

# Who, what and where in Kista Galleria

An ethnographically inspired study of a shopping mall and mobile life within

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## ABSTRACT

An ethnographically inspired study was performed in the Kista Galleria shopping mall. The objective was to provide input to the design of a mobile social service running on mobile telephones. User behaviour was observed indicating opportunities for a service to manifest itself on a user's mobile phone without being too obtrusive: *phone walking*, *glancing*, and *logging on and off*. The study also provided insight as to places in the mall where people tend to gather and stop for some time span: *waiting rooms*. Such places are appropriate for the placement of server stations and public server displays.

## Keywords

Ethnography, mobile telephone, mobile service, social computing.

## INTRODUCTION

People are social beings. We live, work, and play together with others. We study what others do, where they go, what is appropriate behaviour, what is needed in order to show – or to avoid – membership in a group. An interesting research problem is whether these powerful mechanisms for taking advantage of other's experience can be transferred into systems' functionality and design.

In our work, we investigate ways of overlaying a domain with traces of its use – social trails, in analogy with the way paths and trails form in woods and parks. We have previously investigated social navigation and recommender systems as a means for navigating information spaces, in the domain of recipe recommendation (Svensson et al. 2002), product configuration (Cöster et al 2002) and on-line travel booking (Rudström and Fagerberg 2003, 2004). In the GeoNotes system (Persson et al. 2002), traces of user activity were superimposed on the real world, by giving users the possibility to put virtual post-it notes “in space”. Continuing this work, we want to support and enhance the experience of mobile people's activities in a scenario that is more relaxed than at work, more limited than “real life” in general, and more accessible than at home. To do this, we envisage a service where a real life domain is overlaid with social trails of user behaviour. A good explorative domain for such a service would be a domain that is limited in space; where people come and go on a regular basis; and where prospective users have habits but still might benefit from new information, tips or recommendations.

This paper describes an ethnographically inspired study of one possible such domain: Kista Galleria, a regional centre and shopping mall frequented by residents, by people working in nearby offices and by visiting shoppers.

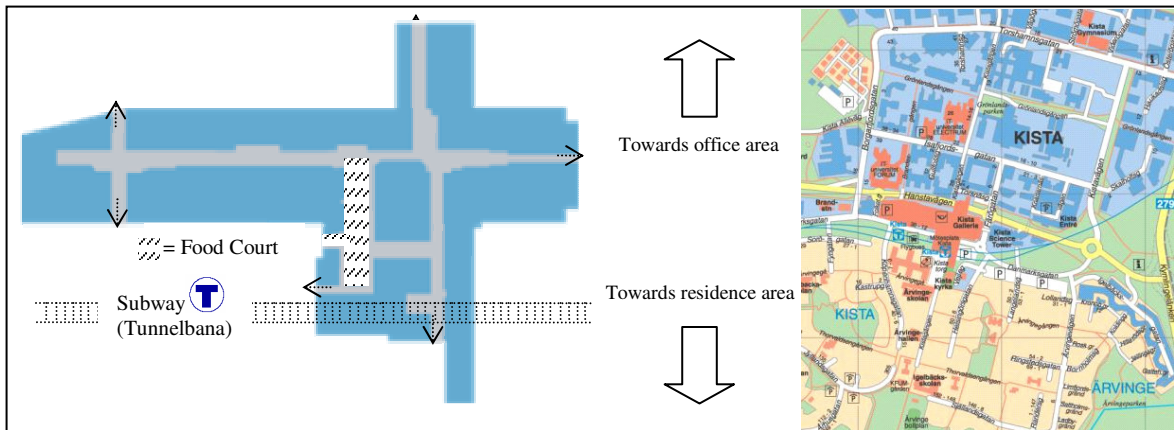


Figure 1. Kista Galleria and its location at the centre of the Kista region

## BACKGROUND

### Kista and Kista Galleria

Kista is located in the outskirts of Stockholm, 20 minutes by subway from down-town Stockholm (Figure 1). What makes a mall located in Kista especially interesting is the rather special character of the region. On the one hand, the mall and its subway station serves as a natural centre of a quite densely populated region with suburbs to Stockholm, inhabited by people working for the most part elsewhere. On the other hand, this is the heart of the Swedish telecom industry. Most of the major IT companies are represented here, with thousands of office workers commuting daily from other parts of Stockholm. Academia is also represented, with research institutes such as SICS, the IT University, and several other university departments with a total of about 4.000 students. During work hours, the Galleria thus is populated by a number of people apart from those going there to shop: office workers going for lunch or picking up the laundry, residents going to the grocery store.

