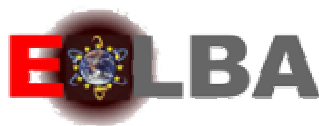**Contract N°:**   **IST-2001-36530**

Project acronym: ELBA

Project full title: **European Location Based Advertising**

Milestone 4

Business Models for LBA

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	Tologar Ltd. HERO

Project starting date:	1 May 2002
Author:	YellowMap AG
Document N°:	ELBA-M-4-DLR
Version:	2
Date of issue:	End of Project

Index of content

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CHECK: Bernhard Koelmel	PROPERTY OF: **ELBA consortium**	
VERSION: 2	Project funded by the European Community under the IST Programme (1998-2002)	

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Glossary of Terms

3G	Third Generation of Mobile Communication Technology: Third generation mobile device technology, expected to become more prominent in the market between 2003 and 2005. 3G technology promises enhanced reliability and quality, improved data transmission speeds, and improved bandwidth (including the possibility of delivering multimedia applications).
A-GPS	Assisted GPS
Address	A location consisting of a street address, like " Wilhelm-Schickard-Str., 12 76131 Karlsruhe"
ARPU	Average revenue per User
ASP	Application service provider
ATM	Automated Teller Machine
Cell	Map unit or uniform subsection of the earth that makes up Cell Storage
Cell-ID	Cell Identification
CEO	Chief Executive Officer
CMS	Content Management System
CRM	Customer Relationship Management CRM is at the core of any customer-focused business strategy and includes the people, processes, and technology questions associated with marketing, sales, and service. Customer Relationship Management (CRM) is about finding, getting, and retaining customers
CPS	Cambridge Positioning Systems
Destination	The end point on a route.
DNS	Domain Name Server
End Point	The termination location on a route. Sometimes called destination.
ELBA	European Location Based Advertising
E-OTD	Enhanced Observed Time Difference
Geocode	A process to derive the location of (or closest link to) a point on a map, given, for example, an address, cross street, city, or zip code.
Geographic Database	A database that includes both coordinate (graphic) and attribute (non-graphic) information. This data is displayed as points, lines and polygons.
Georeference	To establish the relationship between two-dimensional coordinates on a planar map and known real world, three-dimensional coordinates.
GIS	Geographic Information System: A spatial database management system designed for the

	capture, storage, analysis and display of geographical data for the purposes of decision-making and research.
GPRS	General Packet Radio Service
GPS	Global Positioning System: A satellite-based navigation system allowing the determination of the geodetic coordinates (i.e. longitude, latitude and height) of a point on the earth's surface with a high degree of accuracy, given a suitable ground-based GPS receiver. The network of satellites is owned by the U.S. Department of Defense and as such, the accuracy of the signal used to be intentionally degraded for non-U.S.-military users.
GSM	Global System for Mobile Communications
FTP	File Transfer Protocol
Image Mapping	Rendering graphic representations of maps to various degrees of specificity via zoom-in/zoom-out, in a timely manner.
HTML	Hypertext Markup Language
IP	Internet Protocol
LAN	Local Area Network
M-Commerce	Mobile Commerce
MMS	Multimedia Messaging Service
OEM	Original Equipment Manufacturer
PC	Personal Computer
PCS	Personal Communications Service
PDA	Personal Digital Assistant
POI	Point of Interest: A point feature typically known by other than its address. A hotel is an example of a POI. The Transamerica building is an example of a point of interest. POIs are grouped by type into categories; "restaurants" is an example of a category.
POI category	Points of interest are grouped by type into categories; "restaurants" is an example of a category.
POI type	Same as POI category.
Raster data	Spatial or map data that is divided into discrete units. Contrasts with vector data.
Reverse Geocode	A process to derive the location of (or closest link to) a point on a map, given a (longitude, latitude) pair.
RFID	Radio Frequency Identification
Route	A series of connected links from a start point (or source) to an end point (or destination).
Routing	Providing travel guidance on how to get from point to point given a starting point and a

	destination point.
SMS	Short Message Service
TV	Television
UMTS	Universal Mobile Telecommunication System
USB	Universal Serial Bus
USP	Unique Selling Proposition
U-TDOA	Uplink Time Difference of Arrival
Virtual Map	Map unit identified by a location-dependent ID, database vendor, timestamp and layer type (road, polygon, administrative, zip code, and text).
WAN	Wide Area Network
WAP	Wireless Application Protocol: A specification authored by Ericsson, Motorola, Nokia, and Unwired Planet (now Openwave) for accessing information via a variety of wireless devices, including mobile phones, pagers, and Personal Digital Assistants (PDAs).
WLAN	Wireless Local Area Network: A network for mobile devices which can connect via a wireless (radio frequency, or RF) connection. The Institute of Electrical and Electronics Engineers (IEEE) 802.11 standard specifies the technologies for wireless LANs.
XML	Extended Markup Language
Zoom Level	Also called map scale, this is the relationship between the size of the displayed map and the corresponding size of the real world.

1 Executive Summary

The purpose of this document is to provide an overview of LBA (Location Based Advertising), thus to investigate the feasibility of this innovative kind of advertisement. In doing so, the nature of LBA will be described to reveal its potential as well as its risks. Furthermore, an examination of possible success factors will assist the development of LBA as a new business opportunity. The objective is to capture possible business models based on the proceedings and findings of the ELBA project. Due to the highly different nature of the use cases, a business model is needed that embodies a generic approach. The idea is to establish a model which can be mapped to different scenarios with varying conditions while still remaining a meaningful and pragmatic solution. Thus, the examination of possible business models for LBA contributes to the efforts of the European industry to exploit LBA as an innovative and promising advertisement approach. Therefore, this document is to be understood as to support European companies which endeavour to participate in this field of business.

