

Wermlandskällar'n

Ordering tracking system

A document based on the report
with the same name by

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Introduction

Värmlands nation has a pub called Wermlandskällar'n. The pub is run and maintained by students for students - guests even start queueing before the pub's official opening time. The place is very popular because of its cozy ambience, good food and particularly for their special garlic sauce. Despite all this positive aspects there are few annoying factors such as ordering mistakes and delayed food service.

Wermlandskällar'n doesn't offer a table service, therefore the orders have to be placed and paid at the bar. If you order any kind of food, you will receive the order number on a small piece of paper. Another tiny piece of paper with the same order number, the ordered food and the approximate location of your table will be placed in a mug. The Bar Back (a term used by the workers but also referred as server in this document) will from time to time pick empty the mug and transfer the order notes to the kitchen.

The kitchen crew will sort the delivered order notes by decreasing order numbers and start preparing the food accordingly to the order setting. When the order is ready the kitchen crew places the order note on the edge of the plate to signal the Bar Back that the food is ready to be served.

The Bar Back's main task is to serve the ordered food. A downside of this setup is that the Bar Back has to actively search for the order's owner because the only information he/she has is the approximate location of the table and the order number. On a stressful evening, this results in delays and delivering the order to a wrong guest. Sometimes orders get lost.

With this project the design team tries to tackle the Wermlandskällar'n ordering issues and at the end to introduce a system to improve the situation without having to change their current working setup. The structure of this document reflects the steps

taken by design team - contextual inquiry, modeling, iterative designing and testing, and a suggested final prototype.

Contextual Inquiry

Following an user centred design approach and a contextual inquiry methodology, the team decided to start gathering information about Varmlands Nation's pub. This has been accomplished by conducting two in-context semi-structured interviews and three contextual observations to determine the general characteristics of the place and the work dynamic. Both interviews were elaborated with two different workers at the place: one recently started working at the pub and the other one has six months working experience, to get a better view of the difference between novice and "expert". The latter is already occupying a high responsibility role. The three observations were realized during two weeks, two of them on a Friday evening which is the busiest day of the week and the other one on a Wednesday evening.

As a general result, the team discovered that the work in the pub could be divided into two different and complementary contexts: the reception and the pub. Both of them provide possibilities to improve the efficiency and the pub's service by implementing a better (technological) system. Nevertheless, for this report, the designing team decided to focus only on the ordering context.

Detailed CI results

General information about the interviewees

- Have been working in Wermlandskällar'n for 6 months.
- Works at least once per week. Usually two days per week.
- Have worked in the reception and in the bar.

General information about the pub

- The place have a capacity of 80 people according to the fire protocol. But, they have decided to allow only 50 people at the same time because of workload. They could allow more than 50 people if somebody come with a group (for example, there are 49 people in the pub but somebody come with 3 friends, they allow all of them to come).
- Very usually, the opening hour is the busiest one and Friday's and Saturday's nights are usually busy all the night. Other days are manageable after the opening, but can go

up and down during different times of the night, especially during the hours or half an hour's moments (people usually plan to see each other in the place during 21pm or 2130 pm for example, 22pm or 2230 pm)

- All the workers have to be there at 1630 pm and usually the work last until 1am.
- Busiest days: Friday's and Saturday's nights.
- There's no good 3G signal inside the pub and there is no Wifi connection.
- All the workers are students related to Uppsala University. 6 people intotal work every night: kitchen host and two kitchen helpers, bar host and two bar assistants (this two bar assistants are the ones the switch every hour for the reception).
- The workers don't have breaks during the night but the receive free dinner.
- Towards the end of the night,everything gets slowerand lesspeoplecome tothe pub.
- Every worker is helpful.

Reception work characteristics

- The person in the reception is usually alone and on their own.
- The only way of communication between the reception and the bar is walking down to the place. There is no other way to share information or the situation.
- Anyone use pen or pencil with paper to manage the quantity of people inside.In his case, he used a regular number with a cellphone helping him.
- They usually use the cell phone to keep track of the people.
- The two bar assistants change their positions between reception and waiter every hour.
- The bar assistant (waiter) is the one that switch every hour with the reception. This waiter is the one in charge to go continuously to the reception to know if everything is alright.

