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The petrol station – a hot spot along the road

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Abstract

The increased travelling of today makes nodes along travelling routes more and more important. This is very much the case of petrol stations. They constitute important nodes in the road network, filling up thirsty fuel tanks and hungry stomachs, guiding road users and providing vehicle-services. In this thesis the role of the petrol station for road users was investigated in order to find out if the petrol station was a potential hot spot. We performed an ethnographic field study at a petrol station and found that a great number of visitor activities took place at the petrol station. These indicated the significance of the petrol station for road users. There were much more taking place than traditional car maintenance. We found that the petrol stations prerequisites for becoming a digital hotspot were favourable. Aspects of interest to consider for IT implementation were also identified. The ability of the petrol station to provide timely information about e.g. the vicinity of the petrol station and road related information are examples of such aspects. The possibility to support people that travel a lot in their work and people having a journey break are further aspects of interest for a petrol station hot spot. Design suggestions intended to visualise ideas on how these aspects could be taken advantage of in a petrol station hot spot were presented.

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1 Introduction

In the field of informatics attention has been drawn towards the trend of increased mobility. Dahlbom (2002) points out several factors contributing to the increasing mobility in our society, amongst others tourism, travelling as part of our education, travelling in order to visit friends and relatives as we get distributed, and travelling as a more important part of our work.

In the informatics discipline attention to mobility has especially been drawn into the Computer Supported Cooperative Work (CSCW) research area. This research area has the intention to find support for mobile people in work related situations. The approach in these projects is usually to study a workgroup in order to identify needs or possibilities to improve their work by using mobile IT.

This thesis also has the intention of finding support for people in mobility, though with a different approach of not focusing on groups. Instead, the approach is to study a place in the much mobile road setting.

We consider travelling to be an important activity since fulfilling many purposes, like the ones mentioned by Dahlbom. Road usage is also an increasing occurrence, reflected by the steady trend of increased number of vehicles travelling our roads (www.vv.se, 2002).

The place for our study is the petrol station. Petrol stations are frequently located along the roads. We see petrol stations as important nodes in the road network. They fill up thirsty fuel tanks and hungry stomachs, guide road users and provide vehicle-services.

Other established travelling nodes such as airports and railway stations are today offering additional support for their visitors by taking on the role as digital hot spots. Digital hot spots are usually referred to as public places offering wireless Internet access. Considering the strong position the petrol station holds in the road network we believe the petrol station also has the potential to serve as a hotspot.

Our objective is twofold:

1. *Investigate the role of the petrol station for road users*

   Based on the findings,

2. *Propound suggestions on how hot spot technology could be used to further support road users at the petrol station*

In order to fulfil the objectives, an ethnographic field study has been performed at a Statoil petrol station in Varberg.

This thesis is part of the PumpTalk project which in its turn is part of the Interactive Road project. The Interactive Road, a project in the mobility studio at the Interactive Institute (www.interactiveinstitute.se, 2002) has the ambition to augment the experience of the road through information and communication technologies. The PumpTalk project aims at providing further understanding of the definition of the petrol station, and the roles it has for road users. In the PumpTalk project ethnographic studies are also being performed at another Statoil petrol station south of Gothenburg by the tutor of this thesis.

This introductory chapter is followed by a background chapter composed of related work and a section about petrol stations and IT (chapter 2). Next, the theories applied in the thesis are described (chapter 3). Subsequently we present the method applied in the thesis (chapter 4). In the following chapters we present our empirical findings together with analysis of these findings (chapter 5, 6 and 7). These chapters are followed by a design chapter where the design suggestions are presented (chapter 8). A discussion of the findings and conclusions are finally presented (chapter 9 and 10).

2 Background

This chapter is divided into two sections, Related work and The petrol station and IT. In the first section related research projects are presented. The second section gives a short historical overview of the petrol station. Examples of IT related projects within petrol retailing are also presented.

2.1 Related work

The first section is constituted of research in mobile informatics, which aims at finding innovative support for mobile people. The second deals with IT projects in road settings, also aimed at finding support for people. The third section deals with research at public places and wireless IT implementation in such places with the aim of offering mobile IT facilities to people.

2.1.1 Mobile Informatics

In the informatics research attention has been drawn to the trend of increased mobility. In the research area of CSCW a great effort is concentrated on bridging the distance in time and location by the use of information technology – creating a support for distributed work (Esbjörnsson & Vesterlind, 2002). At an early stage Bellotti and Bly (1996) drew their attention to this matter, by studying a team of architects equipped with stationary IT tools. The architects had to collaborate with a distantly located team. Their working day was however characterised by much movement between different nearby locations; their stationary IT tools did not offer support for this collaboration. Bellotti and Bly concluded that mobility needs to be supported, not opposed by visualising the need for both collaboration and local movement.

The kind of mobility described in the above mentioned research project is somewhat similar to what Luff and Heath (1998) refer to as local mobility; walking between rooms, floors and buildings at a local site. Kristoffersen and Ljungbergs (1998) use of the term wandering, is described similarly "extensive local mobility in a building or local bounded area".

At the Viktoria Institute in Gothenburg (www.viktoria.se, 2002), a number of innovative mobile CSCW projects have been presented in recent years. An example of this is the NewsMate project (Fagrell, 2000) performing an ethnographic field study of journalists for informing design implications and developing a prototype for mobile IT support. The NewsMate project focused a great deal on field journalists' need for timely knowledge, distributed and collaborated through the use of mobile IT.

2.1.2 Mobile IT for road users

2.1.2.1 The Interactive road

The mobility studio at the Interactive Institute focuses on IT support for road users, thus focusing on a setting naturally characterised by mobility. Their research programme includes six different aspects; What is a wireless application? Support for collaboration, Situation dependence, Walking away from desktop computer, Informing design of users' practices through ethnographic fieldwork and Speed as new parameter.

The mobility studio has produced a number of projects involving several of the aspects mentioned. The BusTalk project (Juhlin & Vesterlind, 2001) concerns bus driver collaboration, how it is actually done, and design for supporting it accordingly to the actual way of work. The bus drivers' major tasks consist of keeping on schedule and linking journeys allowing passengers to smoothly combine different routes. Support for this was designed by applying an iterative design and evaluation research approach, combining social science and computer science.

The PlaceMemo (Esbjörnsson & Juhlin, 2002) prototype is another mobility studio project where road inspectors are to be supported with articulation work, allowing road inspectors to save and share interpretations of objects in their geographically widespread working area. The inspector will be able to retrieve the information when being in the vicinity of the specific object. Thus, the information is in relation to the geographical location of the specific object.

The HocMan (Esbjörnsson & Östergren, 2002) project is an innovative attempt to support collaboration among motor-cyclists, a group with strong commitment. They already collaborate via the Internet, where they also share road achievements. The HocMan is a prototype allowing them to share rich content when being in the vicinity of each other, by using a wireless ad hoc solution with handheld computers.

2.1.2.2 Telematics

A technology field, which is greatly related to road settings is the field of telematics. In recent years, the term telematics has grown in popularity. It is a hard term to define, due to the various vehicle-industry-related uses in the field of telematics. Telematics valley (http://telematics.iweb.nu, 2002) in Gothenburg, a forum for regional networking and communication and at the cluster of telematics expertise in West Sweden, offers the following definition: *Telematics refers to any kind of vehicle service intended to promote safety, productivity, mobility and convenience, which relies on a wireless communication link and often includes a positioning system.*

The definition does not make it easier to conclude what telematics really is. It seems more fruitful to exemplify what telematics could be. The research projects presented

below are examples of two different telematic approaches; centralised and decentralised architecture.

An example of what a road related telematics project could look like is the Optis project, Optimised Traffic In Sweden (www.proj.arena.vv.se/optis/OptisInfo.pdf, 2002). This project is part of a Swedish government initiative to coordinate vehicle industry, research and governments to do research on technology to be integrated in future vehicles for better environmental characteristics. The specific objective with Optis is to make the use of vehicles more efficient, and thus minimising unnecessary transportation. This is done by utilising a concept called FCD, Floating Car Data, where cars are equipped with positioning systems reporting their current speed and location to a central server manipulating the data and returning it to the vehicles. It enables an overview of the traffic situation in a region.

A decentralised approach to provide support and entertainment for road users is the FleetNet project (Franz et al, 2001). The aims of this approach are to develop and demonstrate a wireless ad hoc network for inter-vehicle communications. The manipulation of data in this approach is made in the actual vehicle, based on data received and sent from cars in the same and opposite direction, and so-called gateways along the road.

2.1.3 Mobile IT and public places

2.1.3.1 Research at public places

Laurier, Whyte and Buckners (2001) wish to draw attention to a shift in the general topic of ethnographical studies from a work setting to a consumption setting. Their ambition is to alert the reader to a change in the general topic of ethnography from traditional study of work as work, to consumption as not only work. They say "To put it simple we are interested in how the 'consumers' of cafes and bars accomplish 'doing being customers' in the sense of keeping the worlds of cafes and bars 'utterly mundane' more than we are interested in how the staff organise the work of producing service".

The point of a changed focus in ethnographic field studies made by the authors is much in line with the perspective applied in the field study in this thesis. The focus in this thesis is not the petrol station personnel and their work. Instead the focus is on the petrol station visitors and their activities at the station.

Weilenmann and Larssons (2001) study of teenagers sharing their mobile phones also has much in common with the study performed in this thesis, since both are performed through concealed observations in public environment.

2.1.3.2 IT at public places

Making wireless Internet access available at public places is a steady upward trend. Airports, hotels, cafés and railway stations and, in Stockholm, even parks are places implemented with Wireless Local Area Network (WLAN) technology. These public places, often referred to as "(digital) hot spots", offer wireless Internet access to visitors within 100 meters, of an access point. Roaming between closely located access points is possible, why the area covered could easily be expanded. According to the British consulting firm BWCS there were between 2000 and 3000 hot spots in the world by the end of 2001. In five years BWCS estimates that the number will exceed 115 000 (www.teldok.org/blurbs/blurbi19.htm, 2002).

To be able to utilise the hot spot facilities, visitors must have a WLAN compatible device and in most cases also a subscription. The provider of the hot spot is often a third party, referred to as a WISP (Wireless Internet Service Provider). An obstacle in this constellation is that visitors do not have full access to the hot spots offered by other providers. There are also hot spots where visitors themselves can choose provider, or even pay for the specific usage with a credit card or a mobile phone (www.aptilo.com, 2002). The vision underlying these initiatives is often the possibility to roam regardless of subscription or actual access point provider.

The U.S. -Starbucks (www.starbucks.com, 2002) is an example of a café offering the opportunity of wireless Internet access to their visitors. The provider is T-Mobile Wireless Broadband (www.tmobilebroadband.com, 2002), which also provides wireless Internet access at other public locations such as airports.

Telia HomeRun (www.homerun.telia.com, 2002) is a WISP offering Internet access at airports, hotels, motorway services, cafés, conference centres etc. Telia HomeRun appeal to business travellers, offering the Telia HomeRun service as a business subscription.

The Streetwise project (www.bluegrid.se/streetwise, 2002) implemented at Biblioteksgatan, a street in Stockholm, is an example of a public hot spot offering more than Internet access. Visitors at Biblioteksgatan can log-in (if registered as a user) to the Streetwise portal where they can receive product information, news etc based on their profile. The user can also search for particular requests based on their needs. While walking down the street, the registered user receives offers matching his or her specified profile.

The StockholmOpen.net (www.stockholmopen.net, 2002) initiative is a cooperative effort to create an open communication environment in the Greater Stockholm area. It is an embryo of a city-wide open access network providing local services and a freedom of choice of Internet Service Providers.

2.2 The petrol station and IT

In this section we will present examples of IT developments taking place in petrol retailing in order to give a description of the presence of IT and also to point out the kind of IT solutions, which are developed for petrol stations. This presentation is preceded by a brief historical description of the petrol station.

2.2.1 Historical overview

Petrol retailing in the United States began around the turn of the twentieth century. The first concept was underground storage with pump and hose dispensing and curb pumps placed on the streets. Due to problems of congestion in the streets stations with off-street fuelling, the roadside petrol station started to emerge. In Sweden, before the expansion of petrol stations, petrol retailing was managed at pharmacies and chemical-shops (Wilsson, 1995). Around 1930 a significant development came under way in the United States when convenience stores and grocers began to provide customers with refuelling facilities as an additional service (Minale, 2000). Over the years the emphasis has shifted from fuelling being offered at grocery stores to petrol stations secondarily offering groceries. The emphasis in the UK is reverting again to store sales since this is where the larger profit margins lie today (Minale). According to Wilson this also applies to Sweden where "In the eighties the offering of articles at petrol stations increased as petrol stations began providing leisure articles, clothes, and letting videos; therefore, the circle was closed. We moved from filling up the tank at the grocery store in the beginning of the century to shopping at the petrol station."

2.2.2 IT at petrol stations

After performing a brief research on IT and petrol stations we found that the presence of IT appears to be scarce at petrol stations. The below utterance by Minale (2000) is a mark of this conception:

"…Yet with all the technological advances in the petroleum industry as a whole, it is notable how the petrol forecourt remains relatively unchanged from the early days. In fact it would be fair to say that petrol retailing has come full circle".

Yet we have identified some examples of IT related projects at petrol stations. The projects, of rather varying nature, are described concisely.

The Shell e-station

Shell intends to create an "e-station" by utilising wireless technology and has selected IBM as leading integrator for the project. The aim is to link company-operated retail

locations with corporate systems to monitor and improve Shells retail operations, and to reduce operating costs. The infrastructure is also intended to support advanced customer applications for a future date. (www.ibm.com/news/us/2001/09/27.html, 2002)

Digital screen technologies

In the petrol retailing, development is being carried out with digital screens on pumps. The improvement in digital screen technology is believed to provide another medium for communicating with the customer. The locations for these devices are at the pump computer head and in the store. All the principal pump manufacturers offer the facility of LCD screens in the pump computer head. These units convey a combination of messages including promotional, informational and statutory. Connection to the Internet allows centralised real time editing of the message. Certain screens are touch sensitive allowing the user to interact, making a purchase or enquiring of some description. (www.petrolstationdesign.com, 2002)

Statoil IT strategies

We have discussed the presence and possibilities of IT at petrol stations with Jon-Erik Bjore, head of Statoil retailing Norway. He demonstrated other kinds of IT-solutions, in addition to the above mentioned, of interest in the petrol retailing line of business. According to Jon-Erik Bjore, Statoil is very interested in the possibilities that IT implementation at petrol stations can enable for the visitors. Initiatives have been taken to investigate solutions aiming at providing IT facilities for the petrol station visitors. The thought of their petrol stations as digital hot spots along the road is not unfamiliar. The hot spot initiative is at an early stage, no studies of the shaping of the technology and possible services are yet performed. Initial discussions with providers of hot spot solutions are though going on.

3 Theory

The theories used in the thesis are elected to give perspective on aspects of interest when studying a place (i.e. the petrol station) and the mobile road setting surrounding this place. We have chosen to utilise theories from different disciplines.

3.1 Mobility

Mobility is often understood but hard to define. Fagrell (2000) comments this by saying that "It is virtually impossible to define mobile work in a meaningful way". This opinion is based on the distinction of mobile work as a human activity, not machinery. This makes it difficult to formulate general statements that are far reaching. Still we distinguish the travelling salesman as mobile and the secretary, in relative terms, as not. Fagrell points out that we can conceive typical situations where people are mobile and when they are not. Not through a definition of mobility but rather through the context of the situation in which the word mobility is used. Still several attempts to model and describe mobility exist in contemporary literature. We will describe some of the models and start with the descriptions of mobility that focus on the characteristics, namely the design theories used by Kristoffersen and Ljungberg (1998).

To understand and to further design mobile IT applications we have to identify the aspects that are important in the "mobile IT-use" situation. Kristoffersen and Ljungberg (1998) have formed a theoretic model of mobility and IT-use by focusing on: environment, application and modality (figure 1). The environment part of the model considers a physical and a social surrounding. By physical environment is meant the observable, physical surrounding of the use situation. For a train commuter, the physical surrounding is the chairs, tables, etc., of the railroad car. The social surrounding is another important aspect of the environment. Factors such as formal structures, e.g. rules, and informal structures, e.g. power, are examples of social surrounding. The technological part of mobile IT use is called application. The application includes a technology e.g. a PDA, data and a program to processes the data. In a situation where a mobile worker makes entries in the scheduler on her palmtop the machine is the technology, the scheduler the program, and the entries the data. Modality considers the mobile situation in which the application is to be used.
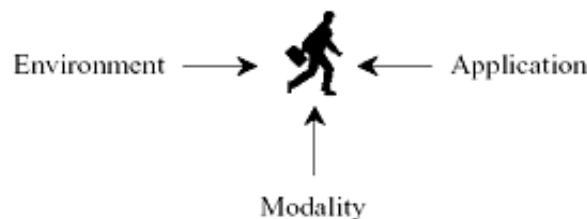
Figure 1. A model of mobile IT-use

3.1.1 Modalities of mobility

Kristoffersen and Ljungbergs (1998) study of mobility prioritises the modalities (or characteristics) of mobility as the key of understanding mobility. They identify three main modalities of mobility: travelling, visiting and wandering (figure 2).