2 Definitions

2.1 Business Model

There are plenty of definitions of the term business model which can be found in literature. Some of them are highly theoretical whereas others are close to best-practice examples on the market. Some of them refer to traditional business and others to the "new economy", the internet in particular. Although they might strongly differ in some cases, they do not necessarily have to be contradictory but can even be complementary instead.

In the following workout, a business model is understood as an abstraction of how a business works, i.e. it is an approach to capture and define the structure of a company or the whole value chain existing in reality. The level of abstraction depends on the objectives that the business model pursues.[1] For the mobile economy, a business model is a prerequisite for the definition of a sustainable service architecture that supports the required functionalities of the whole business life cycle. The objective of such a business model is the appropriate description of relationships between involved parties as well as their particular roles and the interaction points. Such a point enables a standardised contact and information exchange between business partners. This allows the participation of each business partner with freedom in development on one side and smooth integration on the other side.[2]

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[1] Cf. Stähler (2001), p.42

[2] Cf. Wireless World Research Forum (2001), p.35

The following unique definition of a business model will be chosen for this particular report.

Definition

A business model, as an abstraction of reality, describes how a business opportunity shall be exploited by defining the value proposition, the architecture, and the revenue model of it.

1. The value proposition describes the benefit which a customer of the targeted segment or other participants involved in this business can obtain.

2. The architecture defines the value chain with its actors and their roles, as well as determines how the benefit can be generated.

3. The revenue model describes the monetary flow and allocates the corresponding sources.

2.2 Location Based Services

Location Based Services (LBS) basically are services which are offered to the users based upon their geographic location. Those consumer or business services offer the possibility to locate persons, vehicles or other resources and request a location-sensitive application to run. The request for location can be originated from the user himself, from the network operator or from an application provider. In all cases, the user has to give his permission for any location request. LBS can also be automatically triggered whenever the user reaches a specific location. This aspect is particularly interesting for Location Based Advertising.

Ovum, as one of the most established analysts for telecommunication and information technology, defines LBS as *"network-based services that integrate a derived estimate of a mobile device's location or position with other information so as to provide added value to the user."*[3]

The LBS procedure generally consists of an impulse initiated to trigger the determination of the user's position. Based on that, a service is provided utilising this information to deliver the corresponding results to the user. This principle of how LBS works is described in Figure 1.
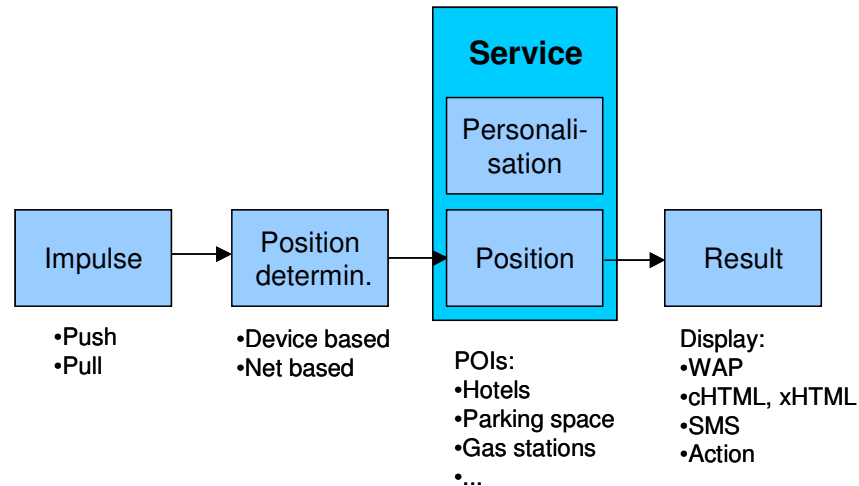
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[3] See Ovum (2000), p.30

Figure 1: LBS principle

Source: Amberg

According to the GSM Association[4], there are three basic types of LBS: push, pull and tracking. A push service can, for example, be based on the registration of the user to receive traffic information every morning, without the necessity for him to make an explicit request each morning. The corresponding pull scenario would be: the user sends a request to receive the current traffic information, i.e. he pulls the information when he needs it. A typical tracking service is asset tracking where the location of a thing or a person is constantly known.

2.3 Location Based Advertising

There is no existing definition of Location Based Advertising (LBA) since there is no particular literature about it. The study "Mobile Location Services: Market Strategies" by Ovum Ltd. partly considers LBA, however, it leaves it undefined. Besides that, LBA is not the prime focus of the study, but it is just briefly discussed as one of the possible applications deriving from the field of Location Based Services.

LBA takes advantage of the knowledge about the user's position to enable the sending of advertisement messages. The advertisement refers to stores and other entities which are located in the vicinity of the user. Within this context it is not sufficient to solely know the user's semantic location, such as at home, at work etc. It is mandatory to precisely determine the user's location in terms of geographical position, only then the advertisement can generate added value for the user.[5]

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[4] Cf. GSM Association (2003), p.12

[5] The viewers of a TV show, for instance, are known to be at home, however this knowledge cannot be exploited in respect to LBA.

Definition

Location Based Advertising is an advertisement approach which exploits the knowledge about the geographical position of the user to deliver commercial messages of proximate business units to the mobile terminal.

This definition does not make any restrictions considering the underlying technology that is used to enable the execution of LBA. Mobile communication networks as well as local systems like Wireless LAN (WLAN) or other special solutions can therefore be considered as the underlying technology to deploy LBA.

3 Market Overview

3.1 The M-Commerce market

Despite worldwide growth, mobile phone service operators had a tough time in 2002, with many of them incurring debts from licensing and deploying 3G networks as income from mobile data services failed to materialise as swiftly as expected. However, the climate has improved in 2003, with an increasing use of mobile data applications.

