



Bringing Autonomic Services to Life

## D6.4— Organizational Model for new communication paradigms (1<sup>st</sup> release)

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## 1 Introduction

### 1.1 Purpose and scope

The overall goal of the CASCADAS project is to develop and validate an autonomic component-ware framework for creating, executing and providing situation-aware and dynamically adaptable communication services. In fact the project's key objective is to implement a tool-kit based on autonomic components (ACE) compliant with the Founding Scientific Principles of CASCADAS: situation-awareness, semantic self-organization, self-similarity, autonomic component-ware.

In particular **WP6** aims at driving, evaluating and demonstrating the effectiveness of all the scientific and technological outcomes of the CASCADAS RTD activities. Alongside these outcomes, T6.2 aims at providing **socio-economic studies**, whose main goal is to describe the link between people, technology and the project also taking into consideration social and technological aspects. These studies are structured as follows:

- Prospective studies: describe the contribution of the CASCADAS project to the “Connected society” focusing on 2020, following the research line of both the customer-side and the supplier-side. Prospective studies concern the analysis of fundamental technologies required to build the Connected Society, and the search for a wide range of suitable applications for those technologies.
- Organisational studies: describe the organisational aspects of Situation-Aware Communications (SAC) and the major implications for the human resources, policies and business management. The main outcome of organisational studies is a business model for autonomic technologies.
- Assessment studies: aim at assessing the potential impact of SAC, in particular by performing a first risk analysis.
- Impact studies: carry out a cost/benefit analysis focusing on the impact of CASCADAS on the Connected Society.

Prospective studies were conducted during the first project year, while the organisational studies will be carried out in the month 12 to month 24 period. The last year will be shared among assessment studies (until month 30) and impact studies (till the project end).



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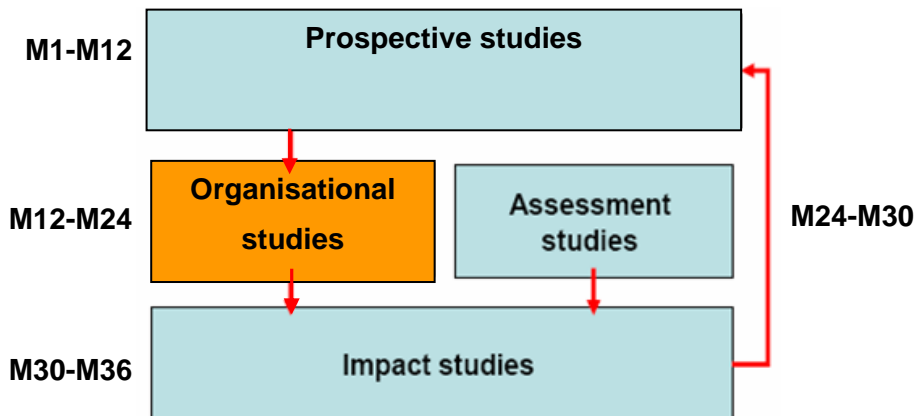


Figure 1.1 - Socio-economic studies structure

The main results of **Prospective studies** (see D6.1 Part B: “Prospective studies on the socio-economical aspects of the Connected Society”) were:

- the definition of the “Connected Society”: assuming the Internet as the starting point, the vision bound to the concept of “Connected Society” [1] is that of a world pervaded by ubiquitous communications facilities, which offer services to the users and are capable of self-organizing and self-preserving their functionalities without any direct human intervention.
- The selection of the most relevant economic scenarios for the objectives of CASCADAS. In particular, the “smooth development of economy” and “constant change of economy” scenarios were selected as the most interesting for autonomic technologies introduction. In the first, the target market will be characterized by the presence of business and consumer customers, while in the second one the target market will initially be represented by business customer.
- The introduction of potential services tied to the CASCADAS vision and customers’ needs in the scenarios introduced.

Prospective studies become the main input of **Organisational studies**. Focusing on the connected society and considering the economic scenarios introduced, organisational studies aim to create a complete and realistic business model. In more detail, they aim at:

- specifying the market trends that SAC technology will meet;
- comprehending how they will need to be faced;
- foreseeing how SAC technology could influence these market trends.

