you to improve your design.
You will gain a better understanding of your design problem and how and why concepts work effectively – and also rich illustrations to help you communicate your design decisions to various stakeholders.

How to use the method?
If you want to observe people in their natural setting without intervening, you can do this by acting as 'a fly on the wall' or by observing and asking questions. For subtler research, you observe how people react to situations in real practice or in a lab situation. Video is the preferred means of documenting observation results, but many other methods are also available, such as photos and taking notes. As with any other research method, it is very useful to add further data sources to triangulate the analysis and interpretation of the data; for example, you may combine observations with interviews to get a better understanding of what was going through people's minds.
For analyses all data are grouped in combinations of pictures, remarks and quotes and qualitatively analysed.

Possible procedure
For User Observation to understand usability aspects of your design:
STEP 1
Determine what, who and where you want to observe – the whole situation.
STEP 2
Define criteria for the observation – duration, money, main design criteria.
STEP 3
Select and invite participants.
STEP 4
Prepare the observation sessions – check whether video/photography is allowed; make an observation form, including a checklist of everything you want to observe and questions for interviews; and do a pilot observation.
STEP 5
Execute the observations.
STEP 6
Analyse your data and transcribe the video results.
STEP 7
Communicate and discuss your findings with your stakeholders.

Limitations of the method
When people know that they are being observed, they might behave differently than they would normally. When they do not know, ethical guidelines need to be taken into consideration.

Tips & Concerns
- Always carry out a pilot.
- Make sure that the stimuli, such as models and prototypes, are suitable for the observations and ready in time.
- Ask those you wish to observe for their permission if you want to disclose the observations, or be sure to make them anonymous.
- Think about inter-rater reliability. It is easier to plan this at the beginning of a study rather than later.
- Think of ways to operationalise the data.
- Go through your notes and add impressions as soon as possible after each observation.
- Engage stakeholders by doing at least part of the analyses together. However, be aware that they might take only one or two impressions as a reference.
- The hardest part of observing is to keep your mind open. Do not look for things you already know. Instead, be prepared for the unexpected. For this reason, video is preferred; though it is time-consuming, it provides you with rich illustrations and latitude for multiple observations.

REFERENCES & FURTHER READING: Abrams, B., 2000. ***The observational research handbook: Understanding how consumers live with your product.*** Lincolnwood, Ill: NTC business Books. / Daams, B.*, 2011. ***Product-ergonomie, ontwerpen voor nut, gebruik en beleving.*** Undesigning. / Stempfle, J. and Badke-Schaub, P.,* 2002. ***Thinking in design teams - an analysis of team communication.*** Design Studies, September, 23(5), pp. 473-496.

8: customer journey

CUSTOMER JOURNEY

Customer Journey Mapping helps you to gain insight into all the stages a customer goes through while experiencing the use of a product or service. It covers the emotions, goals, interactions and barriers customers experience at each stage.

When can the method be used?
Customer Journey Mapping can be used during the whole project. You start your project by researching the customer and experience, which will lead to your Customer Journey Map; a graphic representation of the stages your customer goes through. During the following phases of your project a Customer Journey is a great way to find out what knowledge you lack. Be sure to acquire that knowledge and add it to the journey later on in the project. Also use it to focus your design efforts and to map the effect of design improvements.

How to use the method?
With Customer Journey Mapping you gain a deep understanding of the process that users go through when using products or services to achieve their aims. A common pitfall for designers is that they design touch points or features that in themselves may function properly, but which do not work in synergy with the product or service as a whole and thus do not help customers to reach their aims in a satisfactory manner. The method helps you to avoid designing isolated 'touch points' or product features that lead to incoherent user experiences. When using the most complex products and services, customers have to take several steps across channels or devices, in a certain time span and with several touch points. Customer Journey Mapping helps you to consider these complex experiences and to design products and services that generate value for both the user and the organisations that provide these experiences.

Process description
STEP 1
Determine the type of customer and give reasons for your choice. Describe him/her as precisely as possible and explain how you know this, such as by drawing on qualitative research.
STEP 2
Map the stages the customer goes through on the horizontal axis. Take the customer's point of view, map activities instead of touch points.
STEP 3
Plot questions on the vertical axis: what are the customer's aims? What does the customer do? From the customer's point of view, what works well? What does not? What emotions does the customer go through?
STEP 4
Add any question that is useful for your specific project. For example: what touch points does the customer encounter? What other people does the customer deal with? What devices is the customer using?
STEP 5
Answer all the questions for each stage, preferably with an interdisciplinary approach.