On average, European operators now earn up to 10% of their average revenue per user (ARPU) from text messages and other data services. The major revenue generators in 2003 have been wireless entertainment applications such as games, ring tones, and other value added SMS-based services. Operators hope that wireless entertainment will help to attract mainstream consumers to more advanced voice and data services. Early adopters of these new entertainment services are already moving towards other new data applications, such as wireless web browsing, email access, and location-based services.

A compilation of M-Commerce revenue projections from different analysts for the US market is given in Figure 2. It is conspicuous that the different market projections strongly diverge from each other. This is on the one hand due to the fact that the M-Commerce market is still emerging and therefore hard to predict and on the other hand as the forecasts were made on different dates.

M-Commerce Projections	
Company	**2004 Revenue Projection (in billions)**
Ovum, Inc.	$19.2
Merrill Lynch	$20.0
Jupiter	$1.7
Herschel Shosteek Associates	$0.7
Myers Reports	$4.74
Average	**$9.27**

Figure 2: M- Commerce Projections

(Source: Myers Mediaeconomics)

3.2 The Location Based Services Market

Moreover Ovum predicts specific figures for the Location Based Services market. Especially Location Based Advertising will gain the highest revenue shares within the next few years.

- By 2006 mobile location services will generate more than $20 billion
- Most services will involve micro-payments from a large number of customers

Overall, the average revenue per user (ARPU) of mobile location services is low, with the exception of niche services such as fleet management. The ARPU for mobile location services is expected to decrease substantially until 2006, while the market is expected to increase as these services will become commodities once they achieve high penetration.

- Location-enabled mobile e-commerce will overtake other services by 2005

Until 2004, tracking information and call routing together will constitute the bulk of mobile location services, together generating revenues of $4.7 billion in 2004. However, in 2005 the contribution from mobile e-commerce and advertising will reach $8 billion, greater than the sum for information, tracking and call routing services ($5.8 billion).

Information services will form the biggest proportion of the total revenues until 2004. From 2005, mobile e-commerce powered by location will contribute a larger percentage of total revenues than information services, and by 2006 even mobile advertising enabled by location will be greater than information services.

As shown in the following figure, $4.5 billion will be spent on advertising over mobile terminals using location as a trigger. Location services revenues will level off, with the market for information services decreasing to $2.5 billion. Tracking services will stabilise at $2.1 billion and call routing will be worth $450 million.
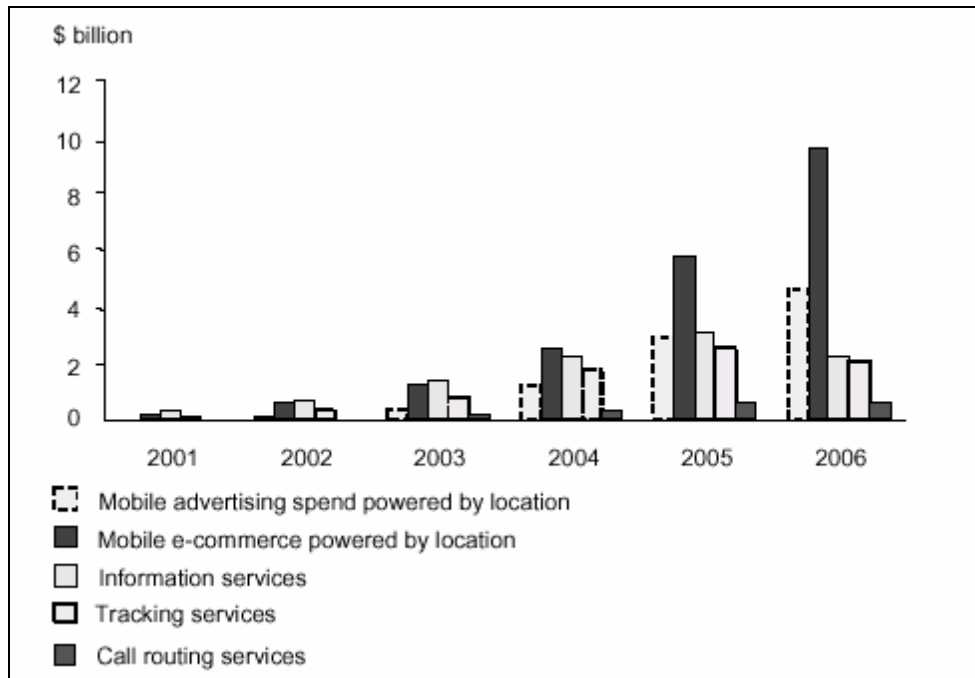
Figure 3: Revenue Forecast of Location Based Services

(Source: Ovum)

3.3 The Location Based Advertising Market

LBA is the part of Mobile Marketing which exclusively focuses on advertisement, and which uses location as a trigger for the delivery of advertising messages. Mobile Marketing, in contrast, does not necessarily make use of the knowledge about the user location. Besides that, Mobile Marketing comprises more than mere advertisement. Although LBA has been mentioned in a benevolent way by multiple studies[6], reality shows that there is no LBA market as such to date, and there are no companies which solely focus on the provision of LBA. However, some Mobile Marketing companies have started to consider the current location of a user as a catalyst for their campaigns.