Pub and serving food characteristics

- The communication between the pub's cashier and the kitchen is usually good.
- The papers work like this: after the customer pays, the cashier write in a paper the order and the zone where the customer sits down (note that always the customer knows where he/she is sitting before they go to order something).This paper has a sequential number that provides an order for the food cook and its delivery. After the paper is finished,the cashier put the paper in a bowl. This bowl is usually checked by another bar assistant (the waiter) and when he/she finds a paper there,he/she takes it and deliver it to the kitchen. The cook take this paper, read the order and starts preparing the food. When the

food is done, the waiter takes the food and the paper again and goes to the zone to look for the customer.

- Depending of the person in the cashier, they usually use codes to differentiate the food. He tries to use Swedish.
- The bar assistant (waiter) doesn't know the customer that is waiting for the food.

Possible changes wanted by the interviewee

- Could be nice to change the papers used for the orders because that's a problem that takes a lot of time from the workers.
- Improve the communication with reception and keeping the track of people entering.
- The cleaning is annoying.

Wednesday, 03. February 2016 (Observation)

- long queue outside the pub before the official opening time
- workers aren't ready when the pub opens → they are still busy with the preparation work
- long queues at the bar for placing the orders
- table have no exact numbers → they have "zone" numbers
- different type of seats (char, bench) and tables
- pub area has two rooms
- people occupying seats before placing their orders at the bar
- people placing their jacket and bags on chair next to them, which actually belongs to the other table
- no wifi
- bad internet connectivity → just Edge
- mostly just one bartender
- mostly just one waiter/waitress
- beverages are served either in bottles or glasses
- there are candles at each table
- there are mugs with fork, knife and napkins on each table
- no obligation to order anything
- long waiting time for food → no clue how long to wait → waited for about 40min
- orders get lost
- people have to go outside to smoke

- restaurant opened at 17:30 → no sitting possibility available at about 18:30
- people are staying and drinking
- more people allowed the available seats
- 3 people are using a 4 people table
- 4 people table but 9 people sitting there
- 1 person reserves a table for their coming friends

Friday, 05. February 2016 (Observation)

- Before the official opening hours, workers from the pub reserved already a (quite big) table to eat there themselves
- When they left after about an hour, they left through the back door, so A. at the front desk did not know, that a whole table is empty and kept telling entering people that the pub was full 'Shift Schedule':
- Our interview person (Ariadne) did not receive very clear instructions ("Just do what you did the last time."), no clear schedules for shifts, A. did not know who her supervisor was either
- First A. was meant to have the first hour/shift at the front door but she changed on last notice with Alex
- Conclusion from the two points above: Very informal system in general
- Usually people either work in the kitchen or in the service, but if they want they could probably change 'Service':
- There are 5 (not very clearly separated) regions for serving. (Waitresses distribute the food according to regions)
- Ariadne explained the receipt System (two receipts) 'Cleaning':
- After the pub emptied, they have to clean until 1:30 to prepare for the next day (tables were a little bit sticky though) 'Location':
- Cold / no heating
- The door at the front entrance closed often with a very loud, unpleasant smash 'Things to consider'
- Tables can move (staff put some tables together in the beginning) Maybe more relevant for the other project.