The Galleria is an indoor shopping mall. Originally constructed in 1977, it was re-opened in November 2002 after major rebuilding and is now almost twice the original size. With over 160 shops, a movie theatre with 11 separate show rooms and more than 20 restaurants (most of which in a food court), this is a large mall for Swedish standards.

### A social mobile service for Kista Galleria

We envisage a service where a physical domain, Kista Galleria, is overlaid with social trails of user behaviour. At the time of the study presented here, the service was roughly sketched out to serve as a basis for investigation of the following research issues.

**Creating social trails and making them visible:** Investigating and testing ideas for social navigation and computation in a real world setting, with real users. Issues of interest are the use of information pull or push; how to make use of the experience of others; how to present context of awareness; and presentation of information on small (baby) screens. The choice of Kista Galleria as a “test bed” for the service was partly made based on the assumption that those working in the neighbourhood are more likely than others to have access to qualified mobile devices. It would be a great advantage for a study if a system prototype could be downloaded to the users’ own devices, used also for other services, instead of only running on special equipment.

**Ad-hoc networks and encounters:** A mobile service should not rely on users being in constant contact with a central server. A more interesting scenario is to get connected to whatever and whoever is “nearby” in some sense. The Hocman service (Esbjörnsson et al. 2002) exploits this relation and transfers information between its mobile users, motorcyclists, as they pass one another on the road. In an encounter in Kista Galleria, one user’s past could serve as a recommendation for the future of another. Not only service users but any devices, as well as servers, could be connected in ad-hoc networks based on proximity.

**Peer-to-peer recommendations:** Closely related to the previous point, it should be possible to base collaborative recommendations on local information, not only on large data collections on servers as in the classical case (see e.g. Konstan and Riedl (2003) for a description of recommender systems). Doing the actual computations locally on the device, on fragmentary data, is an interesting challenge for recommender systems.

**Use of existing technology, preferably mobile phones:** Mobile services of the kind discussed here are on the verge to become technically possible, but we are not there quite yet. Hence, many mobile services developed to this date need to use special devices and computer equipment, which has to be carried around in an extra bag. However, we strongly believe that a successful mobile service has to use existing technology, preferably technology already in the hands of the prospective users. An alternative that has been tested is to use PDAs combined with W-LAN. The Hocman service mentioned above is one such example. We want to go one step further and use mobile telephones. As a starting point, we are especially interested in the Sony Ericsson P800 device, a combined PDA and mobile phone equipped with GSM, GPRS, IR and Bluetooth connectivity.

### **Studying mobile systems**

Research on mobility and mobile systems has long focused on work settings, and particularly on collaborative work. Office work where people are physically co-located is the norm, which reduces mobility to a flaw, something to compensate for by connecting to networks, using cameras, allowing for shared work areas etc. Our interest instead lies in lifestyle applications. We do not depart from some perceived need, but want to look for opportunities to support, entertain or possibly provoke users going about their normal activity. In order to do this, we need to know what the normal activity is.

By restricting the service to a mall (albeit a mall with certain characteristics), we are not only making it easier to discern these activities, but also to gain an initial understanding of Kista Galleria as a place (Crabtree 2000). What are the characteristics of the people moving in Kista Galleria? How do they move? Where do they go, where do they stop, and what do they do there? What (if any) mobile technology do they already use, and in what situations?

Studying mobile technology introduces new challenges compared to the study of stationary technology and situation. Users of such technology are by definition mobile and likely to use the technology in many, often un-anticipated situations. Weilenman (2003) describes five different studies of mobile technology. See also Brown et al. (2001) for a collection of papers on different aspects of mobile and wireless technology.

### **METHOD**

To gain an initial understanding of the domain, we performed a small scale field study inspired by ethnography (Hammersley and Atkinson 1995; Dourish 2002). Ball and Ormerod (2000) list ten characteristics of a prototypical case of ethnography:

1. *Situatedness* - Data are collected by a participant observer who is located within the everyday context of interest (e.g., a community of practitioners).
2. *Richness* - The observer studies behaviour in all manifestations such that data are gathered from a wide range of sources including interviews, team discussions, incidental conversations, documents, as well as non-verbal interactions.
3. *Participant Autonomy* - The observees are not required to comply in any rigid, predetermined study arrangements.
4. *Openness* - The observer remains open to the discovery of novel or unexpected issues that may come to light as a study progresses.
5. *Personalisation* - The observer makes a note of their own feelings in relation to situations encountered during data collection and analysis.