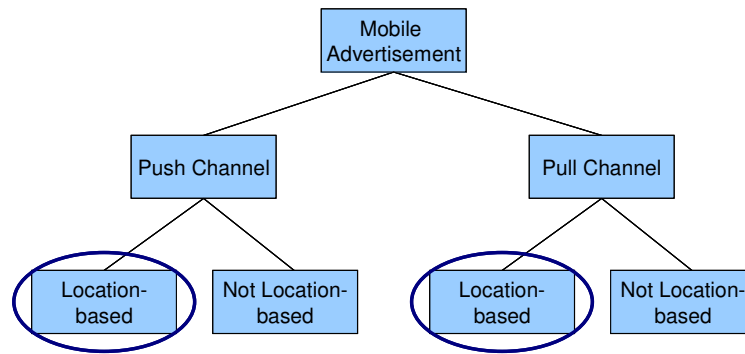[6] E.g. Durlacher Research (2000), Ovum (2000)

Figure 4: Forms of mobile advertising

According to Durlacher Research (2000) mobile advertising which exploits the knowledge about the user position will be the top M-Commerce application with a stake of 23% of the total M-Commerce revenues in 2003. Another significant contribution to the market development derives from personalised location-based shopping services. It is imaginable to encounter a mergence of both services as LBA can be integrated very well into shopping assistance services.

M-Advertising Projections	
Company	**2005 Revenue Projection (in billions)**
Jupiter	$2.1
The Yankee Group	$6.0
The Kelsey Group	$6.8
Myers Reports	$2.6
Average	**$4.4**

Figure 5: M-Advertising Projections

(Source: Myers Mediaecnomics)

Myers Reports suggests that m-advertising will make up 1% of total media spending, which equates to $2.6 billion, on average a sum of about $4.4 billion is mentioned.

4 The Value Chain

Structuring the value chain for LBA business models we have defined nine major groups of entities.

| Retailer | Mobile Advertising Agency | Application Developer | Content Supplier | Operator | LBS Middleware Provider | Location Technology Vendor | Terminal Manufacturer | User |

Figure 6: LBA value chain

These nine groups interact and overlap with each other; they supply each other and other players in the mobile industry, including infrastructure and handset manufacturers, network operators, portals and systems integrators.

4.1 The retailer

The retailer is the first link of the value chain and the initiator of LBA activities. It is typically a store or a shopping centre that triggers the LBA process by promoting its sales to the customers. But also restaurants, coffee shops, cinemas or other market participants can adopt the role of a retailer.

4.2 The mobile advertising agency

Although LBS are still in an infancy stage of development, some companies have emerged on the market, positioning themselves as a solution provider for mobile advertising. They offer cross-media[7] marketing campaigns which do not necessarily use location as a trigger. Nevertheless, a convergence towards LBA is very likely and seems to be a matter of time.

The mobile advertising agency is a new market entity that cannot be described as a traditional advertisement firm as such, due to its technological know-how, but it is not a pure technology provider either, as it also tackles other tasks that go beyond technology, like creative work. The combination of both enables this entity to position itself as a unique player in the value chain that is specialised in the field of mobile advertising.

A typical mobile advertising agency establishes a contact to advertisers, takes care of them, sets up a media plan for the campaign, does the creative work, approaches the target group and provides the technology.

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[7] E.g. through the combination of mobile phone and television.

4.3 The application developer

The application developer is the decisive link in the value chain that enables the modification of a location-based service towards location-based advertisement. The application developer is probably the entity that adds the highest proportion of value to LBS.. The role of the application developer is expected to grow as technology progresses, especially with the rollout of 3G, multimedia advertisement possibilities will be taken to the next level. New and better ways to integrate advertisement content into applications can significantly increase user acceptance.

4.4 The content supplier

Content suppliers play an important role in the quest to establish LBA. Only if the content is interesting and contains obvious benefits, users will open to this new advertisement approach. Even if all the other links play well together, but the content quality is not high enough to convince the user, then LBA will fail to enter the market successfully and least of all become a mainstream success.

A close-up inspection of the content supplier reveals two distinct assignments that can be defined, content provision and content aggregation..

In most cases, typical sources for content are media companies, such as newspaper and magazine publishers, TV and radio stations, internet portals or entertainment companies. LBA and LBS can be a chance and a threat to traditional content providers at the same time. It is expected that the digital content provision, especially over the internet[8], will win over the conventional one, thus the exploitation of the mobile device can help the traditional content sources to migrate to the digital business world and assure viability.

The content aggregator repackages available data for distribution to wireless devices. Especially in the finance sector this approach is very popular, e.g. combine company information with stock info and business news.

4.5 The operator

The operator is the entity that provides the basic infrastructure for LBA, like the mobile communication network, the wireless local area network or systems embedded in public transportation. The operator's infrastructure is the backbone technology that facilitates and enables the exploitation of LBA. That is the reason why the operator is an essential player in any LBA business cases.

A typical representative of this category, and probably the strongest in respect to technological and monetary aspects, is the mobile network operator. Its big advantage is the

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[8] The big disadvantage of the internet, however, lies in the attitude of the users who expect content to be available for free.

maturity of 2G which is sufficient for LBA at the early stage, the nationwide coverage as well as the high penetration of 2G+ handsets. With these prerequisites it has a very good chance to gain a high stake in the LBA market. Since the mobile operators have to carry an enormous financial burden on their shoulders due to the UMTS licences and the consolidation of the telecommunication sector, they welcome new applications that have the potential to establish new sources of revenues.

The second category of operators are the providers of local systems such as wireless local area networks, a technology that has experienced a tremendous growth in importance over recent years. As WLAN works in the licence-free ISM band at 2.4 GHz, practically anybody can set up a WLAN. This, however, is also the reason for interoperability problems between different solutions.