Travelling is when going from one place to another in a vehicle. For example a train commuter is travelling when going by train from home to the work place. The train commuter can use a laptop whereas a commuter who drives a car can only use a mobile phone. The choice of travelling modality seems to limit the choice of mobile devices.
Visiting is when spending time in one place for a prolonged period of time before moving on to another place. For example, a consultant is visiting when spending time in a client organisation. The visitor can for example bring a laptop to the place they visit or they can use e.g. stationary PCs at the visiting place.
Wandering is extensive local mobility in a building or local bounded area. For example, IT support personnel in some organisations spend time wandering around helping people. The IT that people use when wandering is typically easy to carry.
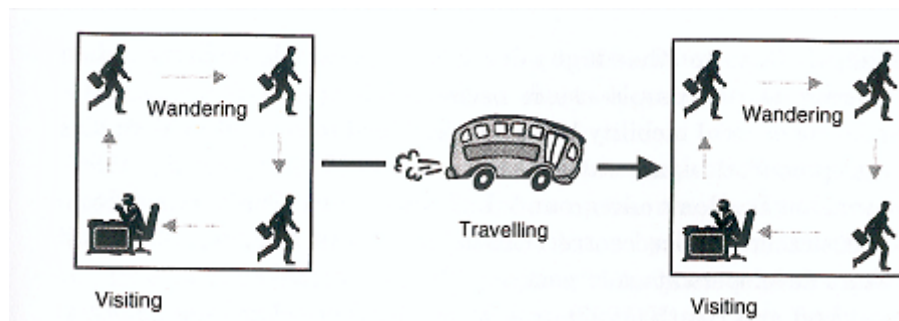
Figure 2. Three types of mobile modalities

Esbjörnsson and Vesterlind (2002) say that in order to understand the mobile workplace one can start by looking at the spatiality, which sustains a stability of the workplace and the environment in which the movement occurs, rather than distinctive features of physical movement. Regional topologies are stable by associating the spatiality to the notion of the place. Place is (geographical) space invested with understanding. Networks on the other hand fixate the relations between nodes and places of interaction.

3.2 Place and Environment

Kevin Andrew Lynch, professor at MIT in 1963, has influenced the field of city planning through his work on the theory of city form, and on the perception of the city environment and its consequences for city design. In the publication Managing the sense of the region (Lynch, 1976), he discusses the importance of sensory qualities in the design of regions. Sensory refers to the look, sound, smell, and feel for a place.

Among the issues discussed is the strength of local attachment. The very local aspect of place attachment serves as a warning against indiscriminate application of region wide standards of form. District rules should vary as places and people vary, and those rules should be developed and administrated in conjunction with the local people. Moreover, there is a set of places; main streets, parks, subway platform and department stores etc., whose identity affect almost everyone. The qualities of these true public domains are subject to some degree of public influence.

Lynch does also point out that certain types of territory seem to be almost universally essential to a satisfying landscape. For example, do individuals have some place that they effectively control and can modify, where they may enjoy privacy? At mid-range, is there a territory where they feel at ease, to which they belong both spatially and socially? At the other end of the spectrum, can they reach a place so removed from the concern of others that they can act there without conscious conformity to social demands? Lynch says that; private corner, wasteland and home territory, should all be available to everyone.

Lynch does also say that there are temporal territories as well as spatial ones; times of night belonging to teenagers, times of day when market stalls occupy a plaza. Thinking of the sense of place and time, norms could be developed for:

- The perceived safety of being alone at any hour in various areas
- The availability of orientation information, and the access to explanatory panoramas
- The visible or audible communication of the time of day or season, of cyclic natural changes, or schedule of public activities

These are only a few examples considering such norms. Even though Lynch primarily discusses architectural issues concerning city design, his thoughts are useful for discussion of fundamental design guidelines, customers' behaviour at the station and place characteristics.

3.3 Social theory

Goffman (1963) discusses two kinds of communication behaviour in his book Behaviour in public spaces. The first, unfocused interaction, is communication, which occurs when one gleans information about another person present by glancing at him, if only momentarily, as he passes into and then out of one's view. Unfocused interaction, is concerned with what can be communicated between persons merely by virtue of their presence together in the same social situation. Unfocused interaction has to do largely with the management of sheer and mere copresence. Secondly, focused interaction, is the kind of interaction that occurs when persons gather close together and cooperate openly to sustain a single focus of attention, typically by taking turns at talking.

4 Method

4.1 Introduction

As mentioned earlier, one of the objectives of this thesis is to explore the possibilities for supporting road users with hot spot technology in a specific context. We identified the petrol station as an interesting context for this objective, an important node for road users, still by-passed by wallowing IT-use innovators. To identify IT-use opportunities concerning the relation between road users and the petrol station, a broad understanding of every day situations concerning this symbiosis appeared to be vital.

By studying the Mobile Informatics research projects mentioned earlier, we have gathered an understanding about how one can gain insight about peoples every day activities by applying qualitative approaches, such as ethnography. Ethnographic observations, which bears a central role in ethnography, are most suitable when the purpose is to find insights about the basic or the distinctive in a certain environment, rather than when looking for answers to questions like how often something occurs or how usual something is (Repstad, 1999).
In our thesis the insight of the basic or the distinction in the petrol station environment is essential, why ethnography constitutes a central part of our research method.

In the next section of this chapter, ethnography will be defined and measured. A few different ethnographic uses will be described; with the approach of this thesis at focus. The following section will put ethnography in a broader research context by presenting the mobile informatics research framework (Ljungberg et al, 1998). This will be followed by an introduction to the research method applied in this thesis which originate from this framework. Finally, after outlining the phases of our research method the way these were performed will be depicted. This last section should be considered as the most vital in the method chapter, describing the way our method was applied.

4.2 Ethnography

Ethnography is a qualitative method applied through extensive studies of situations, groups or people during a period of time varying from a few days to several years (Hammersley & Atkinson, 1983). Ethnography has a long history in social research, but has been increasingly used as a method within system development and technology design (Hughes et al, 1994).

4.2.1 Ethnography and CSCW

During the last years, the use of ethnography has become increasingly widespread within the CSCW community (Lundberg & Berquist 2000). Despite impressive technological developments in CSCW, it is widely recognised that there are relatively few examples of successful applications in real world settings. It is suggested that the lack of success of CSCW systems derives not so much from their technological limitations, but more from their insensitivity to the organisation of work and communication in real work environments (Dourish & Button 1998). It became apparent that designers required a better understanding of the contexts in which the technologies were to be placed (Luff, Hindmarsh & Heath, 2000).

4.2.2 The strength of ethnography

The main virtue of ethnography is its ability to make visible the 'real world' sociality of a setting (Hughes et al, 1994). The mobile informatics research projects that we have studied unanimously support this virtue in the use of ethnography. Weilenmann and Larsson (2001) say "there is much interesting and useful data to collect through ethnographic observations". Esbjörnsson and Vesterlind (2002) points out that "…ethnographic research or similar qualitative methods have become renowned when studying the disregarded realms of everyday practice, mostly because it enables the researcher to come close to the activities that are everyday practice. Activities that otherwise might be taken for granted, by users as well as researchers".

4.2.3 Ethnography weaknesses

A problem that all ethnographers encounter is that the material collected is more or less influenced by the people performing the study (Hammersley & Atkinson, 1983). The researchers understanding of the social environment and the assumptions made, affect what is noticed and how it is interpreted in the immediate environment. The ethnographer could also affect the actual situation or environment by his or her presence. There could also be a risk that the ethnographer gets so involved in the context of the study that the ethnographer's outlook is influenced. According to Magnus Berquist (interview, 2001) this could result in diminishing innovation and creativity.

4.2.4 Technomethodology

However, ethnography is not the only qualitative method used in the field of CSCW and mobile informatics. The combination of ethnomethodology and technology design, called technomethodology (Dourish and Button, 1998) has also won prominence.

Our research is based on the use of ethnography, why technomethodology will only be briefly explained. Ethnomethodology is a particular analytic orientation to the practical

issue of the problem of social order, often using ethnographically-generated material for analysis. This orientation has produced a strong critic towards the design of technology at work, often failing to support the work it is designed for. Technomethodology is an ambition to draw foundational relationships from which technology design and ethnomethodology can proceed together.

4.2.5 Ethnographic uses

Based on experience from several studies, Hughes, King, Rodden and Andersen (1994) outline four uses of ethnography for systems design; *concurrent ethnography*, *quick and dirty ethnography*, *evaluative ethnography* and *re-examination of previous studies*. These are not to be viewed as exclusive ways of using ethnography, rather as uses with different emphasis, which could be harnessed together. These four uses are shaped very much depending on design objectives.

In *concurrent ethnography*, design is influenced by an on-going ethnographic study, taking place at the same time as systems development. It is a sequenced process where ethnographic investigation of a domain precedes the design development of the system. The duration of such a study is about a year, which makes it the most comprehensive one of the four. Advantages of this approach are that implementation and identifying details gets relatively easy after such an intimate study. The main disadvantage is the cost, and its relative unpredictability.

The e*valuative ethnography* approach is useful when investigation is required concerning the usability of particular systems. The process of such a study is to be commenced with analysing initial outline design or specification. In the next sequence of the process debriefing meetings and short studies focused on specific use of the system are interchanged in an iterative manner. The duration of the field study activities is about 2-4 weeks. This method is particularly useful when continuous redesign is required. The continuous redesign approach needs to be managed properly to prevent bolting expenses.

Q*uick and dirty ethnography* is a more rational approach, compromising empirical understanding to constrain resource consumption. This use of ethnography appears as a brief study used to provide a general but informed sense of the setting for designers. The phrase 'quick and dirty' does refer to duration relative to the task rather than a short period of work. Relevant information is not only to be absorbed as quickly as possible, the team performing the study must also accept the impossibility of gathering a complete and detailed understanding using this approach. Outline project meetings initiate the process of a "quick and dirty" study. This stage is followed by fieldwork, characterised by short focused studies, each followed by a debriefed meeting. This iteration is to lead to a document permeated by a broad scope of understanding. The iterative process should be performed in only a number of weeks. The document will help designers sense issues, which have bearing on the acceptability and usability of an envisaged system. Advantages with this approach are its relative rationale nature and the quick and general understanding of how to design. This renders the possibility to perform high scale

studies. The main disadvantage is the difficulty of producing clearly formulated design. The lack of details plays a role in the dilemma.

The last of the four is the *re-examination of previous studies*. One of the major problems when new systems or approaches are proposed is the lack of experience and a corpus of case studies. When this is the case, studies done on other subjects could still be informative. More general truths could be generated when using former studies that somewhat touches one or more aspects of the task at hand. Depending on the design objectives, re-examination could perform a useful role in making designers aware of what to avoid and what the more specific issues might be.

Most of the mobile informatics research we have studied adopted the *quick and dirty* ethnography approach. This is also the approach of this thesis.

4.3 The Mobile Informatics Research Framework

Informatics research typically starts with ethnographic studies of human activities with the focus on actual or possible IT use where the ambition is to generate ideas for new, possible or improved use of IT (Dahlbom & Ljungberg 1999). The Mobile Informatics Research Framework is a research model for the program "Mobile Informatics" at the Viktoria Institute. Since the overall objective with this research program is; *innovation of new IT use in mobile settings* (Ljungberg et al, 1998) we find it natural to utilise its framework for shaping our project method.

This research approach calls for an interdisciplinary cooperation, involving the following professional roles; *Social scientists*, *Informaticans*, *Computing Scientists*, and *Users*. The social scientist part of the research is oriented towards describing and understanding practice. The objective of the social scientist in the research method is described as: "Collect a rich body of empirical research on the role of mobility in work (and life in general). The informaticans seek to explore how the practice could be changed by means of new IT. The objective of the informatican is described as: "Suggest new ways of IT use in mobile situations by exploiting the potential of technology and conduct empirical research". Computing scientists are more technologically oriented, focusing on technology as such and development. The users are skilled when it comes to informing and evaluating new IT use in a particular kind of activity, from which they have experience. The motivation of the interdisciplinary approach is that the competencies jointly enrich each other.

The research approach suggests two steps, which should be considered as an iterative process. The first, "idea generation", starts from empirical studies and/or technological possibilities with the ambition to produce ideas of new IT use. The empirical study is either performed by social scientists or informaticans. The former exploring the everyday practices in a certain domain with the objective to produce rich and detailed analysis, typically involving an ethnographic field study. The latter exploring a certain domain with the ambition of investigating what new kind of IT use that would enable a new and

more appropriate way of acting within this specific domain. Based on the analysis of the empirical study the research method suggests design session for idea generation and discussion of design options. The idea generation phase is mainly a task for the Informatican but all competencies are suggested to contribute in design sessions.
The idea generation step will deliver more or less implemented IT artefacts. The second step of the research method is an evaluation phase where the design suggestions that have been produced from the idea generation phase are evaluated.

4.4 Our research method

4.4.1 Applying the Mobile Informatics Research Framework

The method of this thesis is formed with the guidance of the Mobile Informatics Research Framework. Some aspects and demarcations though considering the contents of this framework are important to note. The interdisciplinary approach in the thesis is focused on the roles of the social scientist and the informatican. When performing our field study we have combined these roles by exploring everyday practises in order to produce rich and detailed analysis, but also with the ambition of investigating what new kind of IT use that could be implemented at the place for our study, and that would enable a new way of acting.

The idea generation phase, based on the ethnographic field study, has been the other main task in the thesis. This was performed in cooperation with the mobility group at the Interactive Institute by having design sessions and informal discussions about design issues.

The design suggestions will not be implemented in the scope of the thesis why the role of computing scientist is somewhat restrained. Also the users, i.e. in our case the visitors at the petrol station, have not been involved in the design phase. In fact, users seldom participate in the design phase of mobile informatics research. When applying the ethnographic approach to generate design implications the user involvement rather seems to be in the evaluation phase this though also is outside the scope of the thesis. Yet, a seminar will be held with Statoil representatives for feedback of our findings after the scope of the thesis.

The objective of the thesis is to produce design suggestions based on the ethnographic study. This focus of the idea generation phase in informatics research is encouraged by Dahlbom & Ljungberg (1999) saying "This is the heart of informatics research. The idea generation phase. It can be followed by implementation and evaluation studies, testing the ideas, but such testing is of secondary interest only".

When forming our research method in accordance to the mobile informatics research framework we have also been inspired by the mobility studio at the interactive institute as our project is performed in the context of their Interactive road project, aiming at augmenting the road experience. These projects are carried out in accordance with the

mobile informatics research method. Ethnographic field studies of actors in the road setting are performed to generate design proposals for mobile IT use.

A more specific description about how we applied the quick and dirty ethnography and the mobile informatics research framework will be presented in the following section.

4.4.2 The phases of our research method

In this chapter we will present our research phases in detail, declaring practically how we performed the different stages of the method. The activities that are about to be introduced as pieces of our project work should not be seen as completely explicit events. They are chained into each other and the borderlines between them are sometimes difficult, not to say unnecessary to identify. In the very core they are much differentiated from each other why it makes sense to outline them for better visual impression of our research method.

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┌──────────┐    ┌──────────┐    ┌──────────┐    ┌──────────┐    ┌──────────┐
│Literature│ →  │  Field   │ →  │ Analysis │ →  │ Workshop │ →  │  Design  │
│  study   │    │  study   │    │          │    │ & Design │    │suggestions│
└──────────┘    └──────────┘    └──────────┘    └──────────┘    └──────────┘
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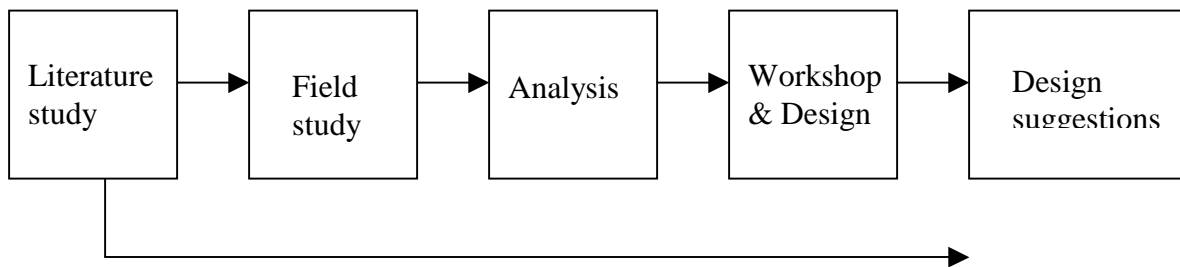
Figure 3. The phases of our research method

4.4.2.1 Literature study

We started the thesis project by performing a literature study of related mobile informatics research and of ethnography as research method. The literature study was performed in order to achieve valuable knowledge for subsequent parts of our method, principally about how to perform the field study in most appropriate way and how to interpret our findings in order to inform design. During the literature study we also performed a mini-seminar with our tutor where we presented related research articles and discussed them in relation to our project.

During this phase we also performed a research on related material concerning IT on public places like the hot spot projects at airports, hotels and cafés presented in section 2.1, Related work. We also searched for material on IT projects at petrol stations,

described in section 2.2. When we started our subsequent research phases the literature study continued in parallel.

4.4.2.2 Field study

Getting access

In many situations it can be necessary to obtain a formal permission to perform ethnographical studies of e.g. actors in an organisation (Repstad 1999). The effort to get access to the field was initiated by discussions between Interactive Institute and Statoil at a strategic corporation level. Statoil did then internally discuss this further. After a while we got to meet the head of the Western region and the shopkeepers of the petrol stations who had been chosen by Statoil for our field study. Here we received a formal permission and discussed how our study was to be performed. It was decided that we were to perform our study at a Statoil petrol station just outside Varberg.