Tips & Concerns
- Leave the mapping of touch points to the end of the exercise. You want to improve the experience, so do not rely too heavily on what the customer needs to use, but what he/she would like to use.
- Use the vertical axis in a flexible way; for each project the vertical axis looks slightly different.
- Use different visual formats: the journey could have a circle shape, two journeys could meet, the journey could be visualised through a metaphor.
- Ask users to map their own journey by asking them to define the stages and asking how they perceive their own experience, but do not limit your findings to emotional aspects.
- Combine qualitative with quantitative research data and engage managers in your project.
- Be sure to document insights from discussion with users and set aside time for dialogue.
- Do not be afraid to change cells when new insights emerge.
- Use visuals and research data wherever possible.
- Use Customer Journey Mapping at several stages of the design process.
- Take time to sketch and co-create with various stakeholders and leave room for improvements along the way.

REFERENCES & FURTHER READING: Roscam Abbing, E.*, 2010. ***Brand Driven Innovation.*** Lausanne: AVA Academia. Stickdorn, M. and Schneider, J., 2012. ***This is Service Design Thinking.*** Amsterdam: BIS Publishing.

BUSINESS MODEL CANVAS 1

USER RESEARCH IN MOROCCO

KEY PARTNERSHIPS

Engineers without borders
Main partner, ensures **name recognition** and broad **communication channels**. In return, we aid to **fulfil their mission**

Students 4 Sustainability
Main investor, provides money for **materials and tools**. In return, we aid to **fulfil their mission**.

Dutch Orientals
Bring us in **contact with locals**, provide **transport**, accommodation and **new partnerships**. In return, we address a problem they are too trying to **solve: deforestation and unhealthy living conditions**.

Association Homme & Environment
Bring us in **contact with test groups**, can provide **transport**. In return we **address deforestation and unhealthy living conditions**.

Université Mohammed I
Knowledge and information **exchange**, delivers **interpreters**

KEY ACTIVITIES

Building prototypes
a) Locate materials/tools, b) find a workshopm c) buy materials/tools, d) transport materials/tools to the workshop, e) assemble prototypes
Testing prototypes
a) Analysis of the customer segment in theory, b) Making the first contact with the customer segment, c) introducing the prototypes and product, d) do tests with the prototypes, e) evaluate the tests f) draw conclusions from the tests
Iterate prototypes:
a) use conclusions to adjust or build.

KEY RESOURCES

Physical:
Instructions on how to use the product (VP); measurement equipment (VP); evaluation forms (CH + CR + VP); office supplies (KA); materials (VP); tools (VP); workplace and storage place (KA); presents (CR)
Financial
Money (CH)
Intellectual
Technical knowledge (VP); Cultural knowledge (CR)
Human:
Linguistic skill or an interpreter (All); our own well-being (All); students or teachers from the university of Oujda (VP + CH); contact persons (CH)

VALUE PROPOSITION

A **cooking device** that combines **multiple ways** of generating or preserving **heat**.

Clean cooking, **no harmful smoke** and the use of sustainable power sources like s**olar energy** and **isolation.**

Indirect value, the **reduction of harmful smoke**, thus **improve health**iness of environment. **reduction of wood** fires, so it **combats deforestation**.

Direct value, the Fortune cooker needs **less fuel,** so fuel **costs** can be **reduced**, as well as the **time spent to collect fuel**.

Testing is **free**

CUSTOMER RELATIONSHIPS

Personal relationships, built on **mutual trust**

Co-creation: **test person helps** to improve the product and gets to **enjoy the improvements** as well.

Observant: observing tests in the **background** to gain more information.

CHANNELS

Both for the acquaintance with the customer segment, the awareness, using and evaluation of the Fortune Cooker **face-to-face contact**, a **translator** and transport of ourselves and the prototypes is needed.

For a good first impression a small **business gift** is recommended. A **visual presentation** of the Fortune Cooker can help inform.