Besides the mobile network operator and the provider of WLAN hot spots, there is another segment that can take advantage of LBA. The public transport system offers a perfect environment for advertisement. This segment is often not considered in the LBA discussion[9], although it offers enormous advantages. It has become state-of-the-art that many public transport system with fixed routes, such as a metro or a tram, have an onboard computer (OBC). Without any or with little modifications in these systems, these OBCs can be used to measure the distance between to stops and thus to determine the location of the vehicle. This possibility to generate location data can be exploited to offer LBA.

4.6 The LBS middleware provider

The LBS middleware provider is the key to turn M-Commerce applications into Location Based Services. It is the entity which combines mobile applications with the value-adding aspect of location through the usage of a Geographic Information System (GIS) and the matching of pure location data with corresponding information. Without it, LBA would not be able to differentiate itself from common conventional advertising media..

4.7 The location technology vendor

The power of localisation is considered as a decisive criteria when it comes to offer LBS and LBA in particular. Among the most obvious beneficiaries are the providers of such a technology. The biggest challenge this industry has to face is the high number of different technology approaches existing on the market, each with its own significant advantage.

Due to its importance the location technology vendor is in a situation out of which it can come off as the big winner but also as the big loser. This totally depends on the market development and the emergence of a standard.

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[9] The author has made this experience in almost every case of expert interview he has done.

4.8 The terminal manufacturer

The terminal manufacturer can be the producer of any kind of terminal that can be utilised for the execution of LBA, such as cell phones, smartphones, PDAs or notebooks. Even manufacturers of public displays or monitors can be relevant, e.g. LBA advertisement in public transport systems. It can be observed that the borders between mobile phones, PDAs and other electronic devices begin to blur.[10]

The importance of mobile devices will increase in the future, especially when localisation technology can be integrated into the handsets. This will decrease the power of the mobile operator as the traditional owner of the user position and could enable the terminal manufacturers to offer LBS to the customers by themselves.

4.9 The user

The users are positioned at the end of the LBA value chain since they are the target group for this innovative advertisement approach. Although the technical and the economical feasibility of LBA have a tremendous impact on its development, the key success factor to determine the future of LBA remains the user acceptance. In order to convince the users, the industry has to consider the fact that consumers are naturally averse to advertisement, especially with today's overflow of information and bad experiences from the internet and might regard this new kind of information as an intrusion into privacy.

5 Business models

5.1 Determinants of the business models

5.1.1 The components

A business model can generally be categorized by three different criteria. First, it is the basic distinction between the usage of a nationwide mobile communication network and the usage of a local system, like a WLAN hot spot or a public transport system. Second, the type of terminal that is used to enable the display of LBA has to be considered, i.e. to define whether it is a private mobile handset or a public terminal. This, in particular, has an impact on the degree of personalisation of the advertisement approach, and hence determines how appealing and relevant advertisement messages can be generated. Third, it has to be cautiously examined if the advertisement message is to be delivered to the users through a push or a pull mode. Each of the three basic components that describe a business model for LBA consists of two parameters which are defined as follows:

- Operating system ={mobile communication network, local system}

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[10] E.g. Motorola's new handset A920 is equipped with A-GPS and functionalities of a video camera, PDA, MP3 player and gaming capabilities.

- Type of terminal = {private terminal, public terminal}
- Approach mode = {push, pull}

Based on the number of criteria and characteristics there are eight different possibilities of arrangements. Below these arrangements will be referred to as the "basic constellation" or just "constellation" of the business models. Although three criteria might seem to be insufficient to provide an exhaustive image of the business reality, it is however generic enough to describe the encountered business cases. Furthermore, other relevant aspects, besides the basic constellation, are considered for a more precise description of the business models, such as:

- Expected advertisement perception by the users: averse vs. affine[11]
- Peculiarities, such as dominant players
- User owner
- Incentives for the users
- Source of payment
- Special target groups
- Revenue stream
- Typical applications

These additional aspects are also necessary to distinguish those business models that belong to the same constellation but occur in different shapes.

5.1.2 The entities

Based on the value chain of chapter 4, the actors are represented by the following units within the business models. Each unit corresponds to one player of the LBA value chain.

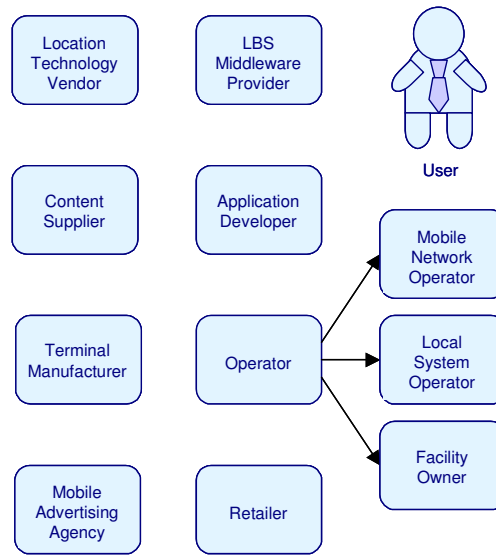[11] Affinity also includes neutral user attitude.

Figure 7: The business model units

To meet the demanding requirements of the different business models, the operator is specified as either a mobile network operator, a local system operator or a facility owner, depending on the case. The last entity describes a group which solely provides the environment in which LBA can be exploited. It is not necessarily the operator of the LBA system.

5.1.3 The relations

This work attempts to create business models which are intuitively understandable at first glance. This particularly refers to the description of relations between participating entities. Most of the approaches in literature use arrows to describe the relations between the participating entities of the business model. However, the usage of the arrows is done in a very unstructured and often meaningless way, thus making it impossible for the readers to capture any information at first sight.