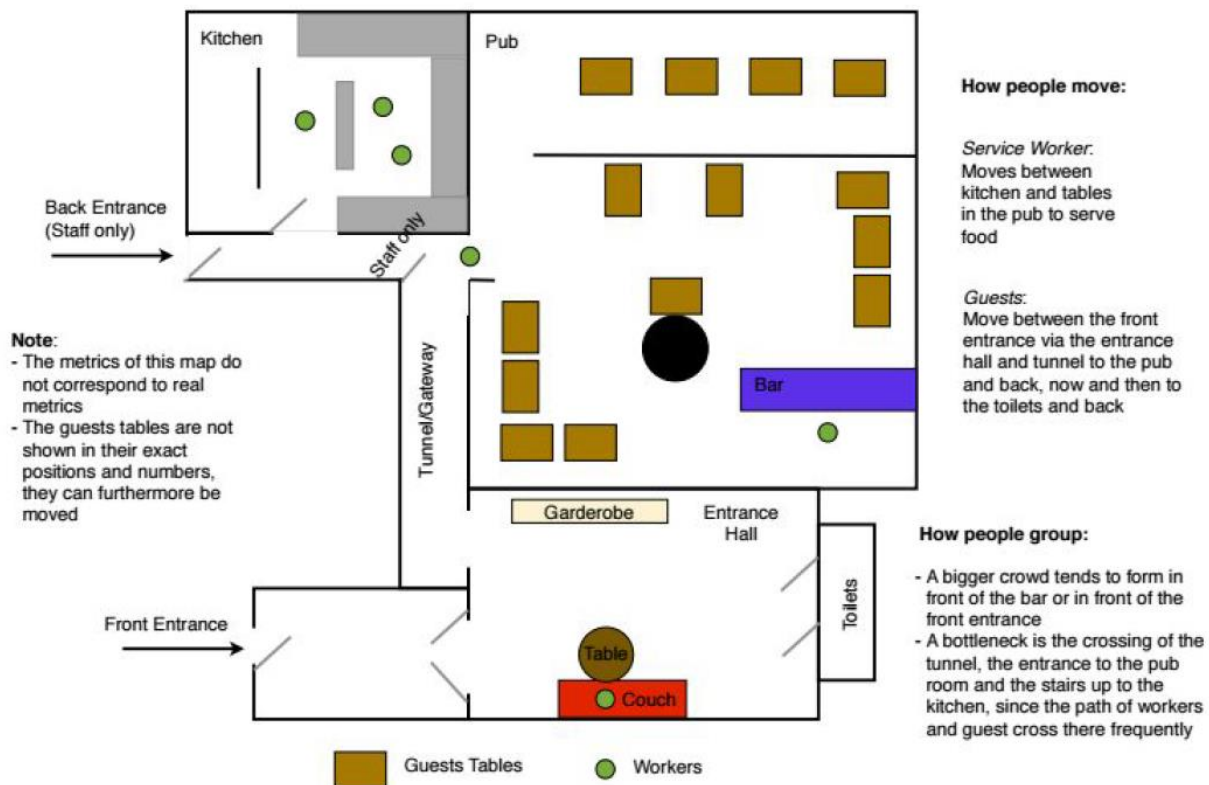
'Interview with Alex': (working at the front door for the first shift)

- A. works twice per week, from September to now (February)
- He says he likes it and that working at Värmlands is not stressful, just the shifts at the door can be quite boring, because you sit there alone and later during the evening not so many people are entering or leaving anymore

- We asked Alex what he would do, if he realized that somebody had a invalid student ID, he said he would let them enter anyway
- He just checks the names on the (student) IDs (nothing else)
- They can take breaks spontaneously whenever they want
- A. would like a nationwide online portal for people to see which nations are full and which ones still have space available 'Observation while Alex was working':
- It was cold at the front door (despite a working heater)
- Right in the beginning more than 50 people entered at once. Alex lost track of the count, and he did not write down anything although he had a piece of paper to take notes. He let more than 50 people into the pub. Quite some left again just after some minutes.
- Two guys wanted a guest card, A. did not quite know where they can get them
- He usually waited until a whole group of people entered and only then told them, that the pub was full -> Could have done it earlier 'Kitchen':
- In the kitchen, they could almost not cope with the amount of burgers they had to prepare because of that. People had to wait very long -> Ariadne told us that
- They had a new frier which was too small to cope with the amount of burgers to prepare. Another one was 'scheduled', but they need to wait until the budget allows them to buy it
- Before, they had an oven, but could not make 'real' fries 'Bar':
- Guy of a 'higher' hierarchy. He works for free but gets other benefits
- At the bar they usually want people like him, not like Ariadne for example, but they would need two more people

Modeling

In this chapter the present situation will be analysed and visualised with different kind of contextual models to understand the issue context properly. These models should be used as a base for the designing part.



Model 1: Physical Model

The physical model represents the physical layout of the pub. Note, however, that the metrics do not correspond to the real ones.

Guests enter at the front entrance (left bottom), pass a small door hall and show their student card to the worker sitting (red couch) in the entrance hall. Afterwards they continue through a narrow gangway down to the pub where they occupy a table before ordering their meals and drinks at the bar. The pub is kind of divided into two parts. The part separated from the main pub area is very narrow and not visible from the bar. The hallway from the pub to the kitchen and back entrance is only allowed for staff members. Therefore the back entrance is only used by the staff unless during emergency cases (left top).

Model 2: Flow Models

Guest orders food at the bar

Creates an order



Guest

I would like to have a
cheese burger

Alright, your order
number is #123, here'
s your ticket

I'll be at table 4,
thanks!