Even though one has attained a formal permission to perform observations, informal negotiations will also take place with the actors in order to receive openness and correct information from them. When at the first day for observations arriving at the petrol station we were introduced to the personnel and the petrol station. In our first days at the field we focused on getting to know the place and the people working there, observations where done when possible. The importance of receiving acceptance should not be underestimated. We would not have got such a rich result without the assistance from the personnel.

Strategy

Our ambition with the field study was to receive a broad picture of visitor activities and occurrences at the petrol station. We applied an open-minded approach aiming at achieving an unbiased understanding of the place. The objectives of the thesis, to investigate the role of the petrol station and to explore possibilities of supporting road uses with hot spot technology, have been an underlying thought throughout the field study. This objective did however not affect the actual observations performed during the study, as we did not focus on any particular kind of occurrences or visitors. Instead we tried to avoid giving any kind of preferential treatment when gathering data. The main focus was on the visitors (the road users) at the petrol station, what they did and how they utilised this place. We collected observations frequently on visitors, their errands and activities at the petrol station. The observations were noted down in detail immediately after the observation had taken place, often we could also take notes during the current observation.

We performed most of our observations dressed up and appearing as Statoil personnel. By applying this approach it was possible for us to observe from within, as a natural part of the place. Observations were also performed as civilian visitors. When appearing as

Statoil personnel we joined in the work by performing simple tasks combining this with making observations of visitors.

Open or concealed, active or passive observations

Ethnographic observations can be open or they can be concealed (Repstad 1999). If applying concealed observations the researcher don't tell the actors that he or she is performing observations or what the purpose with his or her presence is. If performing open observations the researcher lets the actors know that he is performing a research study. Both methodical and ethical aspects can play a part when choosing between open and concealed observations.

The field of our study has two main groups of people, Statoil personnel and customers. The personnel were fully aware of our study while the visitors however where not informed. The main reason for keeping the observations concealed to the visitors was to avoid any influence on their behaviour. Also due to the steady stream of visitors at the petrol station it would have been hardly practicable to inform all the observed visitors.

Applying concealed observations can in some cases have a negative effect on the outcome of the observations, as the researcher's possibility to move freely and to ask questions can be limited. Our selected field of study could therefore be fairly described as challenging, since only getting short glints of a large number of actors, unable to follow up observations if needed. Yet, concealed observations can be a great means in achieving important information as the presence of an observer won't affect the environment or the actor's behaviour when performing the study. In open observations there is always a risk that the actors of the study changes their behaviour when knowing that they are under observation of a researcher. This might lead to that important knowledge about the phenomenon of the study never gets discovered.

Another aspect worth considering as an ethnographer is whether to apply active or passive observations (Repstad 1999). A risk when performing passive observations is that the actors might feel uncomfortable about that someone is "spying" on them. Often active observations i.e. that the ethnographer participates in daily conversations and shows interest in the actors can lead to greater possibilities in obtaining valuable information as the researcher can establish a relationship with the actors. This was very true in our study. Even though the personnel were not the actors in focus we gained much understanding from informal conversations with them.

Whether our involvement in the visitors should be considered passive or active is difficult to determine. While making the observations dressed up as Statoil employees, we often felt quite passive when observing. It was difficult to follow a customer's every move without getting noticed. It could easily be interpreted by customers as "spying". When observing customers in civil clothing, we behaved as we had seen customers do, which probably resulted in us having a more active even though concealed approach.

Observing as Statoil employees

When dressed up as Statoil employees we found it most useful to stand behind the counter. While in the back we assisted the official Statoil employees with casual tasks such as: serving hot-dogs, recording license plates making inventory of music and movie discs. The inner space behind the counter was a quite suitable place for observing road-users, both inside and outside the building. Downsides with this way of observing were the difficulty to grasp what the observed objects talked about and the occasionally loss of vision, as it sometimes was difficult to continue observing visitors for example leaving the shop. The somewhat indolent impression we obviously must have given and the risk of people noticing our studying eyes where delicate issues to handle. Still it gave us a possibility to observe from a spot of great vision, rather than in a straightforward fashion. It also gave us a chance to receive natural questions from the visitors, sometimes also following up after a short presentation, with questions on how and why they did what they did.

Dressed up as official Statoil employees we also performed observations while assisting the present Statoil employees with filling up the stock-in-trade on suitable shelves, cleaning various shop-surfaces, guiding visitors and answering question. This gave us closeness to the observed customers and the possibility to follow their activities during their stay at the petrol station. Looking at customers for more than shorter periods was often noticed, why we often only glanced. It was easier though to follow a conversation.

Observing as civilians

As civilians we performed both indoor and outdoor observations. Inside the Statoil shop we used the café facilities to observe, appearing as customers. This was a very fruitful approach since it allowed us to observe customers without annoying them. As we are later to explain it was commonly accepted to look at others while having a coffee break at the table. In this role we tried to mix with visiting customers by strolling around in the shop.

Outdoor we mainly sat in our car, positioned at various spots, observing what visitors do both inside and outside their vehicles. We also spent quite some time wandering about at the pump area and at the truck driver parking at the backside of the petrol station.

To broaden our understanding of the observed, we did when possible also perform open interviews after observations. This was done both when observing as Statoil employees and as civilians.

Field data

Together we collected approximately 100 hours of observation during a period of two weeks from the end of March to beginning of April. The observations were performed

during different hours of the day and night, which entailed that we covered the whole day and night at the 24 hour open Statoil petrol station.

Our field data could be divided into three categories; Observations of what visitors do, supplementary interviews and open conversations.

The first category, which constitutes the most comprehensive material study, was performed randomly by collecting observations of various visitor activities. In this category also visitor conversations and behaviour at the petrol station were included. The supplementary interviews and open conversations was both randomly chosen and sometimes selected. They were mainly performed to strengthen our understanding of certain occurrences or observations. These informal interviews and conversations were performed both with visitors and the petrol station personnel. Even though the petrol station personnel have not been a target group for our field study they have been very useful by contributing with information about occurrences at the petrol station.

4.4.2.3 Analysis

Analysis and interpretation is to some extent a question of personal style and personal creativity but the work has to be performed systematically (Repstad, 1999).

During our field study we collected a comprehensive material of observations. These transcriptions were made a fair copy regularly during the study. During the analysis phase we went through the work by checking the transcriptions several times, sorting the observations in order to identify patterns. This was accomplished by sorting observations after e.g. identified activities, pattern of behaviours and kinds of visitors.

A further analysis was subsequently performed where we interpreted single observations and the identified categories trying to interpret their meaning. At this stage we came nearer design implications.

The analysis was accomplished with assistance and through discussions with our tutor. His experience from earlier fieldwork and social studies was greatly useful in this phase.

4.4.2.4 Workshop and design

The design phase was mainly performed through informal discussions with assistance from members of the mobility group at the Interactive Institute. This was performed mainly during a week we spent with the mobility group at the Interactive Institute.

Mobile Informatics researchers often apply an iterative design process, repeating user-involved evaluation with further design/field study, evolving into a prototype. Unfortunately, such a process did not fit into our time frame. Instead we held a workshop

with the mobility group at the Interactive Institute, where initial design ideas from the analysis phase were discussed among the mobile informatics researchers.

During the design phase we discussed IT-design suggestions that could be useful in the context of our study. Also related IT-implementations and applications were considered. The discussions based on the empirical material and the analysis, were about which activities that could be supported and how new activities bound to the petrol station could be enabled through the implementation of IT access at the petrol station.

5 The petrol station

The objective of this, and the two following chapters, is to present the empirical material in a way that builds up a rich understanding of the Varberg petrol station. In this chapter a physical description of the petrol station area and a few characteristics of its geographic position are first to be presented. Second, a general picture of the atmosphere at the petrol station is presented.

5.1 Physical description

5.1.1 Geographical location

The place for our study, the Statoil petrol station, is located close to the European highway 6 (E6), about 65 kilometres south of Gothenburg, and about 75 kilometres north of Halmstad. The Helsingborg/Helsingör harbor is about 150 kilometres southwards, and the Öresundsbron is approximately 200 kilometres southwards from the Petrol station. The closest city is Varberg, a few kilometres southwards. Ullared, a popular destination of one's journey and shopping centre is situated about 30-40 kilometres east of the petrol station. The petrol station is located on a big area next to the highway, by an exit [road] to Borås and Varberg. Buildings or residential areas next to the area for the petrol station are scarce. In the area there are also a McDonald's restaurant, a "Road restaurant" and a holiday village and camping ground.

5.1.2 Outdoor area

On the spacious area surrounding the petrol station, there are a lot of parking facilities. There is a truck parking with room for about 15 trucks, a car pool parking with room for about 25 cars, a small bus stop, officially for one bus company and about 10 parking spots for daily rent. Some of these rental parking spots offer electricity to the car. All of these parking areas belong to Statoil, although the Varberg municipality leases the car pool parking. There are also a few parking spots right by the petrol station and a big parking area between the petrol station area and McDonalds and the restaurant. This parking area has room for about 80 cars and belongs to the restaurant but is used by all visitors of the place and is under the management of Statoil. The parking areas are surrounded by grass lawns. On the front side of the petrol station there is a big petrol pump area with 11 pumps. There is also a diesel pump on the backside of the petrol station towards the truck parking spot.

There is an entrance in the back of the petrol station mainly used by truck drivers. By the left side of the petrol station towards the restaurant parking is a carwash and facilities for filling air, water, and vacuum cleaning possibility. At the front side of the station, beyond the pump area, an information map is placed. The map set consists of a Varberg map, a geographic map and a regional map, all large and sketchy.

After having left the highway one reaches the petrol station area after approximately 200-300 meters. At the petrol station area one first reaches the car pool parking to the left. The petrol station and the pump area are located on the right side with the rental parking spots. The truck parking is sited after the car pool parking. Beyond the petrol station area the big parking is located followed by McDonalds and the restaurant. Finally, after McDonalds and the restaurant, the holiday village is situated.
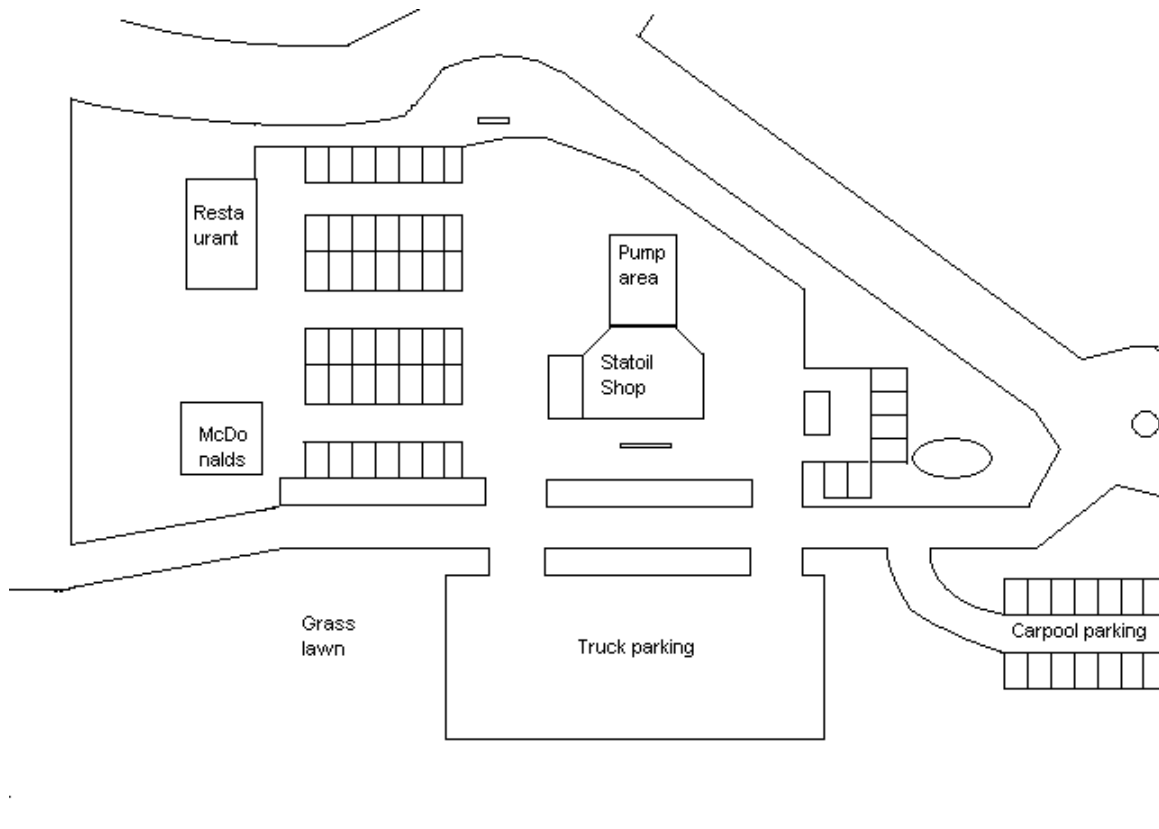
Figure 4. The outdoor area

5.1.3 The petrol station shop

The petrol station offers a great variety of commodities. The supply of basic provisions is similar to a local shop. There are also sections for car care products, magazines, candy, and entertainment articles like CD:s. The shop offers fast food meals like hot dogs and also bread and buns baked in the shop. Three café tables are located in the middle of the shop. There are two pay-phones, and WC:s and shower facilities for the visitors. From the counter area one has view over the shop and also over the pump area. There are two entrances, one in the front of the shop and one in the back of the shop. The latter mainly used by truck drivers.

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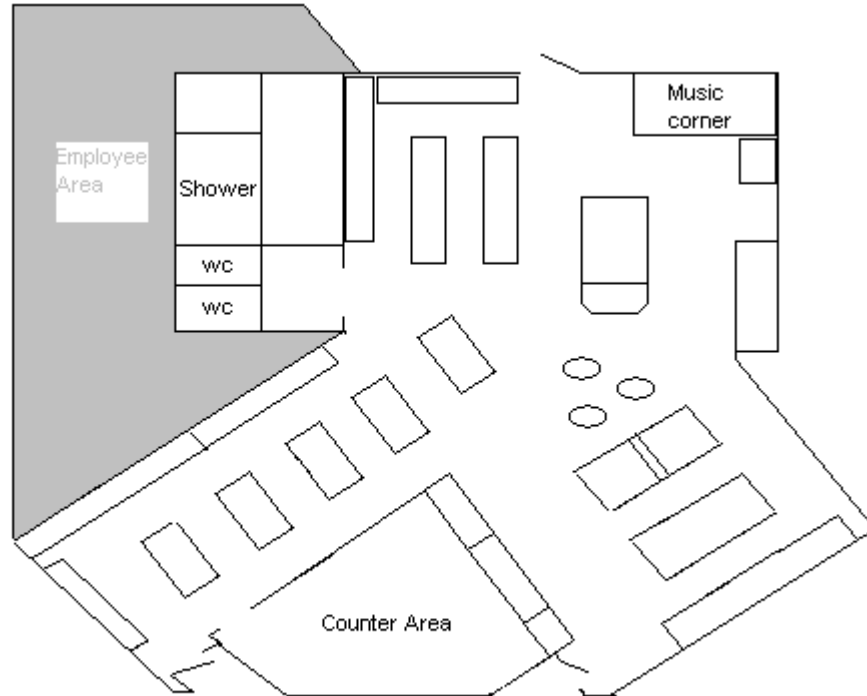
Figure 5. The petrol station shop

5.1.4 The petrol station in Mölndal

During the field study of the Varberg petrol station a similar study in the PumpTalk project was performed at a Statoil station in Mölndal, south of Gothenburg. This station is located close to an industrial estate with no nearby housing area.

This field study is not to be concerned as part of this thesis. However some observations from this station also will be presented to broaden the understanding of the road users utilising the petrol station. When excerpts from this fieldwork are presented this is clearly pointed out.

5.2 General impressions at the petrol station

In this section we want to mediate a further understanding of the place for our study, the context, in addition to the physical description presented in the preceding section. First, an overall description of general impressions and every day occurrences and routines that we have gained an understanding of during our study is given. In the chapter after this we will present activities we have identified and which further contribute to the understanding of the petrol station.

5.2.1 Steady stream of visitors

The petrol station is a place of hustle and bustle. During our two weeks of observations there were seldom moments of total calm, rather a dynamic stream of visitors inside the petrol station and people and cars at the pump area. By night though, longer periods with few visitors did occur.

We could identify an approximate diurnal rhythm with visitors early in the morning often spending some time at the petrol station by taking a cup of coffee. Later on in the morning the number of visitors and the pace usually increased. Often it could be moments of quite a lot of visitors/customers (20-30) at the same time. Passing noon, the stream of people usually decreased a little. In the afternoon and early evening the number of visitors increased and often the tempo was higher. Towards late evening and night, the stream of people usually dropped again, often with occasional visitors or a few visitors at a time. The personnel also confirmed this description as an ordinary diurnal rhythm. There could though be moments of temporary increase in activity and number of visitors, for example when a crowded bus stops at the station and all of the sudden there are 50 visitors at the petrol station.

5.2.2 Seasonal variation

There are also variations between seasons. According to the personnel, the summer is by far the most intense period of the year. This is due to increased holiday travelling in general but also due to increased local tourism. Also holidays like Easter and Christmas involve increased tempo and number of visitors as more people travel these occasions. This we experienced as the Easter holiday occurred during our field study. The activity at the pump area of course follow the rhythm described inside the petrol station, at calm periods there could be just a single or only a few cars but there could also be 2 cars at each pump i.e. over 20 cars by the pumps.