Organizational studies are described in two deliverables: the current (D6.4 “Organizational Model for new communication paradigms (1st release)”) and D6.6 “Organizational Model for new communication paradigms (2nd release)”.

The current document has as its main objectives:

- identifying a conceptual map for SAC technology and analysing the impact of this innovation on the economic subject belonging to the conceptual map.
- identifying an application of a customer segmentation methodology;



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Analysis and studies refer to the demonstration scenario introduced in deliverable D6.3 “Proof-of-concept Design of the Application. Test bed (1st Release)”.

The structure of the deliverable is:

- Section 2 summarizes the demonstration scenario introduced in D6.3 “Proof-of-concept Design of the Application. Test bed (1st Release)”.
- Section 3 is dedicated to the introduction and analysis of the **conceptual map for the business** under consideration; in order to provide a correct and fair idea of the situation that SAC technology will create, the document will refer to Porter schema. It will examine strengths and weaknesses for the main actors.
- Section 4 contains a **conceptual framework for customer segmentation**. This framework will be applied to the conceptual map introduced in section 3.
- Chapter 5 contains the **conclusions** while the Appendix sums up some orientations towards the new business opportunities undertaken by some key players.



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### 1.2 Reference Material

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### 1.3 Document History

Version	Date	Authors	Comment
0.1	13/05/2007	Daniela Guarnieri Monica Corrado Claudio Colmegna	Initial ToC
0.2	15/06/2007	Claudio Colmegna Daniela Guarnieri Richard Tateson	First draft of the complete deliverable
1	30/06/2007	Antonio Manzalini	Revision and submission
1.1	15/05/2008	Daniela Guarnieri Paola Fantini	Implementation of comments of 2 ESR
Final	31/05/2008	Antonietta Mannella	Final Revision



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### 2. Demonstration scenario<sup>1</sup>

In order to focus the socio-economic studies, it was decided to refer to the demonstration scenario already adopted by the project for experimental and validation activities.

This is just an example of application scenarios of a more generic and evolutionary context for future Situated-Aware Communication services (SAC).

The demonstration scenario considers a modern exhibition centre (like a museum or stadium) in which it is possible to find pervasive infrastructure of embedded devices (for example WiFi connections or RFID tags). In this scenario, it is realistic to assume that visitors to the exhibition centre may have a PDA or a smart phone, and that they can be equipped with RFID-based tickets on which to store information about the fact that the user has paid the entrance fee and possibly other optional fees for additional features, and possibly to store additional information about the user.

The exhibition centre is equipped with advertising screens that can be used to display information about the exhibition itself as well as commercial advertisements. The hypothesis introduced appears very realistic and widely applicable. However, as of today, such advertising screens display generic information in a simple cyclic way and independently of the situation (i.e., who is actually close to that screen). A “smart” service devoted to decide what information to display could exploit the availability of contextual information to adaptively decide what information to show on the basis of the people around and activities and interests of these latter ones. It will depend on the person/s in front of this; it’s very useful to notice immediately the value added by this kind of service. In fact, showing information after an evaluation of interests and needs could really increase the financial return of the advertisement. It’s reasonable to think in this case of **personal behavioural advertisement**.

In order to provide these services, a continuous collection and organization of content is strictly required; this task is very challenging, especially considering that the time slots available for advertisement could be very short and the exhibition centre could have dozens of screens. Other difficulties could lie in the wide range of subjects to provide contents for, such as advertiser, media agency, content owner and content aggregator.

In this situation, **automated auctions** are certainly the best solution to handle the sale of time slots; clearly, this type of model revolutionizes the economic negotiation. Currently, the contractual power of content aggregator could be increased by their critical mass, because they are responsible for the purchase of much advertisement space. Auctions eliminate this element: every participant has the same possibility to buy a time slot. From this point of view auctions appear as a force favouring competition, and hence value creation [2].