6. *Reflexivity* - The observer takes a reflective and empathetic stance in striving toward an understanding of the observee's point of view, the observer taking account of, rather than striving to eliminate, their own affects upon the behaviour of the observees.
7. *Self-reflection* - The observer must acknowledge that any interpretative act is influenced by the tradition to which they themselves belong.
8. *Intensity* - Observations must be intensive and long-term, such that the observer should become immersed in the ongoing culture of the observee's environment.
9. *Independence* - The observer must not be constrained by pre-determined goal-set, mind-set or theory.
10. *Historicism* - The observer aims to connect observations to a backdrop of historical and cultural contingencies.

(Ball and Ormerod 2000, p 150)

Field data was collected from participant observation (Hammersley and Atkinson 1995). We were aware of the fact that we were "natives"; our research institute is located in the Kista region, and we ourselves are potential users of the service. Nativeness creates difficulties in the ability to observe what is really going on, remaining *open* (4), *self-reflective* (7) and *independent* (9) as an observer. Video filming was considered, but rejected as being too obtrusive. Instead, observations were made covertly, utilizing the fact that the observer was no different from the observees.

Perhaps the most important characteristic of prototypical ethnographic work is that it is intense and long term. In this respect, our study was an example of *quick-and-dirty ethnography* as discussed by Hughes et al:

"What the 'quick and dirty' fieldwork provides is the important broad understanding that is capable of sensitising developers to issues which have a bearing on the acceptability and usability of an envisaged system rather than on the specifics of development."

(Hughes et al. 1995, p 61).

A discussion of approaches to and strategies for ethnography under time limitations can also be found in Millen (2000).

Observations were made on four occasions over a one week period in February 2003. All observations were made around lunch time on work days. A single observer moved around the Galleria with a focus on the food court. Field notes were first made vocally. Voice notes were later abandoned in favour of written notes, owing to the difficulty of making voice notes while staying inconspicuous.

Although all behaviour was of potential interest, we were especially interested in how mobile technology such as mobile telephones and PDAs were used in the Kista Galleria setting; such observations were thus actively sought.

Most observations were made concerning people on the move. As a consequence, all observations were short, covering part of the activity of the person being observed. Snippets of conversations overheard were noted when relevant. The handling of a mobile phone or other electronic equipment served as a trigger for note taking. Since 86% of the Swedish population has access to mobile phones (PTS 2003), observations of phone use were too common to be noted in most cases. Interesting behaviour was also noted even if no mobile equipment was involved, especially related to patterns of movement through the mall.

## FINDINGS

We were able to identify a number of places, activities and telephone behaviour, as well as characteristics of the people visiting the Galleria.

### The people (prospective users) and their technological equipment

Construction work was still going on at the time of the study. Among the visitors there were construction workers in overalls, covered in paint, with headphones etc. Some visitors seemingly lived in the neighbourhood: old or young people, coming in through the entrances from the residential area. Others were obvious office workers, wearing badges, having lunch meetings, passing through at great haste and in large numbers at the arrival of the subway early in the morning.

As stated above, mobile phones are commonplace in Sweden. Office workers could also be expected to work at telecom and IT companies, and thus be expected to be equipped with even more technology, such as PDAs, modern and powerful mobile phones, headsets and other electronic equipment. Observations supported this expectation:

A man, 35, walks with the cord to the hands-free right across his face [...]

Another observation also revealed qualified telephone use:

Meeting two guys, age ~28, walking at medium speed [...]. One guy takes out his telephone, touches some buttons, wipes the display with his hand and hands the phone over to his friend saying "I downloaded some <inaudible> from the net yesterday".

The study took place at the end of February 2003, shortly after the release of the Sony Ericsson P800 mobile telephone. The P800 is quite a large telephone and PDA in combination, equipped with a camera. The camera lens is very visible and makes the device easy to recognize at a distance, and we observed them at 4 or 5 occasions in the hands of men in their thirties<sup>1</sup>. These observations were of strong interest to us since we wanted to use the Sony Ericsson P800 as the platform for our service.

### Places and movement

Following Harrison and Dourish' (1996) definition of place and space, we observed a number of places defined by their use, and a number of places defined mostly by their spatial features, such as shops, restaurants, the subway entrance etc.

#### *The food court – a canteen*

The heart of the Galleria is the food court, consisting of about 20 restaurants with a common seating area. At lunch time, most movement is directed to and from this area. The seating area is divided into sub-areas with different kinds of chairs and table sizes, allowing for more private seating.



**Figure 2.** The food court. Pictures taken at lunch time

We made many observations of people wearing their badges openly, especially in the food court. In comparison, such behaviour was less common at other times of day or e.g. at the subway station.