5.2.3 The truck park

Also at the truck park there was activity most of the time. During our study there were always at least two trucks at the truck park. For most of the time there were about 6-8 trucks. Some people stayed for several hours and others for just a short period, or they would drop the trailer and leave immediately. The car pool park was used frequently and all parking spots were occupied as good as everyday.

5.2.4 Clientele

The people visiting the petrol station are of all sorts, men, women, couples, families, people travelling together, workers, tourists and so on. Interestingly, male visitors were over represented at the petrol station and older people and children rarely arrived alone.

We could also distinguish some types of people who were quite frequently visiting the petrol station. For example, truck drivers, businessmen, and foreign visitors. Foreigners visited the station, mostly Danish, German and Norwegian on a daily basis. We could identify some of them as tourists (many having skies on the top of the car) and some as businessmen (dressed in suits, using companies credit cards).

5.2.5 Visitor behaviour at the station

We identified several reasons for people to stop at the petrol station. For example, filling up the tank was often combined with buying something from the shop. Quite a number of the visitors spent some time at the petrol station resting, wandering about in the shop and having a coffee break. Customers having a cup of coffee often utilised the tables in the shop. A 10-15 minute visit at the petrol station is not unusual. People who stopped for a break usually wandered around at the petrol station area, for example looking at magazines or at CD:s and DVD:s in the amusement corner. Sometimes people also utilised the possibility of trial-listening to CD:s. There were both calm and stressed visitors, the former by no means underrepresented.

Visitors often utilised facilities at the petrol station like the restrooms, the shower or the telephone. We also saw quite a number of visitors asking for help or information, for example description of how to get to a specific destination. Also many people stopped to by provisions.

6 Findings

During the field study we identified numerous kinds of visitor activities taking place at the petrol station. These activities illustrate how the petrol station is utilised by its visitors and thereby further contributes to the understanding of the significance of this place for road users. The activities are categorised under descriptive captions, worked out in order to cover all observed activities.

The activity sections begin with an introduction to the topic of discussion. Then excerpts are presented as occurrences of the activity of discussion. Together with the excerpts a short analysis is propound. The activity subsections are concluded by a short summary. Finally, the complete activity section itself is summarised, with emphasis on central aspects of the activity.

In the excerpts including conversations the phrases has been translated from Swedish into English. In the excerpts three actors are conceivably involved; the researcher(s), the visitor and the Statoil employee. For visual reasons these actors are in some excerpts shortened by this pattern: (R) for researcher, (V) for visitor and (E) for Statoil employee.

6.1 Vehicle Maintenance

The nucleus activities traditionally perceived with the petrol station are the vehicle maintenance activities. Vehicles need to be continuously maintained, and therefore the road user frequently visits a petrol station to refuel and to tend his or her vehicle, tinkering with it and keeping it proper. It seems that a lot of the maintenance sought by customers visiting the station is rather originated from a concern of his or her ability to move, than from a wish to nurse their vehicles. The very basic service of offering road users to extend their journey by refuelling fairly naturally concerns the ability to move.

6.1.1 Refuelling

Refuelling is the activity of filling the tank of a vehicle. During our field study we noticed that many refuelling customers also grabbed the opportunity to do other things such as to: shop, eat, take a break, talk etc. The refuelling activity itself seemed to be a quite mundane and private activity.

The first excerpt shows the usual way of refuelling ones car.

> Excerpt 1: Several men refuelling, same style
> Three men refuel their cars, two of them at the same pump, nr 1 and nr 3, the third stood at the next pump, nr 5. All three of them refuels in the same way, holding the pump mouthpiece in one hand, watching the pump display, now and then turning or lowering one's eyes, to end up

returning the focus on the pump display, which dominated their focus. Their eyes never met during their refuelling act.

The pattern described above was rather significant for the way of refuelling at the petrol station. The three men all study the pump display, shifting the focus to the pump mouthpiece and back at the display, rarely looking at anything else, especially other customers refuelling their vehicles.

The next excerpt was observed while standing in the area behind the counter desk. The customer in this case stayed for a while after refuelling his car, also utilising other possibilities at the station.

> Excerpt 2: A multi errands place
> A well-dressed man refuels his car. When finished with this, he enters the shop, walks towards the soda fridge, grabs two mineral water pet-bottles, heads towards the other side of the shop and grabs a financial newspaper. When arriving at the counter desk he orders a hot dog, receives it and pays for the collected articles. The Statoil assistant places the bottles and the paper in a plastic bag. The man brings the bag and the hot dog with him to one of the café tables. He leans over the table and phones somebody with his cellular phone. He stands there for a few minutes, eating his hot dog, talking in his phone. This was all done in a relaxed fashion.

The well-dressed man seems to do a number of errands in this case; he refuels his car, gets something to eat and a couple of sodas to bring with him. He does also contact somebody while relaxing at the coffee table. Doing several errands at the station was quite common, which also made it complex to describe the place.

The refuelling of vehicles often seemed to be the incitement for visiting the petrol station. The style of refuelling is quite homogeneous among customers. It came to our attention that men usually perform this activity. The petrol station personnel told us that even though refuelling is the core activity at the petrol station, it's not very profitable. A single run away meant that quite a number of people had to refuel just to finance the loss. It was quite common that people shopped something when entering the store to pay for fuel. Some stayed for a while, others seemed to be in a hurry.

6.1.2 The Car wash

Contrary to the fuel business sector, the car wash sector is quite profitable. The Statoil staff told us that especially sunny days entice people to go wash their cars. The period of our field study was quite sunny.

In the next case, a man visiting the station for a car wash on a sunny day is displayed. He utilises the opportunity to enjoy the sun while at the station.

Excerpt 1: Car wash break
A man that has his car in the car wash leaves the shop. He has a soft drink and a bun in his hands. He stops close to the car wash, puts his soda on the trash basket, grabs a bite of the bun and looks towards the car wash. He stands in the sun, seems to enjoy it. A few minutes later he enters his car in the car wash building and leaves.

The man utilises the possibility to enjoy the weather and having a break while getting his car washed. The place where he took his break is close to the shop entrance. It is facilitated with potted plants and is somewhat secluded from the pump area. Several visitors where spotted resting here, not only car washing visitors.

This sort of vehicle maintenance is somewhat different from others in this chapter, involving cosmetic issues rather than travelling support. Still, it is an important part of the service that the petrol station provides to vehicle owners and users. The car wash facility was sometimes out of order causing irritation among customers.

6.1.3 Aid to get travellers back on the move

Tinkering of today does not resemble its previous importance, an employee at the Mölndal station expressed this in the following way "before one could tinker about with the car…not anymore…now they connect the car to a computer and say what is wrong. One can't even change a fan belt anymore". The Varberg Station did not include a workshop. This was also the situation at the other petrol station that we have field material from. However, this does not diminish its car maintenance role to simply filling empty tanks. On the contrary, the personnel often helped visitors with their various car maintenance issues. They do also offer to get in touch with a breakdown van when more qualified service work is needed, conveying the vehicle to a car repair shop. Even though the maintenance issues that we observed seldom demanded such expertise, they often implied more or less acute situations since reducing or halting the vehicles passable ability.

In the following excerpt, a woman with car trouble seeks assistance to get back going. The one of us involved in this excerpt was dressed as a Statoil worker.

Excerpt 1: Jump leaders
While performing duties in the shop area, a woman confronts me (R). She has parked at a pump, a four-wheel drive car with a horse trailer. She seems somewhat desperate; she says that the car does not start. "It seems like it won't recharge" she says. A female Statoil worker assists her with this issue, by using a special recharge apparatus, seems very handy to use. The use of it is successful. (V) asks if she can borrow this equipment: "I am on my way to a horse race, and I am on my own". She seems to be afraid of a reoccurrence of the problem, being on her own on the roads. (E) asks her foreman if it is all right to lend it with some kind of deposition. He says that it is the only recharge apparatus at the

station, why the station cannot lend it to her. She is offered to borrow jump leaders though. She seems grateful for this opportunity and accepts it. Before leaving she says that she recently bought the car, she was promised that it was free from problems, "but this obviously is not the case."

The lady in this example is halted in her road usage. She expects the petrol station to support her, not only to get her back on the move, but also to borrow her equipment to ensure she could manage an eventual reoccurrence of the situation while back on the road. The lady was in an acute situation, still a pretty simple one to solve. The fact that the petrol station did help her and lend her equipment needed for this without getting paid for it illuminates the strong road usage assistance idea associated with the petrol station. This excerpt points out the kind of service issues manageable at this station.

The next case shows how visitors can get assistance even with issues standing outside the realm of the station's knowledge. Again, the one of us involved was dressed as a Statoil worker.

> Excerpt 2: Wrecking truck
> A man and a woman in the shop steps up to me (R) and discusses a broken tire on their car. It is a rethreaded tire, it seems to have unstuck from the tire carcass. They ask if it could be fixed at the station. I (R) told them that there are no workshop facilities at this station, why I (R) arrange for them to meet the foreman of the station. After a short discussion with them he calls for a wrecking truck, supposed to arrive within 20 minutes. The foreman told them that the wrecking truck driver had the facilities needed to assist them.

This case points out how the petrol station provides support to the road users when they cannot assist them by them selves. Again the mobility of the road user is halted. This time, the situation requires expertise to be solved. Still the petrol station was able to assist the road user by acting as a middleman linking the road user and the repairman.

Apart from urgent maintenance needs such as those just described, many also asked for help with car liquids, wiper blades, fuses, light bulbs and other minor replaceable parts, not seldom asking staff members to assist in finding, selecting and/or assembling these. The situations ranged from somewhat acute to rather harmless considering the impact on the passable ability of the vehicle.

The next excerpt displays that road users expect the petrol station and its personnel to support them with vehicle issues. This observation was performed while dressed as a Statoil worker.

> Excerpt 3: wiper blade
> While filling shells with moist snuff, a lady asks me if I (R) can help her to assemble a wiper blade on her car. I tell her that I am a scientist and unable to do this. I recommend her to ask one of the counter desk personnel. She turns her head towards the counter, saying that she

won't bother them, saying that she is able to do this her self. Still she asks the assistant (E) at the counter, but he (E) is also unavailable at the moment, there are a number of customers waiting in line at the counter desk. The lady leaves the shop with some pace saying "good luck with your researching!"

The lady, about 50 years old, had already found the wiper blade, holding it in her hands when approaching me. This was about noon on Good Friday and the two queues to the counters where relatively long. Many seemed to be in stressed, not to mention the personnel. The long queues and the somewhat impatient atmosphere did probably both restrain the possibilities of getting assistance with this kind of issues. The comment made by the woman while leaving was a gibe, indicating irritation at not receiving the support that she had expected.

The tinkering sought after at the station was often acute, why one could assume that the station was often picked through its timely appearance in relation to the occurrence of trouble concerning the road user. The help received with halted road usage functionality issues of various degrees is rather to be considered assistance than mechanical work. It does also seem quite clear that travellers rely on petrol stations to assist them, even asking to borrow station equipment.

The cases above are typical for the kind of car maintenance issues handled at the station. Car washing is somewhat different from the others in its more cosmetic values, still important, causing irritation when the opportunity to tend ones vehicle was denied. Refuelling seemed to be a necessary activity, but somewhat tedious. While some customers refuelled, paid and left, others purchased something to eat or drink and even stayed for a while. When road users were halted in their passable ability, the petrol station provided assistance themselves or by arranging proper help from a third party. Thus, the petrol station manages the faith attached to them by road users in maintaining their mobility.

6.2 Information inquires

People do not only seek assistance when having trouble with their vehicles functionality, they often seek assistance concerning the mission of the journey itself. This could be a question concerning weather implications, navigation, as well as tourism-associated questions. The information requests often concern inquiries related to the locality of the petrol station.

6.2.1 Navigational assistance

Visitors frequently ask the Statoil personnel for guidance to their destination. The personnel usually assist them by drawing the path on a Statoil provided map.

The first excerpt is a navigation inquiry concerning the vicinity of the Varberg region. Navigational inquiries occur daily at the petrol station.

> Excerpt 1: Local golf course
> Two young men, about 25 years old, enter the petrol station shop. They head directly towards the pay-desk. One of them asks the Statoil employee if he knows where the Varberg east golf course is located. The Statoil employee describes the way verbally at the same time as he draws the way on a Statoil provided map. The golfers did not have a clue about how to get to the golf course from their current location. One of them says "We are in need of help, we have no idea of how to get there". They are grateful for the navigation assistance and thank the Statoil employee before leaving the shop. They walk back to their car parked right outside and drive off. The Statoil employee turns towards me (R) and says, "This is something one has to do a number of times".

The guidance in the case above performed by the Statoil worker was done by drawing on a map and simultaneously explaining the path drawn. This took about 1-2 minutes. It caused a minor congestion at the pay-desk. The boys seem to have started their journey without fully knowing the final path to their destination. It seems they had confidence in the navigational ability of the petrol station personnel. As we described early on in this chapter, the station is positioned next to the highway, right by a junction, a few kilometres outside Varberg. Therefore, it is suitably located for people entering the locality of Varberg. The boys in this excerpt are maybe experiencing such an entrance into the vicinity at the very station.

In the next excerpt, we will visualise that locality navigation seem to have a strong connection to the petrol station. On the occasion for this observation we were positioned outside, at the petrol station pump area.

> Excerpt 2: Local or regional navigation?
> A car turns into the pump area and stops next to a petrol pump. The driver, a woman, about 35 years old, immediately opens the driver door. While still sitting in the car, she asks a man filling up his car at the opposite pump "do you know the way to Ullared?". The man looks around and answers that he unfortunately doesn't know. The woman gets out of the car and continues to ask two other visitors at the pump area. Neither of them knows the way though. The woman then starts walking towards the shop. One of us (R) approaches her and informs her of the right path to Ullared. I (R) take the opportunity to ask her about her journey. She tells us that she and her family are heading for Ullared for shopping. They started out their journey from Gothenburg were they had already refuelled. The reason for stopping at this petrol station was solely to get navigational assistance. She intended to ask the employees at the

petrol station, as the visitors at the pump area couldn't help her. They also intended to visit the nearby McDonalds restaurant for the sake of the children.

This situation encapsulates quite a few interesting aspects; the woman choose to ask for the way to Ullared at the petrol station which is a detour on their way to the McDonalds restaurant. It would have been more rationale to ask for the way at the McDonalds restaurant itself. Why did she ask for the way at the station then? She did not ask the personnel at first, which indicates that she had confidence in receiving navigational assistance at the station. Just as in the former excerpt with the golf boys, she probably felt that she had entered some kind of locality regarding the final way to Ullared. She did probably assume that people in this area, currently at the station had the local knowledge to help her with the direction to Ullared. The station seems to have strong and natural role for such issues, a natural place for road users to require navigational support. The excerpt is an example of road users perceiving the petrol station with road related knowledge like navigation assistance.

Another important aspect in this excerpt is whether or not the navigation concerns a locality. Ullared itself is about 30-40 km away. Still we have gained the understanding through our field study that Ullared is considered somewhat local according to the Varberg petrol station personnel. Perhaps what's experienced as local varies with the density of a region. The woman did not need to share this picture; she asked for the way to Ullared, not the location of Ullared itself. The exit road to Ullared is only 10 km away, thus very much located in the Varberg vicinity.

The next excerpt is also an issue of navigation assistance. This is from the field study at the Statoil station in Mölndal.

> Excerpt 3: Navigation or confirmation?
> A young woman enters the shop and asks the employee behind the pay-desk where the street "Aminogatan" lies. The Statoil employee brings out a map over the local area. When describing the way the employee does not look much at the map even though the does. Instead he points out through the window saying "Drive straight through the roundabout on the other side of the bridge". They continue to discuss the way and the woman asks, " oh, I see, so I should swing up on the bridge?" The employee confirms by saying "First through the roundabout over there (pointing), over the bridge and then straight through the roundabout then keep along…" The woman says, at the same time pointing at the map, well I drove that way but it felt wrong". The employee comments this "Yes, its far, a few kilometre or so."

This navigational inquiry also concerned the local area of the petrol station. The young woman asking for the way to a destination, the Statoil worker illustrating how to get there, starting from the station and picturing the path to the location. Just as in the previous cases, the petrol station is expected to contain local awareness. This time the customer had prepared herself relatively well, which simply allowed the station worker to

confirm the path rather than navigating her. The woman chose to assure herself at the petrol station about the right path, a pointer to the road related reliance in the petrol station.

During a discussion with Statoil employees having a break for a cup of coffee we were told that direction-finding assistance does not always concern the Varberg region.

> Excerpt 4: The way to Öresundsbron and the Helsingborg ferries
> One of the employees commented the navigation related inquiries: "Many stop at the petrol station to ask about Öresundsbron". Another employee filled in: "We also often receive inquires concerning the location of ferry berths, both local Varberg ferries and Helsingborg – Helsingör ferries. They ask for exits, where to take of".

Several members of the Varberg petrol station personnel told us that people ask for the exit roads to the Öresund bridge and the Helsingborg / Helsingör ferries already at this station. These are approximately 200km southwards of the station, or about 2 hours of driving. Such a distance doesn't necessarily require another stop, why some may feel that bridge or ferry navigation is a topicality already at the Varberg station. Thus, Some customers seem to have confidence in the stations navigational ability to guide road users, even to such distant destinations. Apparently, such well-known and highway-bounded destinations are perceived also with the somewhat distant Varberg highway petrol station.