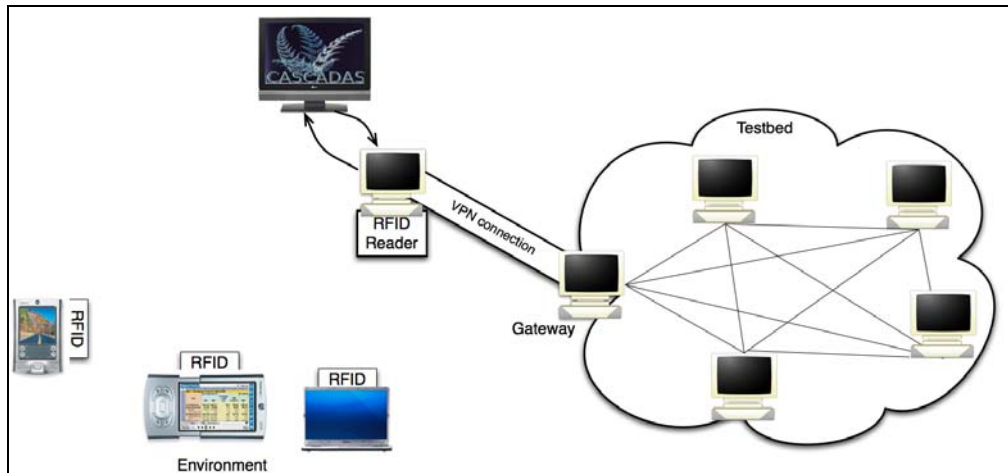
The next figure shows the features of demonstration scenario.

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<sup>1</sup> For more details, please see D6.3



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**Figure 2.1 - Demonstrator scenario hardware configuration.**

In the auction scenario, it is possible to foresee three main actors:

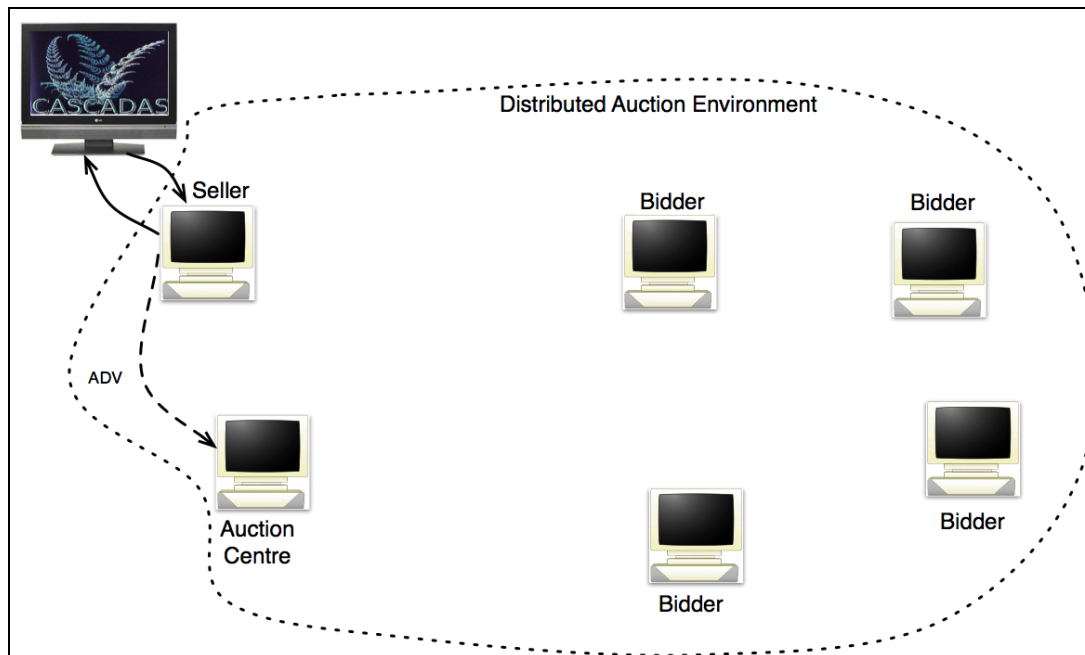
- *Auctioneer*: the entity owning the item, and willing to sell it (thus acting as a *seller*) under a specified set of rules collectively defined as the *auction model*. In our scenario, the referring auction model is the *English Auction* model, characterised by the fact that bids aim to increase the item's initial (minimum) price stated by the seller.
- *Bidder*: the entity willing to compete to the extent of buying one or more items.
- *Auction Centre (AC)*: provides a meeting point for auctioneers and bidders. Through an AC, auctioneers advertise their will to auction goods, and bidders become aware of what goods are currently being auctioned. ACs list currently ongoing auctions through an *Auction Web Page (AWP)*, which is kept consistent by direct communication with sellers.