**Registers order, gives
guest order number, and
asks for location**



Bar Host

Transporting orders from the bar to the kitchen

Announces new orders



Bar Host

I have new orders for
the kitchen

I'll take them to the
kitchen

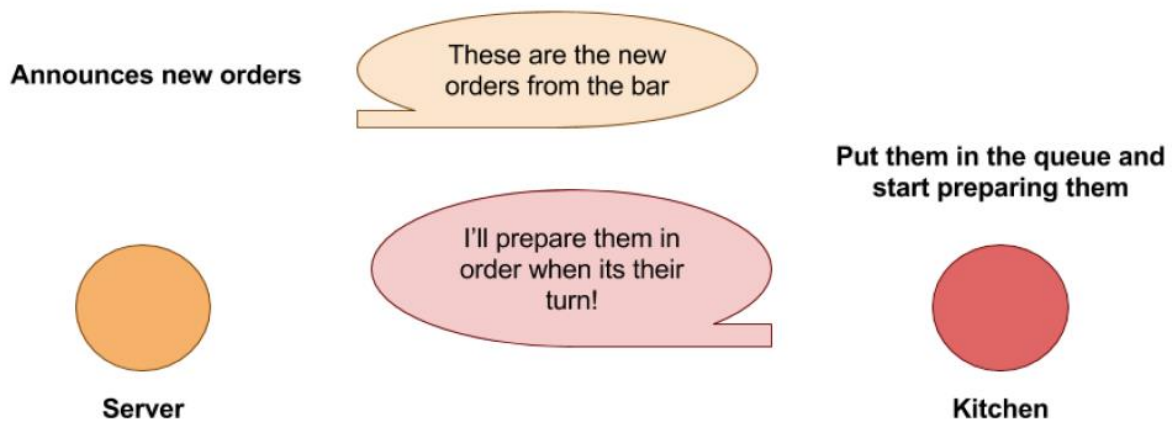
Thanks!

Picks up orders for kitchen



Server

Delivering orders to the kitchen



The flow model shows the flows of communication which are relevant for ordering food at the pub. The guests starts by ordering something at the bar, which will note the information needed to prepare the correct food and asks where the guest is seated for finding him when the food is ready.

The server will periodically collect the orders from the bar and bring them to the kitchen, this can be initiated from the server or the bar host role. After the server collected the new orders, they will be brought to the kitchen for preparation. The orders will be prepared in numerical orders, first come, first served; regardless of what the orders are. After the preparation, the food will be delivered to the customer, using the seating information collected by the bar host.

Model 3: Sequence Models

The sequence model breaks down the complete ordering process into smaller use cases to provide an in-depth understanding of the existing workflow. The main focus lies on the intentions behind each step and on the breakdowns which hinder progress in the workflow.

Title: Take a guest's order**Intent:** taking the order, entering it into the system and receiving the payment**Trigger:** a guest comes to the bar and to order beverage and/or meal

bar host asks the guest what he/she wants to order

Intent: getting a clear understanding of the guest's order intention**Trigger:** the guest orders a beverage and a meal

bar host registers the order into the cashier system

Intent 1: entering the order into the cashier system**Intent 2:** calculating the total amount of the order