The expectation of receiving navigational related assistance at the petrol station is expressed also in the next excerpt. The inquiry described occurred as we performed observations dressed as Statoil employees, refilling shelves with wares.

> Excerpt 5: Map for free
> A middle-aged man inquires for a map. I (R) direct him to the map rack, where he was spotted standing shortly before inquiring. When reaching the map rack he simply asks if we don't have free maps. I (R) answer that we provide free maps at the pay-desk but that they are of somewhat limited extent. He says that he needs a map over the region of Skåne, I (R) tell him that they most likely cover Skåne but that he can ask at the desk to be on the safe side. He says, "thanks for the help" and walks towards the pay-desk.

The reaction of this customer is a pointer to that road users take for granted that the petrol station is a place where navigational service is freely received. By offering these kinds of services for free we believe that the petrol station, deliberately or not, has more or less formally taken on the role as a road related information center.

The excerpts above describe the common activity of seeking for navigational assistance at the station. This assistance seems to be sought after when closing in on their destination. Apparently, they felt so close to their destination that people in this area

could be expected to have the local knowledge required to assist with the navigation concerning the final path.

Navigational assistance issues appear to be closely bonded to the Varberg petrol station. It seems as the petrol station is timely positioned in accordance to the navigational issue of interest, thus providing timely knowledge to road users through its site. The navigational issues mostly concern the locality of the station. Road users appear to prefer the petrol station to other close by businesses when seeking this assistance. The observations of people seeking navigational assistance also indicate that the petrol station is perceived with reliance concerning road related information. Road users obviously trust the petrol station and except to receive correct navigation information at this place. A notable aspect of the navigation excerpts is their similarity in course of action. The visitor seeking navigation assistance directly head for personnel, or visitor as the woman on her way to Ullared, they get the assistance and leave. They seldom utilise other functions of the station, nor purchasing something to eat or drink. This course of action is common in these kinds of information inquires.

6.2.2 Tourism related inquires

As described earlier the position of the petrol station allows it to serve as an entrance to the locality of Varberg. The tourists are a common element at the Varberg station. The Statoil employees describe the Varberg region as a summer region with loads of tourists in the Varberg district. However, the winter and the spring are seasons with lots of tourists visiting the station as well. During these latter mentioned seasons, tourists staying at the station are mainly heading or returning from e.g. a skiing vacation. Even though our study was not performed during the summer season we identified several foreign visitors at the petrol station everyday, quite a few of these having skies on top of the car, apparently on vacation. During our field study there were also caravans, many of these foreign, parked at the truck parking over nights. At the road sign by the Varberg exit there is a "[i]" symbol for tourist information. The "[i]" symbol has a design similar to the universal tourism information and agency symbol often spotted in cities.

The tourists impact at the petrol station in the summer was expressed many times by Statoil employees.

> Excerpt 1: Varberg is a "summer city"
> During a break for coffee the increased pace at the petrol station in the summer was expressed by one of the employees. (E): "Varberg is a summer city. We have much more to do in the summer season; it's by far the most intense months of the year. Fishing competitions are arranged in the area and many people have summer cottages along the cost. Another employee added (E): "In the summer many of the visitors ask about the way to the harbour. They also ask about camping and the like, and of course also about the way to Gekås (Ullared)."

When the petrol station employees talk about the summer season and reflect over the impact of the tourists they mainly think of how this affect their work situation. Especially the increased pace and information requests are mentioned.

The impact of the tourists could also be understood from the following employee utterance in a discussion about the petrol station indoor design. This discussion took place at a calm moment when we helped out the personnel behind the pay-desk.

> Excerpt 2: Rearranging
> (E): "We like this design, there are open areas and it is fresh-looking and finely. During periods in the summer though we have to rearrange to make the visitors walk through the whole shop to reach the pay counter. The queue has to wind through the shop in order to give room for all visitors."

The above excerpts from informal discussions with the Statoil crew give an idea about how the situation can be in the summer season and what kind of information the tourists inquires are about.

The next excerpt, from the study at the Mölndal station, is an example of the expectation of locality related services at the petrol station. The visitor, a foreigner, made the inquiry in English and the conversation also continued in English.

> Excerpt 3: Map request
> A visitor, dressed in a suit, approaches the pay-desk at a calm moment and asks: "Do you have a map, a good Statoil map over Gothenburg?" The employee answers: "We have three." The employee fetches three maps; he puts them on the pay-desk. (E): "This is for Gothenburg, this is for West Gothenburg and this is for here, Mölndal." (V): "This is the one I want." The man picks the Gothenburg map, says thanks and leaves. He walks across the plane towards MCDonalds. When he has walked half the way he waves with the map towards some people waiting by a car at the restaurants car park. The employee comments on this: "They know we have good maps."

The man in this example asks for a map over Gothenburg, no specific navigational assistance. Even though it is probably used for navigational issues, this type of assistance is very similar to such received and sought after at tourist agencies, seeking rather a tool for comprehensive guidance than for an explicit destination. The fact that this is a frequently occurring kind of request is indicated by the final comment by the Statoil employee.

The next excerpt is an example of information requests about places in the local Varberg district.

> Excerpt 4: Building in the area
> A family enters the shop. They split up and wander about in the shop in a relaxed manner. The woman and the son go to the toilet. Outside the toilet the man approaches me (R) and asks about a building in the district. He has worked there before and is curious about if the building is still there. He also tells me (R) that he and his family now live north of Gothenburg. I (R) tell him that I do not know but that the personnel behind the pay-desk probably know. He also tells me that they decided to stop at the station since he knew that facilities like toilets was here and that the location of the petrol station was appropriate as they had about half-way left to drive.

The man in this case asks for a specific building located in the locality of the station. He asks if it is still there, why it seems to be such a distant workplace. They had been travelling for about 100 kilometres until stopping for a break at the station. While strolling in the shop, he seeks contact with one of us, asking whether the building is still out there. We were dressed as Statoil workers at the time of this observation. He does not ask for navigation, neither is it a case of critical road assistance. It is similar to most navigational questions a case of expecting local awareness from the station personnel. This expected local awareness rather concerns the content of the locality than the navigation of it. This sort of content information seeking has much in common with tourism related questions, described by the personnel, also concerning the very substance of the region.

The tourists appear to appreciate the Varberg petrol station a great deal. The stations availability, located next to the highway and open 24 hours a day, are most likely contributing factors. The station is timely positioned for the locality questions and the information services seem to be expected by the visitors. During a coffee break while discussing information requests at the petrol station we mentioned that there is a "[i]" symbol at the road sign at the exit to the petrol station. This resulted in a reaction from one of the employees saying: "So that's why they all ask us". This indicates the extent of tourism information questions that the personnel have to handle.

6.2.3 Weather implication inquires

The weather condition can have a negative impact of the road usage. During conversations with the personnel we were informed that road related inquires about a roads passable functionality in a specific direction are made when the weather is unfavourable. Since weather conditions are quite favourable at the time of year of our study, we did not spot such requests on our own.

An employee mentioned examples of road passable ability due to weather conditions during a conversation.

> Excerpt 1: weather implication questions
> (E): If its windy they ask about if the bridge is open (Öresundsbron).
> When it was snowing a while ago southwards they asked about the state
> of the roads, often professional drivers do this. We call to check, but
> that's not something we can do all the time.

Öresundsbron is about two and a half hour away, a distance that doesn't require another stop. This station is therefore likely to be situated at a proper distance for a late check on the impact of bad weather condition. It seems that it is not to early for tourist information like ferry timetables, even though 200 km away.

Another employee contributed with further information on this topic.

> Excerpt 2: Road passable ability
> An employee asked if we had thought of the state of the roads issues
> and continued: "In the winter people phonel us and ask about the state of
> the roads towards Gothenburg, we usually do not have a clue". I (R) ask
> if visitors tell them about such issues, the answer was unclear, more like
> a negative answer.

Every employee who had worked at the station for a while confirmed that this type of information was sought after when the weather is bad.

The inquires about weather also illustrate that the petrol station is a place where people expect to receive information intended to make their road usage easier. The fact that people choose to call the petrol station for this kind of inquires indicates reliance in the petrol station.

The location of the petrol station, by the highway right outside Varberg appears to be a favoured place to stop to bring in information before continuing into the local Varberg area. It is not unusual that the information inquires are made in a foreign language. Danish, German and Norwegian visitors are the most common foreigners at the petrol station. Also truck drivers from all over Europe stop by at this place. The information inquires from foreigners are usually made in English but are not always easy for the personnel to understand. The already established care centre role that the station has for road users appear to has created a confidence in the stations ability to assist them that makes it natural for road users to also seek other forms of assistance at the station. Since the station already assists road users with their vehicles, picking the station for the road use related activity of asking for e.g. navigational assistance could feel quite natural. The station's role as a road user care centre also seems to involve giving informational aid.

6.3 Having journey breaks

Apart from seeking assistance of various kinds, people often also take a break in their journey at the station. By taking a break we mean spending some time at the station, walking, resting, talking, eating, drinking etc. A popular place for this was the café; people often stayed at one of the café tables, having a cop of coffee and often also something to chew on.

6.3.1 Truck driver breaks

Truck drivers stopping at the station seem to be as natural to the Varberg station as the station is for truck drivers. Truck drivers constitute a group of people for which the break is regulated by law. They are simply forced to take a break from their driving every now and then.

The excerpt below is an example of a truck driver regulated break. This was late night in midweek; the observation was performed in a Statoil worker role.

> Excerpt 1: A Truck driver break
> A truck driver enters the shop. He orders a hotdog and talks to the sole Statoil worker behind the counter. Short after receiving the hotdog he leaves the shop. Just after he (V) left, the Statoil worker told me that a police car passed by. Shortly after leaving, the truck driver returns. He orders another hotdog, joking with the Statoil worker saying that "I do not dear to drive away now when they are out there (the police)". The truck driver talked with the Statoil worker about the need and regulation of breaks as two different things: "regulation does not secure the roads from tired drivers. One can get tired between the breaks as well as go on for longer periods with out any problem". After about 15 minutes the truck driver says with a smile on his face: "Now I've stayed for 5 minutes to long!" He leaves the shop at a rapid pace and heads for his truck. I ask the Statoil worker how the police check if they have taken long enough breaks: "Trucks are equipped with a tachograph, we actually have tachograph paper on that shelf over there. Everything is registered, it is only for the police to check the paper."

The driver in this excerpt was about the age of 40. It was in the middle of the night but still he seemed to be full of spirit. He was quite frank with both of us even though the researcher avoided getting involved in the discussion, without acting unnaturally. The regulated break seemed to be bothering him, even though he agreed that one should not drive while tired, and there are people out there ignoring such signals. The police car drove by a couple of times that night, such frequent check on the station was not usual procedure according to the worker. In this case as well as other truck driver cases, the truck driver seemed to perceive the worker almost as a colleague, members of their one team. This does perhaps visualise the close relation they have with petrol stations.

The truck drivers seemed to have a natural bond to petrol stations, spending much of their time travelling along the roads. As well as the former excerpt showed, truck drivers like to talk when given the opportunity. The Statoil personnel confirmed this by saying that it is not strange considering the time spent alone in their trucks.

The next excerpt is an extract from a chat with a truck driver taking a break at a café table. The truck driver expresses an opinion on how he would like the station to facilitate drivers. The one of us involved in this conversation was dressed as a Statoil worker. It was performed Thursday, about nine in the evening.

> Excerpt 2: Drivers corner
> I (R) talk to a truck driver. He (V) was tired, had been driving all day. After thinking for a moment he reckoned to have started in Stockholm and had stopped by at several cities. "Had to stop now, I may not go on with out a break." After finishing this cop of coffee I 'am going to take a shower and then go get some sleep." His next destination was Varberg and after that Halmstad. "It's a pity that they've removed the driver corners at petrol stations, back in the eighties drivers could get something to drink and a bun, at reduced price, sitting in a couch, talking to colleagues".

The driver seemed to long back for something described as bygone times. Just like in the former excerpt, he had driven for the maximum time allowed, seemingly enjoying his break though. This stop was more than a short break; he did also shower and get some sleep. This type of multi errand truck driver stop occurred rather frequently.

Truck drivers seem to have adopted the petrol station as their place. They spend a great deal of time along the roads; both of the drivers in the excerpts above had travelled for the maximum time allowed without a break. The drivers appreciated the size of the station, enabling them to do a number of errands. All drivers did though not stay in the shop, some took their breaks in their second home, the truck it self. A combination of both was probably most common, buying something at the shop, mostly something to eat and drink and a paper, spending sometime at the café or directly heading for the truck.

6.3.2 Taking a break in the car

When observing activities occurring on the outside, we noticed that people frequently stayed for a while in their cars, drinking coffee and eating a light meal. Some of them had refuelled, but far from all of them.

In the following excerpt, we spotted a young woman taking a break in her car. She had parked next to us, at the large parking between Statoil and the restaurants.

Excerpt 1: Car break, a young woman
A young woman, about 30 years old, parked almost next us in a sporty
Japanese car. She got out of her car and moved quickly towards the
shop. She came back about five to ten minutes later, with a cop of coffee
in her hand. She sat down in her car and drank the coffee. About 5
minutes later, after finishing the cup she drove away.

The time spent in the store was too long for just buying a cop of coffee, considering the small amount of customers. Perhaps she visited the closet as well. All the café tables were not taken why it seems like she preferred to take her break in the car, or at least a part of it.

In the next excerpt there is a similar scenario, where a couple and an older lady park their car in a somewhat hidden place, and takes a break in it. This time, we had parked right across the pump area, opposite to the shop entrance, with close to unlimited vision over the rental parking lots. The distance to the observed was about thirty meters.

Excerpt 2: Car break, a couple and a lady
I (R) spotted a young man walking towards the rental park, holding a
couple of sandwiches and pet bottles in his hands. When almost there, a
young woman left a small sporty American car parked at the rental park
heading towards him. They hug and kiss as they meet, moving together
towards the car. When they reach it I (R) spot an elder woman sitting in
the backseat. They enter the car, leaving the doors open. After about 10
minutes they close the doors and a couple of minutes later they leave.

The pair spotted in the excerpt above showed much joy and happiness. They made a quite unusual parking for visitors. The lots are somewhat apart from the station, almost directly past by when entering the station area. Leaving the doors open was also somewhat uncommon, at least on the other parking lots usually used. It seemed like this party wanted privacy, and got so much of it that they for some reason would even leave their car doors open. They did not only get the privacy of sitting in their car they also located themselves apart from other cars, with minimum view even from our spot.

The two excerpts above are situations where the visitors did not refuel, why the initial purpose of the stops must have been something else. Refuelling customers taking a break was as common as non-refuelling. It is difficult to tell whether the latter had planned to get some coffee and a light meal. Regardless of whether the break was planned or not, the car seemed to be a common place for breaks both for individuals and people travelling in the same vehicle.

6.3.3 Splitting up

While observing the inside of the store, we noticed that groups and couples often strolled separated from each other inside the shop. This seemed to be the case with families,

friends and colleagues, and all kinds of groups. That people often split up was not always spotted in advance. They did not always enter the shop together.

In the following excerpt we saw a man strolling by him self in the shop, later to meet up with a group of people.

> Excerpt 1: Splitting up, then meeting again
> A well dressed blond man, about 35 to 45 years old, trots in to shop, wearing no jacket. He stops between the hot dog grill and the ice-cream box, pulls his hands through his hair and reconnoitres for a few moments. Next he starts to stroll in a calm manner through the shop, first reaching the leisure section next to the trucker entrance, strolls on towards the pick´n mix section, turns back again and walks towards the toilet, having to wait for about a minute. A woman leaves on of the toilets and he enters. A couple of minutes later I (R) spot the man heading towards the pay-desk. He puts up a basket on the desk and lifts two bottles of Coca Cola, a newspaper and some other articles out of it requiring two plastic cases. When leaving the store, I spot three children and another man also leaving the store, entering a Japanese mini-van, parked at the first pump. They eat and drink in the car for a couple of minutes, before driving away.

In this case, the man strolled alone in the shop, even though apparently travelling with a party. He seemed very relaxed, pulling ones hands through the hair, could be considered as a relatively confident act. The filling of the cage was not observed, and with the tempo he had shown before the break he could hardly had filled this cage by him self. He did not have any one with him at the desk. The others showed up all of a sudden when he left the store. There were no signs of him not being alone until then. They were joyful in the car, so it could hardly have been a question of a conflict, rather a case of splitting up for some privacy and individual errands.

This was quite a common way of shopping. We spotted people entering together and then splitting up as well as people entering in sequence. The reason for this being considered as a break activity is the fact that these people had travelled together, with limited privacy, why the station could also be a valve for one's privacy needs, grown during the journey.

6.3.4 The café

The café tables placed in the centre open space of the shop were used by both groups of visitors and individuals. The time spent at the tables varied, from a minute or two to past 15 minutes. People standing here often watched other visitors standing or strolling in the shop, without them getting offended. A cup of coffee and a bun, sandwich or hotdog were common combinations enjoyed at the tables.

In the next excerpt, three colleagues enjoy a break at the café tables, having a cup coffee while conversing. They entered the store a Tuesday morning, about nine a clock.