In this scenario, the machine communicating with the main display will act as a seller.





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**Figure 2.2 - Advertisement on an Auction Centre**

Focusing on bidding, it is important to highlight that bids will be decided according to a policy that defines what and how to consider. In order to respect the length of time slots and the frequency of transactions, bids are evaluated mathematically by an aggregate function. Bidding policies are composed by:

- *Aspects*: is a set of parameters that need to be considered when taking decisions. Typical aspects will be the current budget, the price to pay, etc. Elementary aspects will be numbers, such as the aforementioned budget, and more sophisticated aspects can be modelled as a function of other parameters. For instance, the available budget, i.e., the current budget minus the price eventually committed in other auctions, can be defined as a function of the initial budget and used to model the relevance of the item on the current supply. Aspects so modelled are then evaluated through an aggregate function, to the extent of obtaining a number to be mapped onto a final decision. The aggregation function can be as simple as a multiplication of the evaluation of each parameter.
- *Consideration Factors*: each aspect is “weighted” by means of a consideration factor. The purpose of such weighting is to quantify the impact of a certain aspect based on its relevance in the exact moment the decision needs to be taken. For instance, if it is detected that the impact of a bid on the current budget is reduced, the budget aspect in the policy can be assigned a small factor.
- *Thresholds*: provide a mapping between the value generated by the aggregated function and the final decision to be taken. Providing that such function generates a number  $E$  such that  $0 < E \leq 1$ , the use of threshold foresees the interval  $[0,1]$  to be divided into as many *buckets* as there are possible decisions. Then, the decision



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corresponding to the bucket where the value  $E$  falls into will be the final one. In the simplest case, the decision will be either “bid” or “do not bid”.

In the following the deliverable refers to this scenario.



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### 3 Tag system description and analysis

#### 3.1 ICT-TLC convergence

In this paragraph we provide an overview of the main business sectors in which CASCADAS could have a major impact: Information Communication Technologies (ICT) and Telecommunications (TLC), Consumer Electronic (CE), information technology (IT) and media sectors.

The convergence of these sectors has represented one of the most interesting themes in the literature over recent years. In particular, in order to describe the changes of ICT-TLC sector, the literature focused on:

- the possibility of unifying the technical path of telephony, Internet and television;
- integrating communication and elaboration functions in a device;
- the possibility of using multi-functional services.

Many of these predictions remained only an idea, because of the great resistance that some economic actors provided and the incompatibility among different technologies [3]; even though each sector has developed its own rules, there is undoubtedly a growing interest among the major players (of ICT and TLC sector) in the convergence theme. In particular it is a key aim for many partnerships, mergers and acquisitions, as well as joint ventures in certain fields.

This evolution has a logical motivation: in order to grow, major players have to seek new market opportunities, especially when they are listed<sup>2</sup>. In a mature market (please see Figure 3.1.1) such as ICT or TLC, enterprises direct efforts towards segmentation, differentiation and offer enlargement. From this point of view, the convergence of ICT-TLC towards other sectors is considered a relevant opportunity for enterprises.

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<sup>2</sup> Growth and profitability are the two dimensions that greatly influence share value



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Global Mobile Terminal Market, in M USD