Although this work also uses arrows to describe the relations, the fundamental difference lies in the structured usage, in which the shape of the arrow as well as the direction of the spearhead contribute to the meaning of the relation, as illustrated in the following figure.
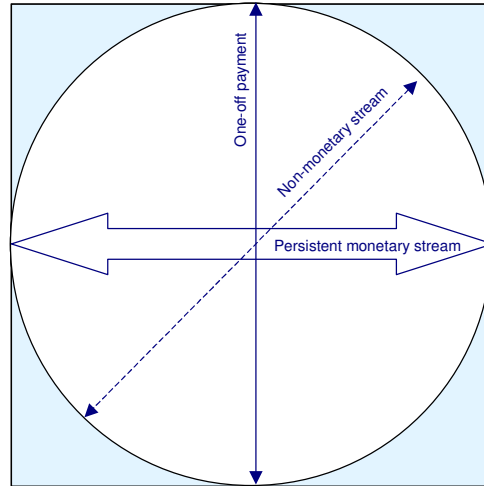
Figure 8: The meaning of arrows

The arrows can be clearly distinguished by their shape as well as their direction. Horizontal arrows describe persistent revenue streams, such as monthly fees, revenue sharing etc., whereas vertical arrows represent one-off payments, that means payments that only happen once and not on a regular basis. Diagonal arrows indicate non-monetary streams, like the flow of information.

5.2 Use Cases

5.2.1 Use Case 1: Karlsruhe

Operating system	Local system
Type of terminals	Public terminal
Approach mode	Push

- Expected ad perception: affinity
- Local system operator-centric
- Local system operator is operator of public transport systems
- Retailers are stores along a route
- Content is very important
- User owner: local system operator
- Incentives for the user: information and entertainment
- Source of payment: retailer
- Target group: passengers
- Revenue stream: retailer → local system operator → content supplier
- Typical application: infotainment system in public transport systems
- Advertisement approach at a perfect situation (time and space)

This scenario is applicable to the operator of a public transport system as the local system operator of LBA. A retailer is typically a store along a transport route whose advertisement is shown whenever the metro or the tram reaches its vicinity, giving the passenger the chance to get off at the next station.

Being the centre of this model the public transport system offers retailers the possibility to do LBA within what is called an infotainment system, i.e. a system that does not solely display advertisement but also usable and interesting information to the passenger (e.g. news, upcoming events). In order to establish such a system, high quality content is required, and therefore purchased by the local system operator. As a decisive link, the content supplier participates in the persistent revenue flow. The operator also has to purchase monitors to display the advertisement, applications to run on the displays, and a middleware to match the commercial content to the transport network. Sometimes the required monitors do not have to be purchased solely for the purpose of LBA but are built in already. In some cases an advertising agency might be involved as well, either employed by the local system operator or, more likely, directly by the retailer. Advertising agencies are basically traditional advertisement firms who primarily do the creative work. They are not necessarily an essential part of this model in respect to its location-based nature.

This kind of LBA approach is expected to reach a high acceptance status by the passengers based on the fact that it is perceived as an information channel rather than an advertisement channel. It is considered as an expansion of service offered by the public transport system. It is very effective in terms of delivering ads within a time frame in which the passenger is bored and pleased to be entertained. Besides that, public transport systems, like trams, are usually passing urban areas with a high density of stores, such as the city centre. It can be assumed that a high stake of the people that take the tram to the city centre is about to go for shopping. Thus, LBA is exposed to them at a time when they are most likely to consume and spend money anyway.

Although this scenario is a typical transport system scenario, it can also apply to fixed wide screens, which are mostly implemented at crowded spots in big cities, e.g. the Time Square in New York or Causeway Bay in Hong Kong. These screens can show commercials of proximate stores. Their location sensitivity, however, only refers to a very limited area, and thus their attractiveness based on the small number of possible advertisers is very low. In this case LBA is associated with its definition in the wider sense.

5.2.2 Use Case 2: Grenoble

Operating system	Mobile communication network
Type of terminals	Private terminal
Approach mode	Pull

- Expected ad perception: affinity
- Mobile network operator-centric
- User owner: mobile network operator
- Incentives: LBA as part of service
- Source of payment: user and retailer
- Target group: tourists
- Revenue stream: user + retailer → mobile network operator → content supplier
- Typical applications: tourist guide, find-the-nearest

In this mobile network operator-centric model the mobile operator is the sole linkage between all players, in particular it is the mediator between the two ends of the value chain. Therefore it receives payments from both the user as well as the retailer.

LBA as part of a pull service, e.g. POI requests, is liable to pay by the user on the one side, and from the retailer who uses this advertisement medium on the other side. As LBA is based on the user's subscription to the mobile operator, the big advantage lies in the established billing relationship between the two entities. This is a decisive criteria for LBS as it enables the charge of so-called micro payments, i.e. payments with a very low monetary value. Application developers, middleware providers and location technology vendors receive one-off payments from the mobile operator whereas the content supplier as an integral part participates in the persistent revenue stream. The role of the content supplier is a very significant one due to the fact that the user normally subscribes to a service based on its appealing content.

It is also imaginable to a have an additional entity between user and mobile network operator, such as a travel agency. In this case the service is primarily focusing on tourists as users. The tourist then is not directly subscribed to the mobile operator but to the travel agency which acts as the service provider, i.e. through leasing of the appropriate mobile handset or just the SIM card. A similar case that has been put into practice is the m-ToGuide project by the Information Society Technologies (IST) Fifth Framework Programme of the European Commission[12].

Another typical application refers to one of the most popular Location Based Services which is known under the service label "find-the-nearest". LBA can be combined with this service, thus to obtain a more appealing appearance.