> Excerpt 1: Taking a break at the café table
> Three men, about 40 years old, in SAAB jackets enters the store. Each one of them pours up a cup of coffee and walks in sequence towards the pay-desk, and heads towards the café tables. When gathered at the table, they converse while having a cup of coffee; they seem to be in a good mood. I (R) was not close enough to catch their conversation, but they were all quite actively participating in it. They stayed at the table for about 15 minutes, before leaving.

The scenario described above was frequently occurring; visitors enter the store, turn towards the near entrance located coffee machine. Some walk directly towards the tables, but most visitors pay for their coffee first. The men in the excerpt seemed to have longed for the chat more then for the cup of coffee. Some groups or couples of people did not converse this actively.

The next excerpt is another example of a visitor having a cup of coffee by the café tables.

> Excerpt 2: Glancing over a cup of coffee
> A man, about 45 years old, enters the shop. He gets a cup of coffee and a sandwich, and stops at one of the café tables. He leaves his sandwich and coffee on the table, gets a newspaper, pays for the articles, and returns to the table. He does not read the paper at the table, rather glancing at others in his sight, while eating and drinking. After a while, when finished his coffee and sandwich, he leaves the shop.

This case displays a common activity while standing at the table and not talking to anybody; the glancing at other people in ones sight. This was very common, and people being watched did not seem to care.

People standing by the café tables often watched other visitors standing or strolling in the shop, without them getting offended. A cup of coffee and a sandwich or hotdog was common combinations enjoyed at the tables. There did not seem to be any typical times of day for use of the café tables.

6.3.5 Outdoor breaks

The forms of journey breaks mentioned so far did all take place indoor. Even though, our study was performed in the early spring people did also occasionally take their breaks outside, especially during sunny days. During the last days of our study we experienced an increase in requests concerning outdoor table and bench sets why the outdoor Statoil worker brought the first of their sets out and placed it on a lawn. The outdoor season seemed to have started.

In the following excerpt, A Danish party are taking a break after refuelling their car. They stay for a while and chat with each other.

> Excerpt 1: Danish party enjoying an outdoor break
> There are a number of foreign cars at the station, mostly Danish, Norwegian and German. A Danish car equipped with a ski box stops by one of the pumps. Two men and two boys get out of the car, the driver refuels it. The other three enter the shop. They all meet back at the car, chatting. The driver parks the car at the parking lot next to the car wash. They all gather again, standing behind the potted plants, drinking soda and chatting with each other. They stand there for about five minutes, then enter the car and leava the station area.

The place of their break is both reached by the sun and somewhat secluded from the pump area. These tourists took a relatively long break and re-parked their car so one would not block the others. Considering the fact that they had a ski-box on top of their car, is a sign of them either returning from a ski trip or heading for it. Either way they could have travelled for quite a distance, why a longer break could be longed for.

There seems to be a link between pleasant weather and increased outside breaks. Summer period are thus likely to be characterised by increased outdoor breaks. The Statoil employees at the Varberg station exemplified ways of doing this.

> Excerpt 2: Sunbathing at the petrol station area
> (E): "In the summer, some of these areas are occasionally used for resting and sunbathing. A number of tables and benches sets are placed on the lawns during late spring and summer. Many tourists buy ice cream and use these sets or the lawns. Not all of them shop though, they have already packed their cars full with supplies."

It seems like the lawns at the petrol station are used during summer periods. Summer tourists are probably as well as the skiing ones' travelling for relatively long distances between breaks, why longer breaks are needed. The increase of outside breaks already in spring is probably followed by the same pattern in summer.

It was quite common that people stayed for a while at the station. The setting of the station seems to invite people to have a break. Road users enjoy their journey break in a variety of ways. Some stay for a few minutes, others stay for quite a while. Single non-truck driver persons did seldom stay for long, groups of people resting and truck drivers did though often stay a bit longer. Off course there were also a considerable number of customers that simply refuelled and left, but they hardly dominated the scene.

The ways in which people take breaks at the station are of great interest. The place of the break varied considerably, some preferred their car, some enjoyed the café tables, others preferred to enjoy the open terrain. Road user breaks appear to be an evident part of the Varberg station.

6.4 Basic needs

The petrol station further contributes to its role as a node for road users by offering facilities such as: toilets, shower and parking space for truck drivers and camping-people to spend the night at the place. During our study as Statoil workers a lot of people asked for the use of toilet or shower. The toilet could be used for free but to use the shower the costumer had to pay an additional fee of 20 Sw.cr, and ask the personnel to open up. The toilets are much appreciated by all kinds of visitors. The showers, also provided with clean towels, are mostly used by truck drivers.

The Varberg petrol station also offers possibilities to eat, both by offering meals at the station and by the provisions similar to a minor grocery store. Visitors use the station for shopping food at all hours of the day; people mostly shop provisions in the early morning rush and in the after noon and evening and meals all times of day.

6.4.1 A nights sleep and a shower

Sleepy truck drivers frequently use the truck park at the Varberg petrol station. House car travellers and caravans do also utilise this opportunity. The truck drivers do not always sleep a full night, instead they usually go for a number of hours.

The first excerpt is from an observation done at the truck park a cold and dark evening in late march. There were a number of trucks parked there, and a few house cars as well.

> Excerpt 1: The truck park
> (R) It is about eight a clock in the evening; there are nine trucks and three house cars at the truck park. The trucks have Finish, Danish, Spanish, and Swedish nationalities, the house cars are all Norwegian. During the thirty minute period of our observation 2 trucks leaves the truck park, some of the others have turned off the lights in the trucks, the house car travellers do all seem to be awake. When returning inside the station we (R) talk to an employee about the truck park, she tells us that truck drivers often spend a night at the station, using the bathroom facilitates in the early morning and having a breakfast before leaving.
>
> We (R) checked the park before calling it a day at midnight, seeing that some of the trucks had left, some where recognised and a couple of trucks had arrived between now and the former truck park check. The house cars were all still there.

The number of vehicles parked at the truck park at night in the excerpt above was quite common during our field study. The number of house cars and cars with caravans ranged from none to a few. The employee says that truck drivers often get something to eat and a shower in the morning after having slept at the truck park. Observations from early mornings confirm this view. Not all drivers stay for the whole night though. Some stay

for a few hours. Others using the truck park such as house car travellers and cars with caravans seem to get a full night sleep before continuing their journey.

In the next excerpt, a truck driver who refuels his truck describes his view on why one chooses a specific petrol station. We met him at the diesel pump on the backside, wearing our own jackets, a late Wednesday evening.

> Excerpt 2: Truck driver preference
> We approached a truck driver standing at the diesel pump on the backside of the station. We shortly explain who we are and say that we are interested in the incitements for picking this station. "It is mainly the size, it is a huge station", he says. "By its size I know that it offers many different services, drivers appreciate shower and food possibilities". He says that the reason for him picking this station is that he lives nearby and continues: "Especially night drivers stay here, since there is a lot of room and the place it self is illuminated. Many are aware of the risk to get assaulted and robbed, they spray in tear gases and such. One does not stand a chance." We ask him about if drivers gather together when possible to small talk: "Some do, when I am away for longer trips, sometimes talk with drivers carrying similar cargo, often discussing the carried gods." When we get back in talking about the choice of station he says: "The fuel price steers where to refuel, this is the only thing you can influence in this business." He said that he was part of an economic association, which currently had a deal with Statoil, but this could change.

The driver talked to us while the truck got refuelled. He had a medium sized truck without a trailer, carrying gravel. First, he pointed out characteristics of the station which he seemed to believe that truck drivers in general appreciate. The feeling of safety and the various services such as shower and food at the station were focused on. Later on he got very engaged when talking about the significance of preferable fuel prices, it seemed like he was anxious to point this out. He spent about 20 minutes at the pump, sitting in his truck for a few minutes longer after talking to us, before leaving.

6.4.2 Toilets and bathroom

The toilets are facilities that are frequently visited at the petrol station. At times when there are many visitors in the shop, queues to the toilets are not unusual. The need for a toilet can be rather acute.

The next excerpt is an example of visitors seeking the possibility of toilet facilities.

> Excerpt 1: Need for a toilet
> A little boy comes running against the exit door, he pulls up the door and enters the shop. He passes the pay desk quickly heading towards the café, stops abruptly at the path to the toilet and moves towards it. Soon after the boy had entered the toilet, a man holding his daughters hand

enters the store. They walk towards the toilet as well. The boy comes back out again and leaves the store, the man and the little girl walks out soon after. As I (R) continue to watch them on the outside, they all went to the same car, where a woman sat and waited. They left short after entering the car.

The boy seemed to be the one of the family members in most need of a toilet. He was the only one during the complete field study that entered through the exit door, seeming unstoppable and very focused in his quest for the toilet. The family did not refuel or buy anything at the shop, neither did they stay after the return from the toilets, why a stop was more likely to occur in order to resolve the urgent need of the boy.

6.4.3 Food

The Statoil station is by some seen as an ok and cheaper substitute to restaurants. Getting something to eat at the petrol station is quite common. Not all stay and enjoy the meal at the station. Getting a hotdog was the most common meal.

This excerpt is of a woman buying the most complete version of fast food available at the Varberg petrol station, a mashed potatoes menu.

Excerpt 1: Mashed potatoes menu
A woman is refuelling her car, an elder woman is waiting in the car. After having refuelled the woman walks towards the shop. She buys two mashed potatoes menus. While queuing she looks out several times towards the car. The women then spend 5-10 minutes in the car eating and then leave.

Sitting in the car eating is often occurring both when travelling alone or in company. The café tables are also daily used for people eating their meals.

6.4.4 Shopping

We identified an increase in the amount of customers buying food such as bread and milk in the early morning rush, afternoons and evenings. The station keeps an assortment comparable to a smaller grocery store. People seldom shop a lot, it often is about a few articles.

The first excerpt takes place about 5.30 a.m. a Thursday morning.

Excerpt 1:
A woman grabs a basket, she wanders about in the shop and collects a number of provisions, quite unusual this early in the morning. She also grabs a newspaper and approaches the pay-desk. I (R) have a word with her when assisting her at the pay-desk. (V): "I do one's shopping for a

> friend not feeling very well. This place is suitable for shopping, I use to fill
> up the car and shop here, I live in the vicinity.

The above example shows that the petrol station is used similar to service grocery stores. In this case it is to be considered as a grocery store, since being available either by a short distance or its 24-hour service. The Statoil petrol station is well equipped with a supply of basic products. Due to the availability of the petrol station, located next to the highway, it serves as a local shop also to people passing through far from home.

The next excerpt is not of buying necessary provisions still it is an example of an ordinary kind of shopping at the petrol station.

> Excerpt 2: A middle-aged woman enters the shop, she collects a Danish
> pastry and looks in a magazine for a short while. She then approaches
> the pay-desk, pays and leaves. She did not fill up.

The woman apparently stopped by only to do this shopping. This is an ordinary shopping behaviour at the petrol station. This kind of shopping is often combined with other errands at the petrol station.

6.5 Meetings

On many occasions the petrol station serves as a meeting place for people. We saw examples of situations where people obviously had decided to meet at the place. We also observed people travelling together but in different vehicles, or on MC:s, stay at the petrol station taking the chance to get together and chat with each other. The truck drivers are a specific group of visitors specially appreciating the petrol station for among other things offering the possibility to meet other drivers. Two drivers we briefly exchanged words with expressed this. Another specific group appreciating the place and using it for meetings was members of a gang of youths who ride about in cars. People meeting at the petrol station often spent quite some time.

6.5.1 Truck driver meetings

The petrol station offers various facilities appreciated by the truck drivers, for example the truck driver parking and the showers. However, truck drivers meeting and talking to each other do not occur often.

The first excerpt is taking place in the late evening outdoors, at the backside of the petrol station.

> Excerpt 1: Truck driver conversation
> At the truck driver parking two men are having a chat. They talk to each
> other for a few minutes. Then one of them walks towards the entrance at

the backside of the petrol station. The other one gets into a truck, not the other drivers one.

These colleagues took the chance to have a few words with each other at the truck driver parking. They did not appear to represent the same company.

The wish for having better opportunities to meet other drivers is expressed by the driver in the next excerpt.

> Excerpt 2: Drivers corner
> A man about 45 years old stands alone by one of the café tables. I (R) take the opportunity to have a chat with him. He says that he is a truck driver having driven all day. He says this petrol station is appreciated for its availability, the truck parking and the facilities. He further tells me that it is a pity that petrol stations do not offer better possibility for truck drivers to sit down, have a cup of coffee and chat.

According to many truck drivers the Statoil Varberg petrol station is specially appreciated since offering truck parking and facilities like shower. The driver who was about to spend his night at the petrol station area though expressed a wish for enhanced possibilities to meet and talk to colleagues.

6.5.2 Travelling in different vehicles

Travelling companions travelling together but in different vehicles often get together and chat with each other when arriving at the petrol station.

In the following excerpt, taking place a sunny spring day, two motorcyclists utilise the petrol station to have a chat before continuing the trip.

> Excerpt 1: Motorcyclist meeting
> Two motorcycles turn into the petrol station area. They get off their motorcycles and have a word before entering the shop. In the shop they by moist snuff and without delay walk back out to the pump area. By the pumps they stay for about ten minutes having a chat.

The motorcyclists did not really have a demanding errand to resolve at the petrol station, instead it was handled rather quickly. Still they stayed at the petrol station area for about ten minutes, utilising the opportunity to have a chat and rest before continuing their trip.

The next excerpt is observed at the car parking area next to the pump area.

> Excerpt 2: A Danish gathering
> Two minibuses (Danish) arrive at the pump area. The driver of one of the minibuses stops by a pump to fill up. The other driver parks the vehicle at the big parking place. The passengers, together seven persons, step out of the vehicles. They are of mixed age, three teenagers, a child and

three adults. The man who filled up the first minibus walks towards the shop. The other people first join together in small groups talking to each other. Some of them do stretching exercises. Two of the teenagers head for the McDonalds restaurant, some of the others walk towards the petrol station where they stay for about 5 minutes. Two adults head for the road restaurant. After having performed various errands the Danish people one by one get together by the vehicles again. They continue having a conversation, some of them wandering about at the area. Two of the men talk to each other and laugh loudly. One of the women is studying a map standing next to one of the vehicles. After another five minutes they get back to their vehicles and leave. The woman studying the map is sitting next to the driver, while driving off she is still studying the map.

These Danish people, probably tourists, performed various errands at the place. Also taking time to rest and have chat. The woman who studied the map combined having a chat and resting with further preparing for the journey. She studied the map for quite a while. The stay at the area took about 25 minutes.

People travelling in different cars or motorcycles usually stay for quite some time at the petrol station. They often combine filling up and shopping with having a chat. Many of these visitors spend extra time than the time demanded for other errands. It appears that these travellers make up for the lack of conversation possibilities out on the roads at the petrol station. The petrol station due to its availability and many facilities for distant travellers make a preferable place to stop by.

6.5.3 Gatherings at the petrol station

The petrol station also functions as a place for people to come together. Such a meeting is taking place in the next excerpt.

Excerpt 1: People gathering at the petrol station
A group of men enters the shop, they are about thirty years old. Shortly afterwards three more men and a woman enters the shop. The people from the different groups says hello to each other. Some of them seem to know each other but not all. Some of them shake hands with each other. One of them says, "he will also join us!" One of men buys a few beers and chewing gum. Then they leave the shop and head for two cars of similar make of car.

The group of young people obviously had decided to meet at the petrol station. The location of the petrol station next to the highway outside Varberg most likely contribute to making the petrol station the choice of place for gathering in many cases.
Meetings of different kinds take place quite frequently at the petrol station. In some cases the meeting is combined with several other errands. People travelling in different vehicles often combine resting and having a chat with each other. The meetings frequently taking place visualise the role of the petrol station as a node in the road network.

6.6 Using office tools

A notable occurrence at the petrol station is the support of visitors' work situations. Even though they are of an unusual character, their mere presence at the station shows the richness of ways the petrol station tends to be used.

In the first excerpt, a man enters the store and asks for a fax. This was midday, and the researcher involved in this case was dressed as a Statoil worker.

> Excerpt 1: Bus driver fax
> A well-dressed man, about 50 years old, enters the store. A few meters into the store he looks around, seaming to search for something. He (V) wears a tie under his leather jacket, locks like official clothing. When spotting me (R) as I am loading a shelf. He (V) seeks eye contact and approaches me (R) when receiving it. (V): "A fax from my bus company should have arrived to this station". (R) "I will ask my colleague if she knows anything about it". She (E) says that it lies on the desk at the window. The fax lies where she said it would. I (R) hand it over to the man; he thanks me with a smile, nods and leaves the shop.

The man in this excerpt was dressed like a long distant bus driver, picking up a fax at his stop at the station. The bus company, which had sent the fax must have been in contact with the bus driver about this, making arrangement of where to pick it up. The man did not buy anything, he only asked for the fax. The Statoil worker who told where to find the fax seemed to be confident with this errand.

A truck driver having a break at the café tables expressed a need for driving support similar to such received in the excerpt above. The next case is an extract of his thoughts. The context of this extract was a discussion about support for road users at the station.

> Excerpt 2: Driver support
> (V): "…The stations should facilitate a fax and a phone in some way, it is to expensive to have those in the car. Customers often want us to fax them and to fax me as well. The station should also reach out with what facilitates it has and it 's location…"

The driver had a number of ideas, concerning truck drivers in particular. He pointed out the use of fax as a problem, such office like facilitates was described as to expensive for trucks. He seemed to want fax possibilities in both directions, and to be notified by these possibilities while still on the roads. Since the Varberg station does not actively market it self as provider of support already possible as in the former excerpt, it seems like they are not the initiators of such support.