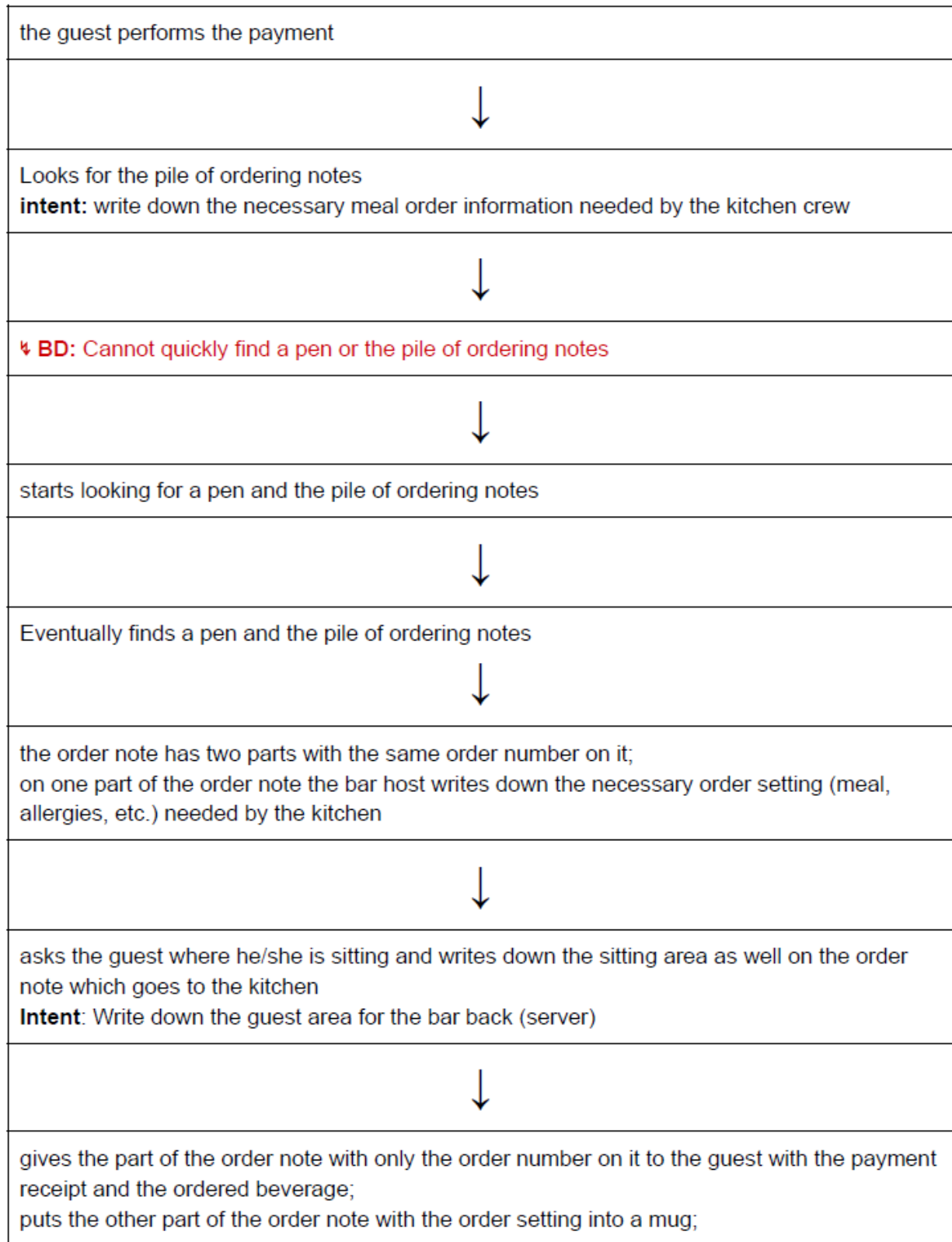
bar host clarifies with the guest the preferred payment method

Intent: to know if the card payment system has to be prepared

cash payment is wished thus the payment takes place within the cashier system

card payment is wished thus the bar host enters the payment amount into the card payment system





Sequence #2	
Title: Bringing the orders to the kitchen	
Intent: bringing the orders from the bar to the kitchen Trigger: waiter/waitress notices that there are new orders in the order mug at the bar;	
↓	
goes to the bar where the order mug is located	
↓	
empties the order mug	
↓	
brings the orders to the kitchen	

Sequence #3	
Title: Sorting the orders	
Intent: the ordering the orders in an ascending numerical order Trigger: new orders arrived	
↓	
a kitchen crew member places the orders from right to left in an ascending numerical order	

Title: Preparing the meal**Intent:** preparing the meal according to the order setting**Trigger:** orders are sorted

placing the order note below the plate

Intent: to avoid mistakes and obscurities

Each kitchen crew member checks the ordered meal's setting



Completes his/her kitchen task



when the meal is ready one of the kitchen crew member places the order note on the edge of the plate

Intent: to notify the waiter/waitress that the meal is ready to be served

Title: Serving of the order**Intent:** Serving a warm meals to the guests**Trigger:** orders are ready

taking the two plates

Intent: to serve two guests in one go⚠ **BD:** Does not know the exact table nor the guest

starts asking the guests one by one in the sitting area written on the order note for their order number