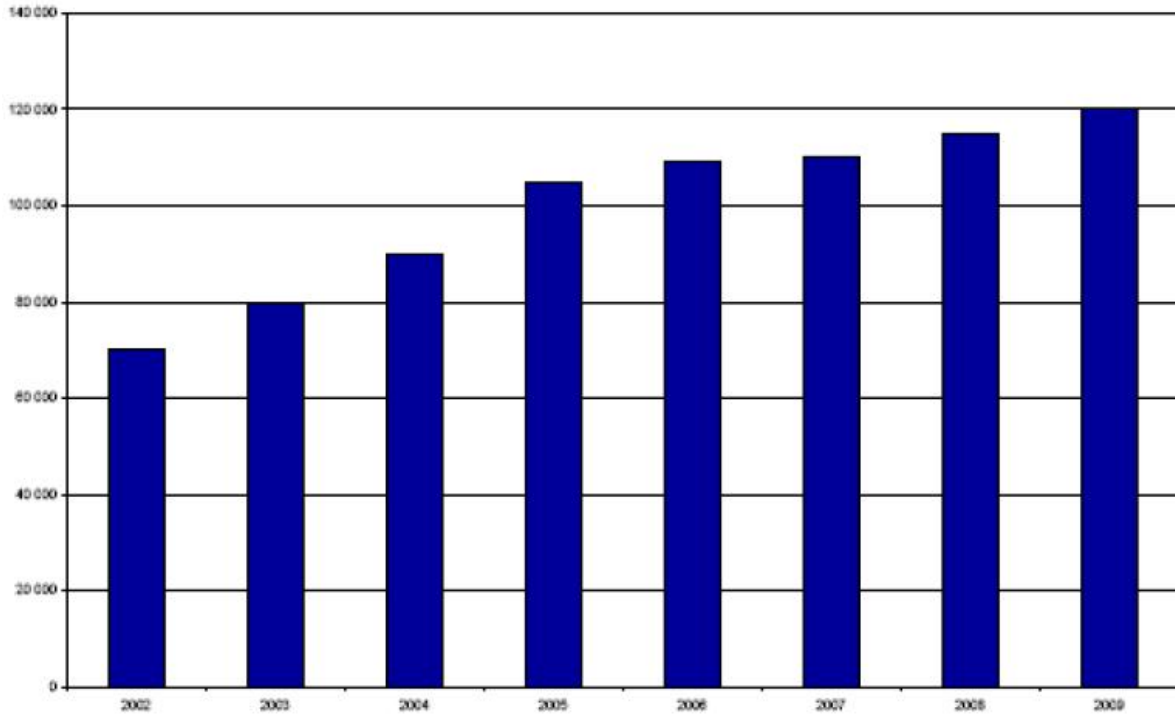


Figure 3.1.1 – World market value of mobile phone in millions of US Dollars, by year.  
[Source: Idate, 3G World Market, 2006]

There are many types of convergence. For instance, starting from TLC, traditional leadership of the sector is in the voice, data transmission and Internet connection services. These sectors (please see Figure 3.1.2) are decreasing in importance as compared to the mobile sector. Thus, the first type of convergence is certainly between fixed and mobile business. Recent studies [3] have demonstrated that only about 25% of mobile calls are really “mobile”. Therefore, a potential evolution could be the integration of these two sides of TLC. Another motivation for the fixed/mobile convergence refers to the Average Revenue Per User (ARPU) trend<sup>3</sup>; the current situation in the telecommunication market shows that operators see their ARPU decreasing in many European countries, as well as the growing subscription base for mobile services (notwithstanding that absolute value continues to grow in 2006 too) [4].