The big disadvantage of this business model consists in its operator-centric construction. The most dominant actor can shape the development path of LBA, always solely focusing on his own interest, and therefore not necessarily for the sake of LBA itself. The mobile network operator is expected to inhibit any possible entrance of players that might endanger its position and force it to cede some of its LBA market share. However, it is questionable if the mobile operator is able to tackle all tasks alone, especially as LBA does not belong to the core business and it barely has any experience on this field. Furthermore does the direct customer management of every single retailer seem to be exceeding the resources of the mobile network operator. Apart from that this model only applies to LBA within the same mobile communication network. It seems to be infeasible to exploit LBA independently from the specific network because no operator will share the access to sensitive information of its own customers with any competitor. Without the interoperability, however, the development and growth of LBA will be dampened.

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[12] Refer to <www.mtoguide.org> for detailed information about the project.

5.2.3 Use Case 3: Dublin

Operating system	Local system
Type of terminals	Private terminal
Approach mode	Push

- Expected ad perception: affinity
- Local system operator-centric
- Retailer is likely to be the local system operator
- Diversification of advertisement is limited to the product portfolio of local system operator
- User owner: retailer
- Incentives for the user: informative advertisement, discounts and coupons from retailer
- Source of payment: retailer
- User grants opt-in and personal data
- Target group: shoppers
- Especially interesting for large shopping malls or big brand store chains, as well as city centres
- Revenue stream: retailer → local system operator → content supplier

This scenario is typical for the exploitation of LBA in big shopping centres and well-known department store chains or at other highly frequented shopping areas like the city centre. It is very likely that the customers are hard to convince at launch as they are reluctant to accept ads on their mobile devices. Hence, the retailer has to make really appealing offers to its customers in order to convince them, e.g. high discount on selected items. LBA is to be promoted as a service that keeps the customer up-to-date about the latest articles and special sales and avoid the perception of it as being solely an additional marketing channel. It is obviously easier for well-known stores to convince their customers to register to the LBA service than less known shops. This is based on the brand awareness of the shop and the high

level of reliability associated with it. Furthermore, this service is more appealing if it is applicable to more than just one location. This business case is comparable to that of the store cards that have been offered by an increasing number of chains, e.g. Karstadt, Breuninger, Kaufhof etc. in Germany. If the retailer succeeds in convincing the customers, it will, in return, receive precious information about their habits, their likes and dislikes and other relevant data that enables a tailored advertisement approach, which eventually, means to reduce ineffective advertisement costs and increase sales at the same time. It is expected that the customers will not pay for this service but just provide their personal data at the utmost.

Since the two main goals of a merchant has always been to fully understand the customers' needs and based on that to retain them, LBA offers a new opportunity to achieve those goals through establishing a customer profile pool which makes it easier for the retailer to retain customers by serving their needs.

The underlying technology is very likely to be WLAN, possibly in combination with Bluetooth, and is provided by the local system operator with the purchase of the required elements middleware, application and content, in case additional content is needed. The most valuable content, however, remains the information offered by the retailer, like information about new items in stock or special offerings combined with coupons. The operator of a local system can either be the owner of the facility in which multiple shops are located or a single store itself if it is big enough to run it profitably.

Although big stores have the best chances to exploit this business case, it is also possible for small shops to successfully participate in the long run, especially with decreasing WLAN prices. However, small shops should join a strategic network in order to reach a critical mass of users and to be attractive enough for the customers.

5.3 Strategy for the market entry

It is hard to directly compare the three use cases to each other since they are of different nature and represent very diverse business opportunities. Furthermore, it is not possible to make any predictions on revenues for each use case of the ELBA project. However, Use Case 1 has experienced very positive feedback not only from project participants and industry experts, but most importantly from the passengers. Hence, it obviously holds a tremendous potential which can be exploited. The main advantage is the operator-centric nature which makes the deployment of LBA in public transport systems much easier since there are no friction losses due to cooperation problems with other entities. In the long run, when LBA in public transport systems has become an established business application, the scenarios which involve advertising firms are expected to stand a chance as well. Use Case 2 highly profits from its conception as a pull service. Users are expected to be more willing to accept advertisement on their mobile device only if they have explicitly requested a service. It describes a tourist information service which on the one hand is very useful, but on the other hand, this business primarily addresses the very tight customer segment of tourists. But since this pull service is liable to pay, this scenario is only likely in the long run after LBA has established itself on the market as a useful service for the consumers. Use Case 3 suffers from the problematic that it is designed as a push service to the users' mobile handsets. Users are

hard to be convinced to receive advertising messages on a device which is regarded as very personal. Despite the advantage for the users to subscribe to their favourite shops and benefit from possible discounts, the intrusive character of this LBA approach makes it very hard to deploy this business case.

Although some authors suggest to include the strategy for the market entry as a part of the business model, this document takes another approach. The strategy of how to enter the market is certainly a decisive aspect when setting up a business. But it loses its significance after the market entry. A business model, however, is to be understood as a guideline for establishing and maintaining the business over a long period, basically over the whole life cycle of a business. For instance, a company which has been successfully providing a certain product or service for several years does not care about how to enter the market but rather how to maintain and expand its market share.

Even if LBA shows a high potential, interested entities have to consider that it may take some time until mass market demand finally emerges. This raises the question about the right time for LBA providers to enter the market. If this happens too early, they will be coexisting with an ignorant market where no brand can be established and money spent on promotion is a waste. But if they are tardy, they might lose to competitors that have already established own brands in the market.

Thus, LBA providers can choose between two different ways to enter the market. One possibility is to enter and grow with the market. While there is no demand from the mass market, this strategy suggests that LBA providers should focus on the small segment of innovative and pioneering customers. This way it is possible to test LBA and gain experience for its mainstream rollout once the mass market has started to request for this service. The alternative approach is based on the assumption that there is already a latent demand on the market. This potential can be exploited through marketing activities which target at educating consumers with the goal of convincing them. Unlike the first strategy of growing from a niche market to a mass market, this one suggests to actually create the mass market.