Intent: the order number is the only clue to identify the guest who has ordered the meal

finds the guest with the right order number and delivers the meal

Title: guest wants to know the order status

Intent: get information about the guest order

Trigger: the guest comes to the bar and ask about the status of his/her order



asks for the order number and tells the guest to update him/her soon



⚡ **BD:** Cannot leave the bar



waits till the waiter/waitress comes to the bar



tells the waiter/waitress to find out about the order with this order number and indicates the guest



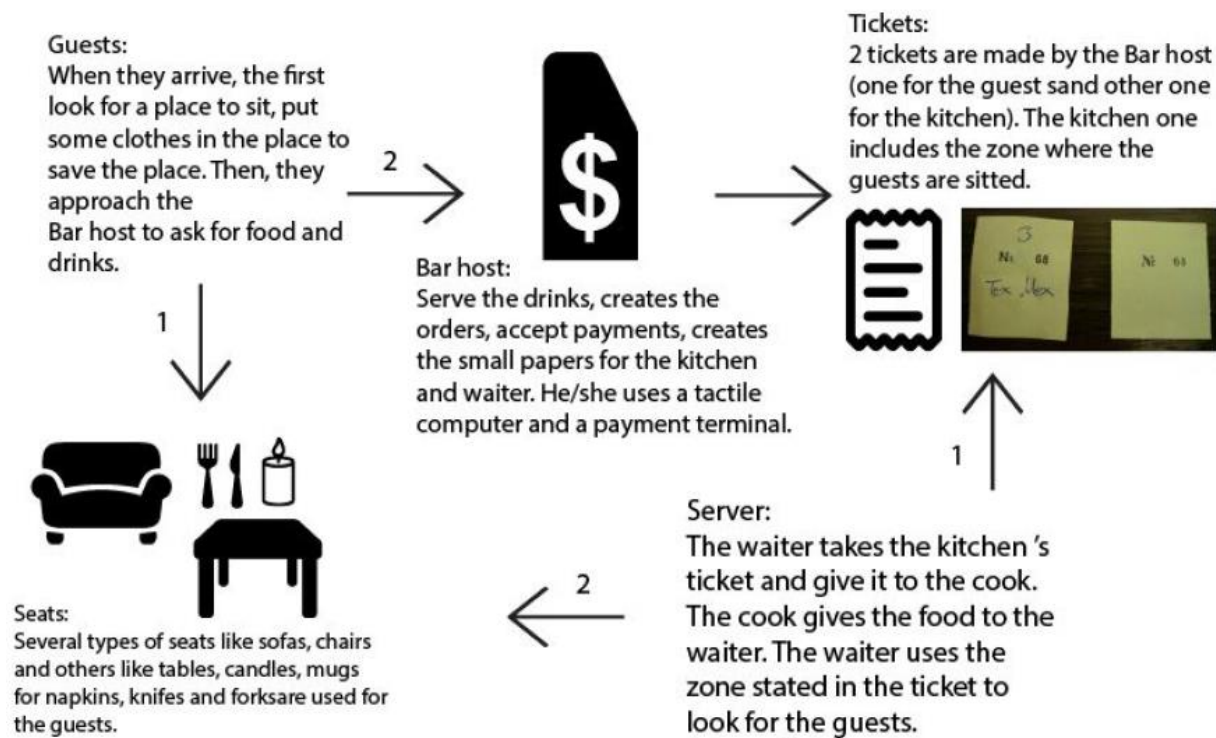
the waiter/waitress goes to the kitchen to check the status of the order



the waiter/waitress goes to the guest and informs about his/her order's status

Model 4: Artifacts Model

Artifact model: Pub context



The artifact model displays the artifacts that are used within the ordering context.

The crucial artifacts are located at the bar - the Bar Host's tactile computer and the small ordering papers. The latter plays the key role in the whole ordering process.

The secondary artifact group includes sofas, tables, cups, spoons, forks, candles and other secondary objects that offer the guests a better experience but are not directly relevant for design.

All of the models above should help the design team to understand the context of use in a better way as well as the problems regarding the ordering context.

Personas and other considerations

It is important to mention at this point that the establishment of ID numbers for each table will simplify the workflow a lot. The unique identification of each table will improve the Bar Back's serving task. The designing solution will be based on this table ID reform.