CUSTOMER SEGMENTS

Our **test group** is also our **customer segment**. Test group is similar to **future target group.**

Targeted test group: **women** living in the **rural** parts of l'Oriental, preferable **without access to electricity** and cooking on either **wood or gas.**

COST STRUCTURE

Personal costs
Housing
Costs basic needs (such as food, running water, electricity etc.)
Flight costs
Other

Project costs
Transport
Materials and tools

REVENUE STREAMS

Maarten Romijn (Engineers Without Borders)
Students 4 Sustainability
Our own money

SOCIAL COSTS

An **experience of abatement** in cooking using the Fortine Cooker. **Less social activities for women** due to the fewer fuels needed. **Non-acceptance** of the example young, independent woman might be

ECOLOGICAL COSTS

Ecological footprint Influenced by the Fortune Cooker's **lifespan** and use of **spare parts** after the project. **Use of Fuels: Pollution** by ordering parts from China and our transport.

SOCIAL REVENUES

Introduction of awareness on health and environment. **Spare time to use on development**
Step towards **gender equality.**

ECOLOGICAL REVENUES

Clean cooking
Use of **waste materials**

9: business model for the project

BUSINESS MODEL CANVAS 2

FUTURE PERSPECTIVES FOR ENGINEERS WITHOUT BORDERS

KEY PARTNERSHIPS

NGO's with a similar mission such as the Global Alliance for Clean Cookstoves.

Local manufacturers, who can produce the product and sell it to **local retailers**

Local suppliers of recycled and new **materials**

Local or Western stakeholders, who **invest** in the business in return for a part of the **profits.**

KEY ACTIVITIES

Production of the Fortune Cooker by managing the many local workshops and **selling** the products to the different customers from within the workshop: **in house sale**

Innovating the product by co-creation.

KEY RESOURCES

Evaluation of previous (our) project. Format of a **new business model**

Bus or truck
Place for workshops
Computers
'Suggestion boxes'
Clear overview
Tools and materials
Employees
Distribution points, cash register, cash money and stockpiles

VALUE PROPOSITION

A **cooking device** that combines **multiple ways** of generating or preserving **heat**.

Clean cooking, no harmful smoke and the use of sustainable power sources like s**olar energy** and **isolation.**

Indirect value, the **reduction of harmful smoke**, thus **improve health**iness of environment. **reduction of wood** fires, so it **combats deforestation**.

Direct value, the Fortune cooker needs **less fuel,** so fuel **costs** can be **reduced**, as well as the **time spent to collect fuel**.

Testing is **free**

CUSTOMER RELATIONSHIPS

By maintaining a seemingly **personal relationship** with the customers, we want to to **encourage** them **to give feedback** on the product and give them the **possibility to co-create** the product.

Rich Western customers should **feel like they contribute to** the cause of our product/business. Therefore **the result** of their aid should be **reflected back** to them

Transparency. The whole business should be **honest and transparent** to all its customers and stakeholders, **to create mutual trust.**

CHANNELS

Marketing websites and word of mouth.
Local workshops and **in house selling point** both in development countries and online.
Transport of materials and products.

CUSTOMER SEGMENTS

People whose gain is the biggest. Cooking on woodfires in **rural** underdeveloped parts of **Africa**

Other underdeveloped countries with a **need for this product** as well.

Western **individual investors**: buy one, **reduce the price** of one. Or **donate** to the cause.

COST STRUCTURE

Salaries of employees (CH+CR+VP) (Fixed)
Rent of workplace or shop (VP) (Fixed)
Cost price of materials and tools (VP) (Fixed or variable with the volume/scale)
Taxes (Variable with the profit)
Marketing costs (CH) (Variable)

REVENUE STREAMS

Asset sales
other options: donating or leasing
Investors
by means of donations or services

SOCIAL COSTS

Local **gas companies** might **lose jobs**

ECOLOGICAL COSTS

The ecological footprint of the product has the biggest impact

SOCIAL REVENUES

Creation of **Employment**
Creation of **Awareness on health and environment**

ECOLOGICAL REVENUES

Clean cooking
Use of waste **materials**
Less transport due to inhouse selling

The Revenue Streams, Key Resources and Cost Structure are further explained in appendix 5

10: business model for the future