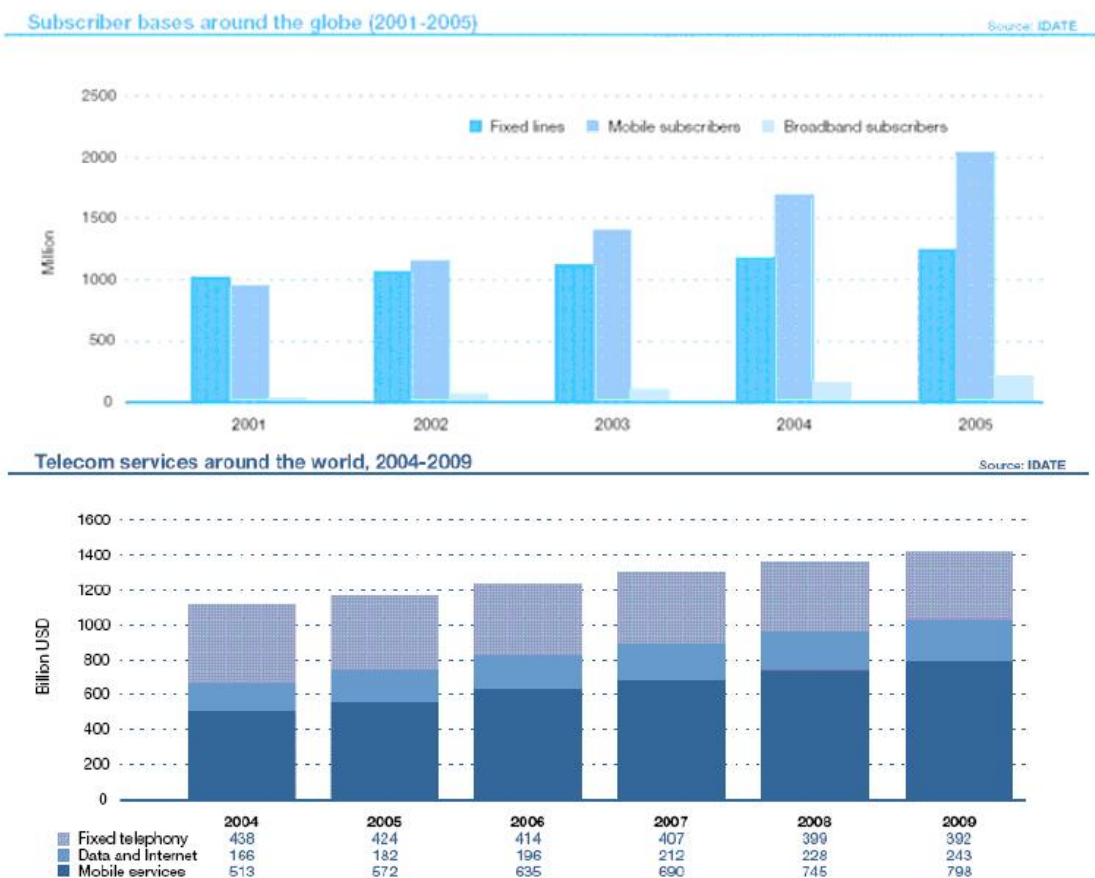
Fixed/mobile convergence is also relevant for the mobile sector, where a saturation near to, or above, 100% in the Industrialized Countries is seen while still presenting high growth opportunities in Developing Countries (where fixed lines are not widespread yet) which may require very large investments.

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<sup>3</sup> For more details about ARPU, please see D6.1 part B



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**Figure 3.1.2 – Evolution of fixed and mobile services [Source: Idate]**

Although the fixed/mobile convergence is the simplest to realize, it may not be considered the most important market opportunity for TLC operators given the maturity of the markets.

For enterprises and the sector markets to survive it is essential to widen the services offered. Thus, the convergence from TLC, media and Internet presents itself as the most relevant one, as testified by the continuous acquisition of the most important players of the sectors. An example is the acquisition of aQuantitative by Microsoft in June 2007<sup>4</sup>. Exploring all the opportunities of this kind of convergence is not a trivial task because of their large amount, which is an indication of the importance of this kind of convergence.

The horizontal and vertical integration of media processes, which was originally initiated by the rapid development in ICT technology, has resulted in a media convergence, where companies offer a new brand of information service.

The modern media company must offer customers all available channels to reach their clients [5]. At the same time, the roles of content providers, network operators and software houses have become more diffuse and overlapping due to:

- Globalization;

<sup>4</sup> For more information: <http://dondodge.typepad.com>



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- Opening borders in Europe;
- Deregulation.

According to this, and considering the results of D6.1 Part B “Prospective studies on the socio-economical aspects of the Connected Society”, it is possible to assert that the CASCADAS project meets these needs completely. The project aims to develop a technology that might be applicable in many “convergent” activities, such as personal behavioural advertisement.



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### 3.2 The conceptual map

Analyzing the boundary of a market as wide as the one resulting after convergence is a hard task, especially considering that this document aims to the medium-long term. However, this effort helps us to understand the potential impact of personal behavioural advertisement on economies and societies.

This revolution could bring many new employment possibilities [5], which could significantly impact social conditions. The first step for considering the socio-economic impact of Situation-Aware Communications (SAC) technology is thus the definition of a conceptual map, which intends to clearly describe all the actors involved in the introduction of SAC technology along with relationships among them.