Three extensive personas were created to get a better understanding of each of the main stakeholders that will interact with the system as follows:

Suzanne: The new student at Varmlands Nation

Description: Suzanne is an Italian student who is doing an exchange semester at Uppsala University. She is in the last year of her bachelor degree in political science. She likes to hang out with friends, meet new people and discover new places. She informed herself well on the Internet about the student life in Uppsala and its nations. As a result she knew that the best way to earn some money and meet new people is to join a nation and work in the pub. This is her first week working at Värmlands nation pub. She intending to work twice a week during her stay in Uppsala. She isn't familiar with the nation's administration and the pub work distribution. She is currently working as a Bar Back.

Goals: Suzanne's desires is to earn some money and meet new people working at Varmland's pub. She hopes that this work would not require too much of her spare time nor be stressful because her main focus is on her courses.

Regular activities: As a new student, she is in charge of the Bar Back (server) position. Her main duties are serving the food and bringing new orders to the kitchen. When she notice while serving that there are new food orders in the order mug, she takes them and transfers them to the kitchen. As soon as the

food is ready, she takes the plate with food including its corresponding ticket and goes down to the pub to find the owner of the order to serve the food.

Michael: Wednesday's and Friday's bar host

Description: Michael is a physics master student that have been in Uppsala University for 6 months. He is pursuing a Material physics degree and have been working at Varmlands nation since he got here. He have a very good knowledge about the work dynamics in Vermlands pub and now he is in charge to be the bar host two times per week. He likes to give a good attention to the pub's guests so doesn't like rush hours but tries to work as fast as possible. When the ordering queue is down, he tries to go to the kitchen and help. When the activity goes down, he enjoys sharing some time with the other workers at the pub.

Goals: Michael desire is to get orders from the guests as soon as possible to diminish the queue. Also, he wants to have a proper way of communication with the kitchen to guarantee the guest the right food and to express to the waiter the exact position of the guest inside the pub. He also wants to have help and time serving the drinks to the guests.

Regular activities: He takes every order from the guests and charge the money to them. After that, when the guests ask for a beverage, he is in charge of serve it, if the guest order food, he writes down the order and the zone where the guest is seated in a ticket and puts it on a bowl, later he gives another tickets with a order number to the guest.

Larsson: Hamburger lover

Description: Larsson is a Swedish chemistry student at Uppsala University. He is a member of another nation but he considers that the hamburgers at Varmlands pub are the best ones of all the nations. He likes to go every Wednesday with a group of friends to have a hamburger there. He know that

Varmlands pub is very crowded usually so he tries to get there very early, but his friends prefer to go later in the evening.

Goals: Wants to know if there is enough space at Varmlands pub.

Regular activities: Goes to Varmlands pub. Check in the entrance if there is enough space inside. Goes inside and puts his jacket on a table to save the place. Asks for a hamburger and a drink to the bar host. Receives his drink and order ticket and returns to the table. He waits for his order. When he sees the waiter approaching to his place, he has to ask every time if that plate is yours and check the order number with the one at the plate. He receives his food.

The main usage scenario

Ordering a Cheeseburger Scenario

Description : A guest (Larsson) orders a cheeseburger and a drink at Varmlands pub. The meal is made and delivered to the guest.

Users : Bar host, server, kitchen crew

Stakeholders : Guest

Artifacts involved: Cashier tactile computer, pub printer, kitchen screen, kitchen printer, printed ticket.

1. The guest enters the pub and selects a table.
2. The guest approaches the bar host and asks for his preferred meal and/or drink.
3. The bar host asks the guest her table number.
4. The guest tells the bar host the table number.
5. The bar host enters the ordered drink and meal including table number into the system
6. The bar host asks the guest if something else is needed.
7. The guests answers: "not for the moment".
8. The bar host tabs the payment button.
9. The bar host tells the guest the payment amount.
10. The guest pays the amount.

- 11.The system accepts the payment and prints out the receipt.
- 12.The bar host gives the guest the receipt and tells him that the meal order number is on the receipt.
- 13.The guest takes the receipt and the drink, and goes back to her table.
- 14.The system sends the meal to the kitchen.
- 15.The order appears in the kitchen screen
- 16.The kitchen crew sees the new order and starts preparing the ordered meal.
- 17.When the meal is ready one of the kitchen crew prints out a delivery note with meal name, order number and table number and places it on the edge of the plate.
- 18.The system marks the order as done.
- 19.The server takes the plate, sees the necessary information to serve on the delivery note and serves accordingly.