In consideration of the fact that LBA still has to struggle with unsolved problems, which however are fundamental, the first strategy appears to be more suitable. Since LBA is a new form of advertisement and one that is perceived as intrusive, the co-evolution strategy to grow with the market constitutes a more decent, and therefore more promising, approach.

While entering the market, there are certain aspects which have to be considered if LBA is to be successful. LBA is expected to reach higher acceptance if it is not promoted as another advertisement channel to the users, but rather as a useful service which can be beneficial to them. It is essential to convince the users of the advantages of LBA. Therefore, highly appealing incentives have to be offered to the users. The types of incentive vary according to the users' individual profiles. LBA will fail if the industry tries to push it on the market at all costs without considering the users' needs. A more promising approach is to integrate LBA into cross-media marketing campaigns at the early stage. This way LBA is introduced to the market in a less aggressive way and gives the users the chance to get accustomed to this new form of advertisement. Another decent way is to merge LBA with some sort of LBS such as "routing", "find-the-nearest" or other services. Thus, LBA is not perceived as another pure

advertisement approach, but rather as part of the useful information which the users have requested. Furthermore, the industry can cautiously observe the market to gain experience for further moves. Within this context, it is easier to introduce less intrusive business cases first, such as LBA in a pull mode, rather than difficult ones, like push LBA. This will increase user acceptance in the long run, and only then LBA will have a chance to reach the mass market.

6 Success factors and barriers

LBA faces external factors which have an immediate impact on its success. The following list of drivers and barriers is to give details about the external factors which have to be considered when rolling out LBA.

6.1 Drivers:

- High penetration of mobile handsets

- Technological development
  Especially progresses in display technologies increase presentation possibilities and thus the quality of ads.

- Societal trends
  The increasing demand for mobility and personalisation, in particular, is supported by LBA (through location sensitivity and user profiling).

- Standardisation
  Standards within the industry lead to a more secure environment for the deployment of LBA and hence to faster developments within this field.

- Legal framework
  The E911 or E112 requirements, for instance, push the advancement of localisation technologies in respect to a higher accuracy which again is beneficial for LBA.

6.2 Barriers:

- Situation of the world economy

- Uncertainties concerning LBA development (profitable mainstream market?, which business models will succeed

- Industry hesitation and user hesitation

- Legal framework
  Uncertainties in the regulatory environment slows down the deployment of LBA. Due to the users' privacy concerns there is a risk of an overregulated legal framework.

- Substitutes as established advertising

- Churn increment

7 Conclusion

The comprehensive analysis of this document has shown the potential of LBA as well as proved its feasibility. The comparison of LBA on mobile devices to other means of advertisement has revealed its superiority in many aspects. Industry experts have certified that this new form of advertisement will stimulate the mobile services market. It has a good chance to establish itself on the mobile market, regardless of how the development path may look like.

However, there are still a lot of obstacles which may put the breakthrough of this business opportunity in jeopardy. The greatest challenge consists in the categorical aversion of the users to receive advertisement on their personal devices. The only way to overcome this challenge is if the industry commits itself to always handle privacy and data protection at highest priority. Security issues are not to be underestimated since the LBA market is very sensitive. One single case of misuse may be enough to doom this business. Within this context, the role of the government must not solely comprise of the protection of its citizens by restricting advertisement possibilities, but rather lies in creating a reliable and accurate framework which considers the consumers' concerns on the one hand and meet the industry's interests on the other hand.

Although operators are likely to play the most important role in the LBA value chain, it is essential for them to establish partnerships with other actors to provide stable LBA services of high quality. After all, a value chain is just as strong as its weakest link. The integration of third parties can therefore be very beneficial to all participants. This opening can lead to new business opportunities for the involved parties and can also increase network usage as well as higher revenues for the mobile operators. Due to their predominance, the mobile operators have an enormous influence on the shape of the LBA industry. Hence, it is expected to encounter many operator-centric business models.

Since LBA is still in its early stage, promising and solid business models are needed to pave the way for LBA to flourish on the market. The most promising approach to do so is to first establish business models which are more likely to be accepted by the users.

The intensifying exploitation of LBS is very beneficial to LBA since the technological foundation of both services are quite similar. This means that LBA does not have to make additional investments in certain fields, like localisation technology or middleware, and may therefore avoid the burden of high initial spending. Moreover, with LBA the LBS expenses can even be faster amortised.

High accuracy in localisation certainly improves the performance of LBA. At this early stage, however, current accuracies are good enough for a satisfying deployment of LBA. The provision of the highest possible accuracy at the very beginning means high initial costs with uncertain results. Therefore, it is better to develop and adapt simultaneously with the evolving market. The prime focus of all efforts should move towards convincing the users, rather than

to offer high technology at low value. With increasing acceptance of LBA, the user demand for more precise LBA will grow automatically as its implementation will.

It is hard to predict whether there will be a mass market for LBA or not. This highly depends on how successful the mobile industry is in convincing the consumers. If the added value of LBA is high enough to attract the users, LBA will certainly not be confined to a niche market but rather become a mainstream approach. Studies and surveys have proven that a high stake of users can be convinced through the provision of appealing incentives. Although incentives are helpful to attract users at the beginning, the industry has to guarantee LBA in a high quality in order to retain them.

This work concludes that LBA will become an important application and a dominant form of one-to-one marketing once larger parts of the consumers have stopped to perceive this new advertisement approach as intrusive and begin to embrace it. LBA may well be encountered under another term, as well as contain CRM elements.

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