While sitting in the personnel lunchroom and writing down observations, an employee comes by to eat her lunch. The next case is an extract from our conversation during this lunch session, concerning IT use at the station.

> Excerpt 3: Laptop at the café
> (E): " It happens that people comes by the station with their laptops, buying a cup of coffee and enjoying it while using their laptops at the café table. There is a man coming by occasionally, well dressed, believe he is a businessman.

The café tables are big enough for laptops, but are hardly designed for them. It did not seem like this was a more than a rare element at the station. The man mentioned by the employee seems to be regarded by the employee as a regular customer. It is difficult to tell how many there were using the table facilities for their laptops. The point with presenting this is that the use of a laptop at a petrol station café table in itself is worth noting.

Telephones are frequently used at the station. Both mobile phones and the pay phones placed in the shop. Since receiving a lot of questions from foreign visitors concerning the pay phones, they are identified as a clear group utilising these. The café tables are frequently used when talking in mobile phones. In the following excerpt, an English speaking man asks for assistance with the pay phone.

> Excerpt 4: Need to phone
> A man about thirty years old, dark-skinned approaches one of the employees. He appears to be in a hurry and asks about the possibility to use a phone. The employee directs him to the pay phones located outside the toilets. The man soon comes back. "They do not work", he says. The employee then follows the man to the telephones and helps him out. It worked and the man expressed his thanks.

This visitor seemed to be under stress. He anticipated to be able to use a phone at the petrol station and seemed to be relieved after having used the phone. The petrol station obviously helped him out in a difficult situation.

The excerpts above are examples of road user support in a somewhat different way, their work situation. Truck drivers seem to be the initiators concerning enhanced support of their working situation, requesting for services possible at the petrol station. The station, if able to help, not prepared to turn them down. The occurrence of people using laptops at the station is a different way of utilising the petrol station for work, not by getting access to office equipment, rather utilising the station for the equipment itself. This kind of work support is another way in which the station supports road users. The truck drivers get a quite accessible support, the businessman can work while taking a time out in his travelling. Both show that the station is perceived with an aid role for the road users, supporting them for and in their mobility.

6.7 Leaving and fetching

Visitors utilise the petrol station in various ways. The occurrences described in this section refer to activities where objects and people are left and fetched at the petrol station. The latter of these occurred frequently, the former was observed a couple of times.

6.7.1 Objects

The first example of people handing in and fetching objects was detected when getting introduced to the shop by the shop manager.

> Excerpt 1: The tire
> I (R) notice a tire positioned in the area behind the pay-desk. It takes up place why I ask one of the employees how come a tire is placed here? The employee answers, "It was handed in by a man a while ago, it has been here for a while now. I don't have a clue when it will be picked up".

The tire was still there for a number of days. A week later the tire was gone. According to one of the employees the recipient had stopped by to retrieve the tire.

One of the employees expounded the occurrence of handing in and fetching objects at another occasion.

> Excerpt 2: Skiing boots
> (E): "This place sure is a centre, people often hand in things, packets for example, that someone else is supposed to fetch. We put them behind the pay-desk. Sometimes people hand in skiing boots for someone else, traveling long distance, to pick up. Both private persons and business people do this, cause people travel this way".

The handing in and fetching of skiing boots appear to have been closely arranged. The petrol station in these kinds of services obviously helps people out in delivering things to each other. Through its availability along the highway the petrol station seems to make a suitable place for this occurrence.

The next excerpt took place when observing behind the pay-desk as Statoil employees.

> Excerpt 3: The mobile phone
> A Danish truck driver enters the shop and hands in a mobile phone to the employee behind the pay-desk. I (R) help the truck driver to turn of the phone he handed in. The employee hands over another mobile phone to the truck driver. The exchange is made in a smoothly manner. The truck driver says thanks and leaves. I (R) follow him outside to ask about his errand. He says that "It's a service we receive". He also says that he is heading for Copenhagen after that he is continuing to Italy and Spain.

Back in the shop the employee who handed over the mobile phone explains that the truck driver was supposed to fetch a mobile phone a while ago but he had received wrong mobile phone. Now he had gotten the right one.

In this excerpt the petrol station served as a storage place while waiting for the truck driver to fetch the mobile phone. The service is not formal, the petrol station simply has accepted to help people out with these errands.

The transportation of objects could be seen as inverted to most transportation of objects like the post where the object is in centre, moving from the sender and receiver. In this case the place (the petrol station) is the vital part. The movement is accomplished by the sender, transporting the object to the petrol station, and the receiver fetching it. The understanding of the petrol station as a node is in these kind of activities distinguished. People travelling the roads utilises the fixed petrol station which helps them out by making easier the delivering of objects. This way the sender and receiver do not have to coordinate. Instead, the delivery is made asynchronously. These activities are not formal services provided by the petrol station still they are taking place quite naturally. The service is much appreciated by the visitors. The petrol station makes easier or perhaps sometimes even solves a problem for people needing to hand something over but don't have the possibility to meet up. Factors contributing to that this service has become more or less established could be the availability of the station and the fact that the petrol station is associated with other road related assistance services. Also the reliance in petrol station is exhibited by the handing in of objects.

6.7.2 People

The petrol station area was also frequently used for people to change vehicles and getting left and fetched.

At the petrol station area there is a bus stop, officially for one bus company. A few other bus companies also use the place frequently for picking up and dropping passengers. This observation was made in the evening out on the parking area.

Excerpt 1:
A coach is standing at the bus stop, three ladies comes walking from the coach towards the big car parking. I (R) say hello and we have a short chat. One of the ladies tells me about their journey: "We have been to a art exhibition in Copenhagen. We have been away all day, the trip was the finish of a course we have taken." "We attend the pensioner college", one of the other ladies adds a bit jocular. They had driven to this place, left the car and taken the coach. Now one of the ladies was going to give the others a lift home. They recommended me (R) to do the trip. They were in a very good mode.

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The coach was not from the bus company which has a bus stop. But is uses this place, such as many others for picking up and dropping passengers. The coach took the ladies to this area, the final path home the ladies handled by them selves. The location of the petrol station, next to the highway and close to Varberg, probably makes it a suitable stop for bus companies.

One of the employees contributed with more information about leaving and fetching activities taking place at the petrol station area.

> Excerpt 2: Enhanced bus connection?
> (E) "Our station is a centre for bus companies, they drop passengers from this district here. There are wishes for creating a bus stop here. Sometimes they even ask the station personnel for a lift to Varberg since they have been dropped here. I have given a person lift to Varberg my self, as I live there".

This utterance points out that the employee perceives the petrol station as a bridge between the local district and the beyond for people being dropped. According to the employee people having been dropped at the place sometimes quite freely and easily ask the petrol station for a lift to Varberg since they have been dropped at the petrol station area.

The picking up and dropping off people and the handing in and fetching of objects seem to be functions of the petrol station similar to the bridge-like function of information provider for people arriving to the local area. The bridge is at another level, still contributing to the perception of the petrol station as an overall bridge between the non-local and the local area.

The leaving and fetching activities contribute to a picture of the petrol station as a place for much more than traditional car maintenance. People seem to expect much service from the petrol station. The leaving and fetching activities of objects are clear indications of this. This activity also shows the reliance in the petrol station. In these activities the petrol station contributes with its physical place, which is of great standard, next to the highway but also before the Varberg city. There are also the many parking spots making it possible to leave the car at the petrol station when for example continuing by a bus.

7 Summing up the Analysis

This chapter intends to lift the findings from the previous chapter, emphasising on aspects of interests to inform design.

7.1 A multi errand place

Harrison & Dourish (1996) define place as "a space invested with understandings". This certainly is the case with the Statoil Varberg petrol station. It is a place with many understandings visualised in all the activities taking place.

The great number of visitor activities at the petrol station indicate the significance of this place for road users, much more take place than only traditional car maintenance. For many visitors this is a place for recreation during travelling. The petrol station offers a place to stop by, to rest and have a cup of coffee. A considerable amount of the visitors spend quite some time at the petrol station. People travelling together but in different vehicles use the place to get together and have a chat before continuing the travelling. The petrol station is also a place for gathering. For truck drivers the petrol station even serves as a temporary home along the road offering food, toilet, shower and a place to stay overnight. The petrol station frequently handles information inquires. It is trusted with navigational assistance and confirming weather conditions. People utilising the petrol station for many different errands at the same stay also is common.

Some of the activities such as car maintenance and using facilities for basic needs are formally offered services at the petrol station. Its suitable position does also seem to be exploited by initiatives taken by customers such as the handing in and fetching of objects. By the petrol station accepting to handle these kinds of services it contributes to making the petrol stations role even more significant. This appears to be a sign that visitors have the possibility to form the role of the petrol station.

Many of the activities taking place help people out with different kinds of issues. The petrol station is in many ways maintaining mobility by making it easier, or even making possible at all, for visitors to be able to continue the travelling. Not only through car maintenance activities like refuelling but also by giving road users the possibility of handing in and fetching objects, picking up faxes and having a journey break.

The petrol station has several prerequisites contributing to its strong position along the road, for example its availability, the various kinds of services provided and the reliance. Visitors also expect much from this place, taking for granted various kinds of assistance at the petrol station, far more than the traditional car maintenance role of the petrol station.

7.2 A portal to the local

The Statoil Varberg petrol station is located as a portal to the Varberg district and function as a bridge between the local community and the beyond. The strategic position is utilised by bus companies and car-poolers dropping and fetching people at the station.

The location as a portal also is reflected in the information inquires made daily at the petrol station. To great extend the information inquires concern the locality of the petrol station. It seems that road users seek information when entering the local area to their destination, and that this preferably is done at the petrol station. The petrol station in this way provides timely information due to its location. People seem to take for granted local awareness and that information of various issues cold be received at the station.

Navigational assistance is a common kind of information inquire handled daily at the petrol station. The great number of tourist information inquires during the summer season further contribute to making the petrol station an information centre.

7.3 Privacy in public space

Stopping by at the petrol station also makes possible a moment of privacy for visitors. It is common that visitors choose to enjoy time by them selves, both by utilising their car for a break, and by temporarily leaving ones party for individual errands. These are signs of a need for a private sphere. Lynch (1976) points out that any landscape should offer its members a place where they may enjoy privacy without any conscious conformity to social demands. The car seem to function as a place satisfying these needs since it is both a private and isolated place. The fact that people travelling together so frequently split when arriving at the station could be a reaction to the absence of private space and the apparent social conformity to other passengers. The interaction taking place when having split up merely consists of what Goffman (1963) defines as unfocused interaction.

8 Design suggestions

By taking on the role as a digital hot spot, possibilities arise for the station to provide further support for its visitors. The characteristics perceived with the petrol station, as well as the characteristics of the station itself, should be used to guide such an implementation.

In this chapter, possibilities with a digital hot spot and important guidelines for these possibilities will be presented. These are divided into the following two sections; enabling wireless Internet access and providing a wireless digital extension of the Varberg petrol station. The former is a motivation of a hot spot solution similar to the ones used at airports etc, as described in chapter three. The latter is a suggestion to fill this hot spot with accurate local content. Both these are seen as parts of a possible digital hot spot at the Varberg petrol station.

To picture how a hot spot solution could be formed, the third section in this chapter will briefly illustrate a possible Varberg WLAN solution and its characteristics.

8.1 Wireless Internet access for visitors

The petrol station is a public place with a large number of visitors, supported in their mobility in a number of ways. In fact, it seems like road users them selves find new ways for the station to support them. Some of these are quite unique, still utilising characteristics similar with more common and traditional ways of support at the Varberg petrol station. Offering wireless Internet access at the Varberg petrol station will supply visitors with a media able of further supporting individual preference.

The idea of enabling wireless Internet access is divided into the following two categories; office by the road support and private errands along with leisure support.

8.1.1 Office by the road

The Varberg petrol station is an established supporter of workers spending essential parts of their everyday on the roads. Truck and bus drivers are two occupational groups closely bonded to the roads, using the station as a drive-in office, for faxing etc. There are reasonably also other groups visiting the station like salesmen, entrepreneurs etc, spending a great deal of time travelling the roads.

Since it seems like it is the visitors pushing for this sort of support, it is reasonable to believe that they can be assisted even further if actively supported by the petrol station. The limited office support available today is received through the use of in store facilities and station personnel, leading to added load on the station personnel and the store it self.

Communication technologies like e-mail are perhaps the natural tool thought of for the use of Internet in work. However, organisations do also increasingly use Intranets and Extranets for communication and collaboration among employees, customers, suppliers and other business partners (Turban & Lee, 2000). Given the opportunity to access these possibilities, organisations might even strengthen their Intranet and Extranet and e-mail use etc, to further utilise the petrol station as a virtual office by the road, strengthening the relation between road-bound workers and the petrol stations.

There is a network of petrol stations along the roads, able of offering road bound workers a network of virtual office accessibility. The Varberg station with its 24 hour accessibility, is a potential non-stop virtual office by the road provider.

It is not likely that the stations fixed setting could support all office by the road activities. Laurier's (2002) study of a salesman's office work tells us that work also takes place while driving, talking on the phone etc. The salesman did however utilise longer pauses in the traffic for scanning documents. A hot spot at the Varberg petrol could perhaps be used in a similar way; especially since longer traffic pauses are not as common in highway settings as in city environment. The station does not only offer the salesman a longer break for scanning physical and present documents, but also the technological environment for retrieving and scanning e-documents. Workers like the salesman studied by Laurier could thus be supported with enhanced possibilities to perform, and to manage changes in, work issues along the road.

8.1.2 Internet for private errands

As mentioned earlier, the Varberg station seems to be a strong node, attracting a rich mixture of road users often staying at the station performing a number of errands.

The fact that visitors often spend some time at the station gives the Varberg petrol station the opportunity to also support somewhat time consuming services, such as Internet access. Offering Internet access to visitors would also provide them with a tool of what use they could shape themselves. They are already part of the shaping of the support given at this public place.

The fact that visitors frequently choose to spend time by them selves at the station signals a need for privacy. The moments of privacy sought for at the station could be enhanced by the possibilities of devoting one self to obtaining e-mails, favourite Internet pages and services, virtually representing a private sphere, used by many.

People do also gather at the station, spending time by talking and relaxing together. Tourists seem to be a group both staying and socialising for some time at the station. These gatherings could constitute a setting for convenient and shared Internet use. Workers spending much time by the roads are also included here, thus not only looking to their professional role mentioned in the previous section.

The way people choose to spend their breaks at the station; sitting in their cars, standing by the café or using the lawns, motivates the implementation of wireless Internet access. They would not only be free to pick the environment of the Internet use, they would also be able to utilise their own personal tool for it.

8.1.3 Benefits with wireless Internet access

By offering wireless Internet to road workers, the station enables them to obtain and send work related information, further assisting road-bound workers. The common visitor would receive a tool able of enhancing the stay at the station. These possibilities would be provided by the petrol station without employees being involved in the actual assistance. Thus, this is a highly scalable service. The petrol station would probably also have created another tool to bind customers to their station, and another source of income, by charging the use of Internet.

8.1.4 Downsides with wireless Internet access

Businesses with employees spending much time travelling the roads, like salesmen and truck drivers are quite likely to equip their employees with wireless computers. The ones not freely supported with this technology are probably going to reach similar technological maturity at a latter stage.

8.2 A digital extension of the Varberg petrol station

In this section, a digital extension of a number of existing services at the station is to be suggested. The information requires constitute a group of services that is believed to have a number of benefits if digitalised, given the settings at the station. There are also a few other ways of extending the station included in our design proposals. The digital extension could be seen as an ambition to fill the hot spot with relevant locality content. This digital extension is to be made available throw a local wireless network, covering the station area.

The idea of providing a wireless digital extension of the Varberg station is divided into the following categories; The locality portal, Navigational assistance, Road weather condition support, Asynchrony messaging, and Digital fill up.

The point of these suggestions is to locally distribute the kinds of support possible to provide through the use of wireless IT. These could be gathered within a wireless local portal made available for the visitors within the Varberg petrol station landscape. The notion of the portal exists on a somewhat abstract level. The reason of at all mentioning it is to put the digital services in a mutual context also believed to constitute a promising interface for them. The first three suggestions do all handle information support; why

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they maybe should themselves be gathered in a digital information portal, within an overall station portal.

8.2.1 A locality portal

The petrol station is already today a place of preference for seeking various kinds of information. By providing hot spot technology, information requests can be supported more efficiently. It is foremost people arriving from the beyond seeking information about the content of the locality. A large group seeking such assistance are the tourists, both native and foreign. Also other groups or individuals seek information about the locality.

The timely location of the Varberg petrol station and its role as an information provider could better be utilised by digitalising this service. The accessibility of the petrol station, as in the case of the Varberg petrol station, located next by the highway and open 24 hours a day also contributes to the appropriateness for this place as an locality provider. The portal like location into the Varberg locality also makes it suitable for this role. The [i] symbol at the exit road to the station does probably to some extent strengthen the impression or expectation of the possibility to be supported, preferably at the petrol station.

Even though the seeking of locality information at the station seems to be an established activity, it is not very popular among Statoil Varberg workers. Questions are sometimes asked in foreign languages, thus difficult to assist. Informing visitors is also a time consuming activity for the workers, why queues could grow. Especially summer periods are seen as problematic considering this sort of visitor support.