The first step to identify this conceptual map is the analysis of Telecommunication and Advertisement sectors and major players. The focus on these two sectors is determined by the fact that these are addressed by the personal behavioural advertisement scenario, briefly described in section 2 . The following picture represents the conceptual map

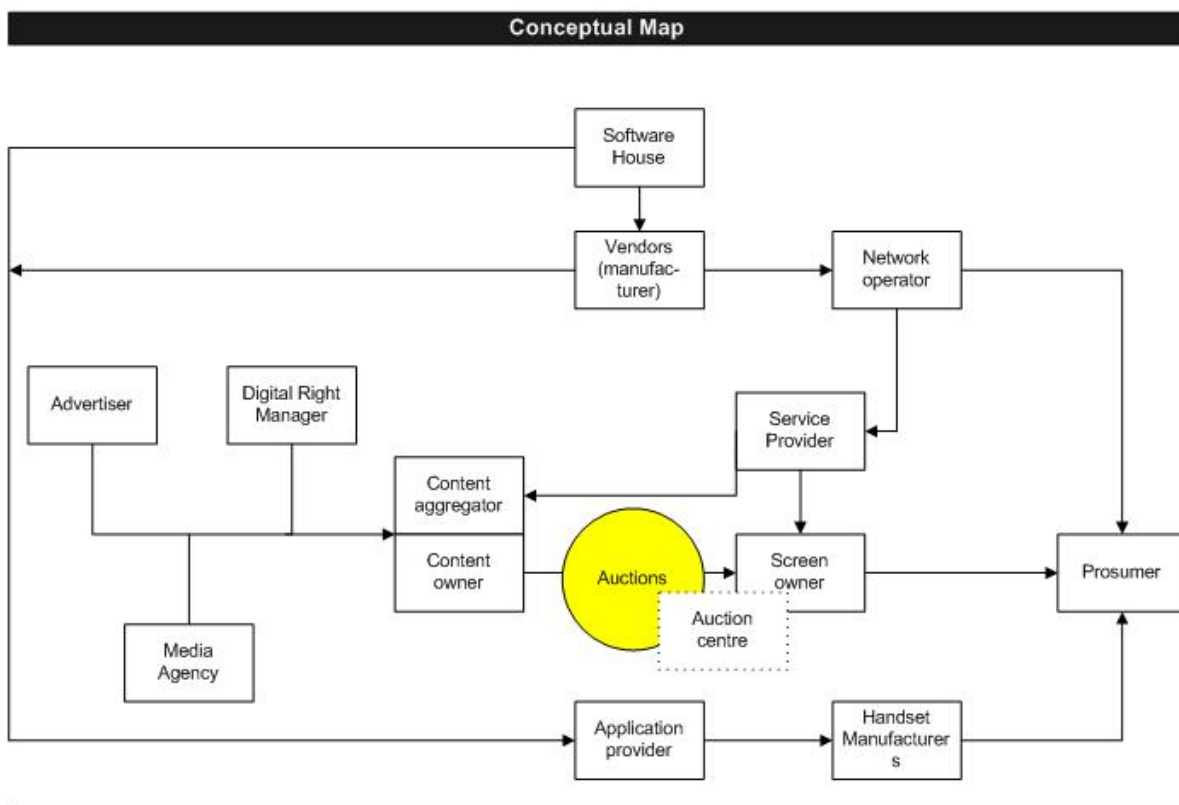


Figure 3.2.1 – Conceptual map

It is easy to identify, in the map, actors (directly or indirectly involved in SAC) coming from different sectors. In particular:



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- Consumer electronic: hardware vendors, vendor (manufacturer), handset manufacturer;
- Telecommunication: digital rights manager, network operator, application provider, service provider;
- Media: media agency, content owner/aggregator;
- IT: software house, hardware vendor, application provider<sup>5</sup>.

The relevance of personal behavioural advertisement cannot be secondary because it is an excellent example of sector convergence. Thus, for the reasons explained in the previous paragraph it represents a very attractive business (paragraph 3.4 contains more details about target market size). Each box in the conceptual map does not necessarily identify a precisely defined group of economic subjects or a business role; a single economic subject can assume more than one role (see below).