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<sup>1</sup> It should not be taken for granted that these men are early adopters. They might be Sony Ericsson employees from the nearby Sony Ericsson office.

Badge occurrence combined with numerous observations of groups of 3-5 people having lunch together conveyed a strong impression of the food court being used in the same way as the canteen at work.

### Roads

Shops and restaurants in the mall are accessible from a number of corridors leading from one end to the other of the roughly cross-shaped building, crossing each other at straight angles. Some corridors are wide, with space for a café, some have trees. Narrower passages separate the restaurants in the food court from the seating areas.

All passages of course allow for people to transport themselves from one point to another. However, we use the term *road* to refer to any area where transport takes place. Small parts of roads lie outside of passages, such as cutting a corner using the entrance area of a shop. In the food court, the area between restaurant counters and the seating area is also used for road purposes, although with great difficulty at lunch time.

The subway aligns the longer side of the Galleria on the residential side. This entails that office workers arriving by subway need to use one of two passages leading from the two subway exits, through the Galleria, to the Kista office area. This behaviour is very obvious in the mornings before the shops open: every 6-10 minutes a train arrives, transforming an empty space into an *express road* for a few minutes. At lunch time, express roads are also formed between the food court and the two entrances towards the office area (Figure 3).

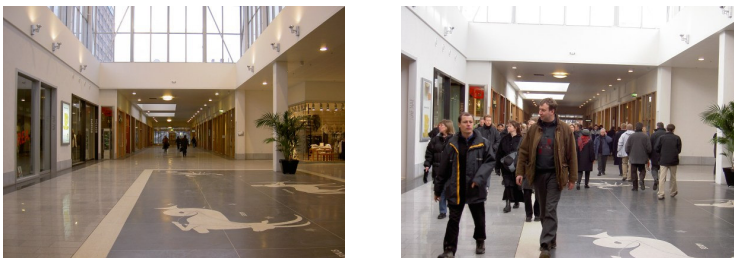


Figure 3. Varying traffic through one of the entrances, at 7am (between subway arrivals) and at lunch time

### Waiting rooms

All entrances are used as *waiting rooms*, especially so one of the entrances from the office area (Figure 4a). Here, we observed people standing still and looking around, taking out their phones making calls, and being met and greeted by other people:

Four construction worker guys under 30 are standing by the little information desk, being noisy and moving around a little, one of them is on the phone saying: “we are outside the tobacco store”.

Open areas around the food court were also used as waiting rooms. Inside the food court, smaller waiting rooms were used by people with food trays, waiting for companions who bought lunch elsewhere. This behaviour was especially observed around the stairs to the upstairs seating area (figures 2 and 4b), where there is a little more room.

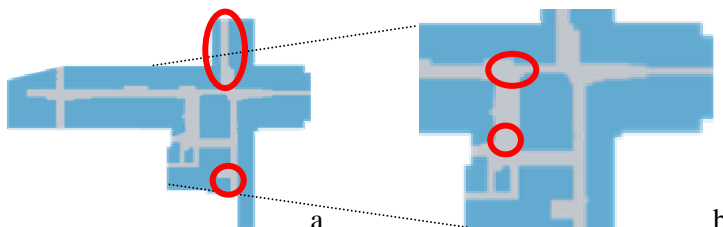


Figure 4. Waiting rooms at exits (a) and around food court (b)

### Shelters

By *shelters* we refer to places where it is possible to be private. There are few shelters available in the Galleria. The architecture is open and well lit, with glass walls and high ceilings. The observer

observed herself having problems finding places where notes could be made discretely. One observation was made of a person actually managing to find some physical privacy:

A woman is standing as protected as possible, near the “MQ” store where there is kind of a corner. Standing and talking in an obviously<sup>2</sup> private telephone conversation, very expressive face while the body language tries to protect her and make her private and invisible.

### **General activities**

A number of general activities were observed. Some of these were obvious, such as walking from one place to another or having lunch. Some activities were more interesting, such as group coordination.

#### *Eating, walking and talking*

By spending time in the food court, we could not help making observations of people eating. Talking on the mobile phone was to ordinary an activity to be observed at each occasion, but observations were slightly less frequent at the lunch tables. One P800 observation was made:

Guy in his thirties sitting at the lunch table handling a P800 (not talking). In company with at least one more person. [...]

People were also observed walking alone and in groups, especially to and from the food court. For example, people would emerge from the seating area one by one or in pairs, and regroup outside the food court where there is more room.

#### *Shopping and browsing*

Very little time was spent observing shopping behaviour. Most of the observation time was spent outside of shops, in the common areas of the mall. The few shopping observations made were mostly after-the-fact: we would observe people carrying shopping bags from the Galleria shops.