What kind of information should be provided? Tourism information is the vital component of this idea. By tourism information we mean events occurring in the region, sites, holiday activities such as camping, bathing etc, places to stay and what to do. The local information provided should be adjusted depending on the seasons, similar to the temporality design norms for cyclic natural changes discussed by Lynch (1976).

A reasonable suggestion considering locality information is that the tourism agency of the locality should get involved in contributing this kind of information, via a Statoil Varberg petrol station page. They would by this publish locality information at a place of obvious potential to attract visitors to their locality.

The perhaps greatest benefit for visitors with the providence of wireless locality information is that the information sought after would be provided in a more convenient and easily accessible way. They could now retrieve the information without having to wait in line at the shop, and now also get it in a preferred language. Visitors, especially tourists, often spend quite some time at the station. The wireless providence of the information enables them to collect information needed before continuing their holiday at the region, in their own beat.

By providing locality information with wireless technology to visitors of the petrol station area, the local awareness perceived with the station gets distributed. By doing this, the Varberg station does not only increase their service portfolio, making this sought after support very accessible, pressure is to same extent also released from the workers of the station.

8.2.2 Navigational support

Road users seeking navigational guidance at the Statoil Varberg petrol station is a frequently occurring activity. The navigational questions asked are mainly concerning the locality of the station. There seem to be a rich variety of clientele asking for this type of assistance, sometimes in foreign languages.

Visitors asking for navigational support seldom utilise the station for other errands. Navigational assistance is a relatively time consuming service, at times causing the queues to grow. Visitors are thus probably as interested in receiving the support rapidly as the petrol station workers are to limit the impact on their work situation considering this type of support. The actual navigational support may cause the queues to grow, which is unpleasant both for visitors and the Statoil personnel.

The station's prerequisites for this support are similar to the ones mentioned considering the locality portal. In fact, there are many mutual aspects between these two services. They both require the assistance of an employee, visitors trust the local awareness of the station and the station seems to be timely positioned for locality issues.

However, when considering design, there are a number of important differences. Navigation is not about the content of a region, rather a question of ignoring the content, seeking only the path to the destination. The time spent is also a divider. Navigational assistance is mostly sought for in a quick manner, locality information seekers do not appear to follow this pattern, rather spending time at the station.

Design of the navigational support should pay attention to how this information is sought and how it is received, to make the users feel at ease and natural with the use of the digital service. The design of a navigational application should also keep up the appearance of the Varberg petrol station. Thus encapsulating the trust perceived with the station. A couple of optional languages would be recommendable. Foreigners might even prefer the digital option to asking the personnel if information is provided in a familiar language.

The bond between this sort of assistance and the petrol station seems to be strong. Offering this support electronically within the Varberg petrol station area could encapsulate this bond. It is still probable though that all visitors are not going to abandon the option of personal assistance, even though given a digital substitute. At times of long queues the digital option should though arise as a strong accessible substitute, faster than the traditional option.

Since there are several established map functions available today, developing a complete navigational support application from the ground appears to be unwise. It would be preferable to utilise an existing concept but also taking in consideration the characteristics of the visitors inquires at the petrol station.

By extending the navigational support to visitors' mobile devices they will not even have to leave their cars to retrieve the navigational support. This wireless distribution of navigational support will thus enable visitors to quickly obtain wanted guidance, without having to wait in queues or causing them.

One should keep in mind that navigational assistance is not sought by a specific group of people, rather any human in a specific situation. Assisting this support should thus not be belittled. Providing digital assistance will ensure that such assistance is always and quickly available, regardless of any queues. This could be considered a tool for stations to build relations with their visitors, more likely to choose the station for various road user supports.

8.2.3 Road condition support

The Varberg petrol station is relied on to provide information about road passable ability when the weather is bad. Road users do ask both by phone and at the shop about road conditions in a specific direction.

The petrol station does not however seem to hold any sources of information considering the passable ability of roads. Thus the personnel are not able to satisfy this kind of inquires. The employees at the station have occasionally contacted distant locations to ask for their conditions. But the overall picture seems to be that they do not have any real tools for this kind of inquires.

Considering the above-mentioned characteristics of the station, it seems like the station has another potential incitement for tying road users to the station. Considering the multi errands characteristics of the station and the strong road user aid role that the station contains, offering information about not only weather impact but also other road passable ability related information could be a promising addition to current petrol station services.

The Swedish National Road Administration, SNRA (www.vv.se, 2002) provides such information on their web site. One can access information about road networks all over Sweden, considering various issues about the passable ability of even a specific distance. Making information from this or a similar solution available on the local wireless network at the station could be a suitable solution.

8.2.4 Asynchrony messaging

The Varberg petrol station is a place visited by a variety of people; truck drivers, tourists, MC-drivers, business people, commuters, youngsters and others. Some of these visit the station regularly, others occasionally. Yet, spontaneous conversations between visitors of even as clear groups as truck drivers are rare. Truck drivers do however seem to feel a relatively strong spatial belonging (Lynch, 1976) to the petrol station, functioning as a second home, but what about the social belonging?

It is perhaps difficult to maintain social relations at a fixed place which function is to support people in movement. The various groups of people visiting the petrol station are also distributed in terms of time; they are not necessarily at the station at same moment.

However, what if one could offer the possibility to communicate asynchronously within spontaneously created forums fixed to the station? People visiting the station could leave a note and share ones thoughts with people of similar social belonging.

There could be a number of benefits with implementing the possibility to create these forums. Members of a distant regional belonging, such as tourists, will be able to leave tips for compatriots, or simply leaving messages of various kinds. They would thus be given a tool, with the potential to create and visualise virtual social spaces.

It is not meaningful to try and number the possible social groups that are present at the station. Esbjörnsson and Vesterlinds (2002) discussion of regional and network relations could though give examples of types of social relations. People of regional belonging are the ones that in a geographical context, like the Varberg petrol station, have a mutual background different from the general like Germans, and Stockholm citizens etc. People with a network belonging could be truck drivers, related through a mutual line of work. Both these types of belonging could be supported at the station with asynchronous meeting support like web forums.

The asynchrony idea could also be used for evaluative or investigating purposes. The station could find out more about their visitors by keeping an eye on these forums. The station could be provided with distinctive guidelines concerning the characteristics of their visitors. Perhaps they would also receive opinions concerning the digital services available together with this forum.

Wireless technology would provide the possibility for visitors to read and ad contributions from any spot of the station area and in privacy.

8.2.5 Digital fill-up

The Varberg station offers visitors the opportunity to by and rent entertainment in form of music and movies, they even have an entertainment corner. Visitors were spotted listening and buying records, as well as buying and renting movies.

If the station is to become a digital hot spot, possibilities to offer visitors entertainment digitally arise. Music in particular should be suitable for download, because of its small format. Games could also be suitable, for various hand held or built in devices. The service in making entertainment digitally available is not to freely distribute it, rather to offer a digital sales channel for these products.

A wireless connection seems like the natural choice for this download, enabling visitors to do this directly with and to their devices. Using wireless and digital technology to make available entertainment is likely to be a relatively effective way of managing sales and distribution of these products.

8.3 Hot spot technology

In this section, a hot spot solution on an abstract level will be presented to picture the Wireless Local Area Network (WLAN) technology that the design suggestions are based on. WLAN is a common technology in digital hot spot solutions, also present in the hot spots described in section 2.1.3.2. In the first sections, the needed technology is to be described. In the latter sections, the use of wireless Internet and the digital services will be illustrated.

8.3.1 WLAN technology

The needed prerequisites for the access and supply of the IT use suggested is divided into two groups; Varberg station Equipment and visitor equipment.

WLAN is an IEEE:s (The Institute of Electronical and Electronics Enginers) standard for mobile wireless communication. A WLAN consists of a base station, e.g. an access point and a client device e.g. a WLAN compatible PDA or Laptop.

To set up a suitable WLAN solution, the station needs a fast wire to the Internet connected to the petrol station and its computer hardware (server etc). To make available the Internet connection, the station needs to connect a sufficient number of access points to the server at the petrol station. The visitors must have a WLAN compatible device to get access to the wireless net. WLAN cards could be built in or plugged into the device. The content of the digital services could now be distributed and obtained at the petrol station area.

8.3.2 WLAN in use

The Varberg station could choose the commonly used solution of letting a third party, for example a WISP, provide the Internet access. The visitors would thus pay the Internet provider for time spent surfing the Internet. Perhaps the station should pick a third party

with a similar product as in the Streetwise project, offering the freedom of choosing Internet operator and the opportunity to pay via a credit card.

Since the physical services, that we make digitally available, are free of charge it seems reasonable that the digital versions should also be free to access. Another reason for making them available for free is to lure people from choosing personnel for assistance to using the digital version. The distribution of these services would use the same WLAN and Internet infrastructure. The major difference lies in that the server restricts visitors not paying for Internet from accessing more than the local digital services made available.

The picture below illustrates the mutual infrastructure for the suggested services. The digital version of current services are available through the server for all members of the area, the Internet access though need to be paid for, illustrated by the dollar bills on the Internet wire.
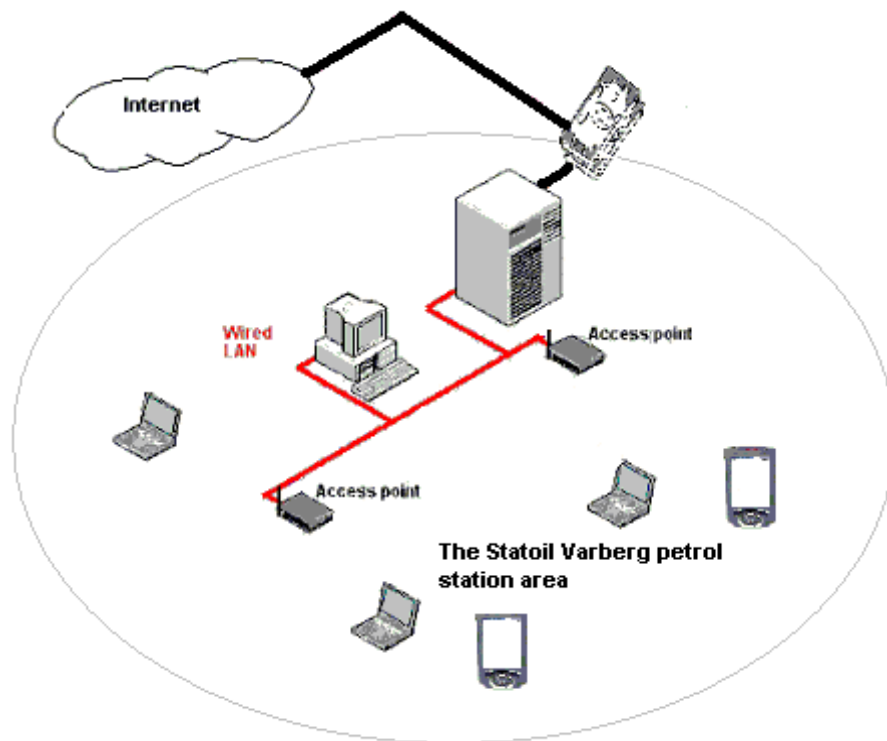

Figure 6. A model of a possible WLAN at the Varberg petrol station

8.3.3 A stationary complement

The wireless solution is in several ways preferred to a stationary solution. The latter could still be a useful complement to also enable the suggested services for visitors that do not possess a PDA or Laptop equipped with a wlan card. Perhaps should also printing possibilities be made available, so that the users can bring along the information retrieved. A stationary solution should be designed to claim as little physical space as possible. There are technologies available to limit the space required, for example thin screens and virtual keyboards (www.mobil.se, 2002). The digital fill up suggestion would not be useful on a stationary solution.

8.3.4 The mobile IT-use model

Visitors arriving at the petrol station basically are in a travelling situation. When stopping by at the petrol station area the travelling modality temporarily pass into a wandering situation being able to move around at the petrol station area. The physical surrounding could be e.g. the furniture at the petrol station shop or the car. The social surrounding could be what is considered appropriate behaviour at a public place. The application would include the wireless network, the Internet access and the provided services offered at the place. Also the users mobile device e.g. a handheld or laptop would be included in the application. Given these conditions mobile IT use like accessing Internet or receiving digital navigational assistance using a handheld or a laptop is made possible.

9 Discussion

Research in the field of mobile informatics usually focuses on people when looking to innovating mobile IT support. This thesis points out that studying a fixed place, like the petrol station, can also be a fruitful approach for innovating support for mobile people.

The findings of the thesis indicate that the Varberg petrol station serves as a node of great significance for road users. Considering the variety of visitors and activities taking place at the petrol station, the station is already a hot spot in the highway it is tied to. The petrol station prerequisites for becoming a digital hot spot are favourable. The hot spot technology could be used in order to provide enhanced and further support for road users, thereby also further strengthening the significance of the petrol station.

The Varberg petrol station has similar characteristics to many existing places where digital hot spots are already put up. Many hotels and some cafés offer visitors hot spot facilities for e.g. working, and amusement. The airports, another group of early hot spot implementation, share similarities with the petrol station as it is also a place and a node of a travelling context. We believe that hot spot facilities could be appreciated by many in these contexts as people travelling, for example during vacations, often lack the possibility of accessing e.g. Internet and e-mail facilities.

The field study at the Varberg petrol station indicates several aspects of interest to consider for IT implementation at a petrol station. The ability of the petrol station to provide timely information about e.g. the locality of the petrol station and road related information are examples of such aspects. The visitor's expectation of receiving road related information and their trust in the provided information at the petrol station are also of interest. The possibility to support people that travel a lot in their work and people having a journey break at the petrol by providing Internet access and digital entertainment are further parts of interest for a petrol station hot spot. The design suggestions presented in previous chapter are intended to visualise ideas on how these aspects could be taken advantage of in a petrol station hot spot. These suggestions differ from most hot spots of today since these usually only offers Internet access, not taking into consideration the unique context characteristics for further visitor support.

Petrol stations offering IT facilities like Internet access and other digital services would mean a further incitement for road users to stop by at the station. The petrol station personnel could be relieved the pressure on, not having to take care of all of the information inquires. The petrol station would also gain further possibilities to strengthen the relationship to its visitors. For road users, the petrol station would become an even more usable place offering another dimension of services.

Some of the identified activities at the petrol station are taking place on the initiative of the visitors such as picking up faxes and handing in and fetching e.g. mobile phones. These activities we believe have arisen due to need of aid when being mobile. The acceptance of the petrol station to handle such issues points out that visitors have the

possibility to some extend form the petrol station. By providing IT facilities at the petrol station the visitors would have further tools to shape the petrol station after preferences originating from their kind of road usage. The understanding invested in the space would ascend and defining the petrol station would be an even more challenging assignment.

The findings from the study have been used to look at possible IT use to enhance the current support provided at the station. This support is therefore more of an IT extended support of the already present but limited one performed by the personnel. What if we took this support and applied it on unmanned stations? This would enable them to remain unmanned, still offering road user services such as information and navigational assistance. The hotspot design could with advantage be implemented at unmanned stations in order to strengthen the proximity and the bounds to the visitors. Making information reachable even when there is no personal at the place. This would also be useful to stations not 24 hour open by creating a feeling of Statoil (petrol station) presence even without personnel at the place since much of the information still would be reachable.

Many of the findings are likely to be valid also for other petrol stations, or for petrol stations in general. The aspects of interest emphasised in this study e.g. the importance of the locality and visitor behaviour, seeking privacy in public space are important issues to consider when designing the wireless petrol station.

However there are also other aspects to consider not emphasised in this thesis. Petrol stations are different. They are different located, some as entrances to cities, some out on the country, for these out on the country the information portal probably could not be motivated. Perhaps other local issues should be considered. In the case of petrol stations on the country, the emphasis might even be on beyond local issues. Such aspects need to be carefully considered. Still petrol stations in general share many characteristics e.g. often being located at strategic places next to highways or right outside cities.

Further studies need to be performed in order to tell which kind of petrol stations are candidates for being digital hotspots. Also, should different hot spots be equipped with different kind of IT services? This thesis does not answer such questions but it suggests that the Varberg petrol station is a potential hot spot, which means that petrol stations with similar characteristics most likely also could be considered potential hot spots. Further, suggestions of what kind of services would be suitable and how they could be shaped are presented in the thesis for petrol stations similar to the Varberg station.

Since suggesting the petrol station as a potential hot spot we believe that coming hot spot projects at petrol stations such as the Statoil initiative described in section 2.1.2 would experience prominence.

10 Conclusions

The Statoil Varberg petrol station is a significant node for road users. The various visitor activities taking place at the petrol station indicate that its role for road users is of great importance. Also, the role of the petrol station differs a lot from visitor to visitor. In many cases the petrol station helps people out in difficult situations during their mobility. The petrol station also serves as an information portal and is trusted by the visitors. The Varberg petrol station prerequisites for becoming a digital hotspot are favourable. The field study findings indicate that visitor behaviour, the ability of the petrol station to provide timely information, the presence of different groups of people and the possibilities to support mobile workers and resting road travellers are important aspects to consider when creating a petrol station hotspot. The design suggestions are worked out to take advantage of the mentioned aspects. By providing a wireless hot spot solution various ways to further support road users at the petrol station arise. The design suggestions: Internet access, the information portal, the application for asynchrony messaging, the navigation application and the road passable ability application are presented to visualise how this could be done.

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