#### *Gathering and coordination*

A set of activities were related to the organisation of a social event such as a lunch with others in the food court. This involved finding the others, possibly by calling but also by waiting; deciding where in the seating area to reunite; forming smaller groups deciding from what restaurant to buy food; and finally to locate the others in or outside the decided seating area. The last goal would be accomplished by waiting, looking around and possibly making a phone call on a mobile phone.

#### *Playing*

Two observations were made of people playing games, one on a telephone, and one on a PDA.

### **Telephone behaviour**

We were especially interested in telephone behaviour, and many observations were triggered by telephone use.

#### *Talking, privacy and silent calling*

People were observed using their mobile phones wherever we turned. As discussed above, the Galleria provided little room for shielding off others from the conversation. Some people did not seem to care:

By the Sawadee restaurant there is a man with two (heavy) bags from Systembolaget [liquor store], talking loudly and without embarrassment although not very much (mostly “yes” (silence) “yes”... “OK, you can put it in my mailbox”). He is standing in the middle of the passage, dead still, as if completely unaware of not being in private, as if inside a bubble.

The lack of physical shelters creates a need for achieving privacy by other means. Murtagh (2001) discusses the use of gaze and body language for managing telephone conversations on the train. We observed the same kind of behaviour:

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<sup>2</sup> The word “obviously” was used in this field note to convey a strong feeling of the conversation being private. Using Ball and Ormerod’s (2000) characteristics this should be regarded as a *personalization* (5) of the observation.

Guy 40 no coat walks and talks, has left his company? Moves slowly and aimlessly over a large area from food court to information desk and disappears from view... Closed body language with arms across the chest (although one hand keeps the phone to his ear) and head slightly bent forward (slight “vulture neck”).

By walking around this person also made it difficult for anyone else to overhear the conversation. A similar strategy was observed for phone-talking members of groups on the move. The person talking on the phone was observed to walk and talk at the same speed as the rest of the group, but at a slight distance.

We were able to observe very little use of SMS but several occasions of *silent calling*, possibly indicating checking voice mail. By silent calling we mean attentively holding the telephone to ones ear without talking, for a longer period of time than would be needed to realize that a number is occupied or no one is answering ones call.

#### *Glancing and phone walking*

Every once in a while we would observe people *glancing* at their phone: taking it out from the bag or pocket, taking a quick look and then putting it back again.

A young man, about 25, is distributing advertising notes, no jacket. He takes a phone from his back pocket, looks at it and puts it back again.

A woman in her late twenties walks by, takes a phone halfway out of her purse, glances at it and lets it slide back in again.

Somewhat to our surprise, we also made several observations of *phone-walking*: people carrying the telephone in their hand without seemingly paying any attention at all to it. Although we could not know why from the field work, our own telephone behaviour suggests two possible reasons for phone walking: not having anywhere to put the phone (e.g. if you usually keep it in your jacket and have taken your jacket off), or expecting a call that you don't want to miss. The second reason probably also holds for glancing.

#### *Logging on and off*

A re-occurring observation was of people coming out of the food court, taking their phone out and looking at it, possibly also putting on hands-free equipment. We interpreted this behaviour as *logging on*, making one self available again.

Although not supported by any clear observations, a corresponding *logging off* must have taken place. A possible explanation for us not observing this behaviour is that it could take place anywhere on the way to lunch, before arriving at the food court. A general impression, poorly supported, suggests that logging off takes place when entering the Galleria.

### **INPUT TO THE DESIGN OF THE SERVICE**

We are aiming at introducing a service that, although entertaining and helpful, is not constructed to meet any urgent need. A consequence of this is that if we rely on the user taking the initiative to request the service, such initiatives might be sparse. On the other hand, we do not want the user to feel disturbed and crowded, by pushing the service too hard and possibly at inappropriate times. The best solution would be to offer service information to the user on occasions when the device is used anyway for other reasons.

If our proposed service is offered on mobile phones, the telephone behaviour findings of this study point to interesting new possibilities. Glancing, phone walking and logging on/off behaviour offer opportunities for the service to manifest itself. By utilizing occasions when the telephone is looked at anyway, there is less need to alert the user that new information is available.

Even if the service is allowed to manifest itself in this unobtrusive way, the user still needs time to view and react to the information and possibly to interact with the service. The extended use of waiting rooms suggests a time and place for such interaction to take place.

The study also indicates that people visiting Kista Galleria have access to qualified mobile technology, and that there are people who would not be shy to interact with such equipment in public.

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