The starting point for understanding previous concepts and analyzing the delivery model for the services is the definition of the activities for the **prosumer**. It is reasonable to consider a prosumer as an evolution of a simple user; the scenario foresees a user with a device where one or more ACEs communicate with other similarly equipped devices in order to share the user needs or interests. In the exact moment in which the user is situated in front of a precise advertising screen, he/she receives an advertisement describing a product of his/her interest. A prosumer could assume this role, but it is not the only one; in fact he/she will be able to receive information and give it to other ACEs or send his/her contents. This fact certainly revolutionizes the entire service delivery model as, referring to Figure 3.2.1 and 3.4.1, the prosumer could assume the following roles:

- simple user, thus a customer;
- part of a screen service. Screen owners sell not only the time slot on the screen but also “the user”, i.e., who is in front of it. Certain transactions occur because a specific user is in front of the screen. The user becomes an important part of the owner service proposal;
- content provider; in fact a prosumer will be able to collect contents and transfer them;
- media agency; a prosumer will be able to edit his/her own contents;

The second fundamental actor is the “**screen owner**”. Referring to Figure 3.2.1, this role is certainly, along with the one considering prosumers, central to the CASCADAS project. In fact, it is responsible for the time slot allocation. As said in section 2 above, it requires an auction centre that continuously collects information and handles auctions; so it requires the supply of an application that the screen owner clearly is not able to develop alone.

Appropriate technology could come from an **application provider** or a **software house**. In the first case, the application does not reside directly with the screen owner. Application providers are companies offering [8] access to applications and corresponding services that would otherwise need to be located in their own devices. As previously mentioned, the presence of an application provider actor is not strictly required. In fact the necessary applications could be provided by a software house, and the hardware by specialized vendors.

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<sup>5</sup> Application provider are an example of operator that couldn't be insert in only one sector; in fact they normally belong to TLC sector, but if they develop software it's possible to put in IT sector





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While application providers, hardware and software vendors are providers for the screen owner, the **handset manufacturers** have to provide prosumers devices supporting SAC technology. Their role in Consumer Electronic/TLC market does not change, but (see paragraph 3.4) the introduction of the SAC might give to them many opportunities.

Other fundamental actors for the service delivery system are **service providers**; they are responsible for connecting (WiFi, Internet,...) actors of delivery model; in fact through connection the ACEs will be able to communicate and aggregate to execute and deploy services. Clearly, service providers need to purchase the service by another actor and re-sell the advertiser; this actor is named **network operator**. A network operator is “the operator responsible for the development, provision and maintenance of real-time networking services and for operating the corresponding networks” [9]. European network operators are often starting from a monopolistic situation that could reduce the competition degree. However they are not so touched by SAC’s introduction: in fact they have only to render their network compatible with the SAC technology, so equipping them with ACEs.

The **advertiser** represents a fundamental actor in personal behavioural advertisement; he/she has to promote his/her service/product. He/she can reach a more specific target thanks to SAC technology and this fact could revolutionize the advertisement field (please see paragraph 3.3)

The last actor whose role changes with the introduction of the SAC is the **content provider**. It has two distinct functions: content owner and content aggregator.

A **content owner** is the author of some content, although it may not own all the content that forms some information. There may be many authors, all of which may not be responsible for creating the entire information. Rather, they may be responsible for creating content about a certain subject that goes into many different information products [10].

It is easy to understand how a prosumer might become a content owner; on the other hand a content aggregator needs an advanced step. In fact he/she combines sources and makes them available to customers [11]. Moreover, content owner and aggregator might receive information from a media agency or directly from advertisers.

After this brief introduction on the actors involved in CASCADAS vision, it is worth clarifying their role in the auction environment. The **bidder** represents an advertiser, media company, content owner/aggregator; its direct objective is to get a time slot in the precise instant in which a prosumer is in front of the screen. It submits the bid to the screen owner that, through the auction centre, sells the time slots. The role of **auctioneer** is held by the screen owner and prosumer; a screen owner does not sell a simple slot of time, but a slot of time during which a precise prosumer is in front of the screen. Giving some information about himself/herself, the prosumer becomes a fundamental part of the auctioneer role.



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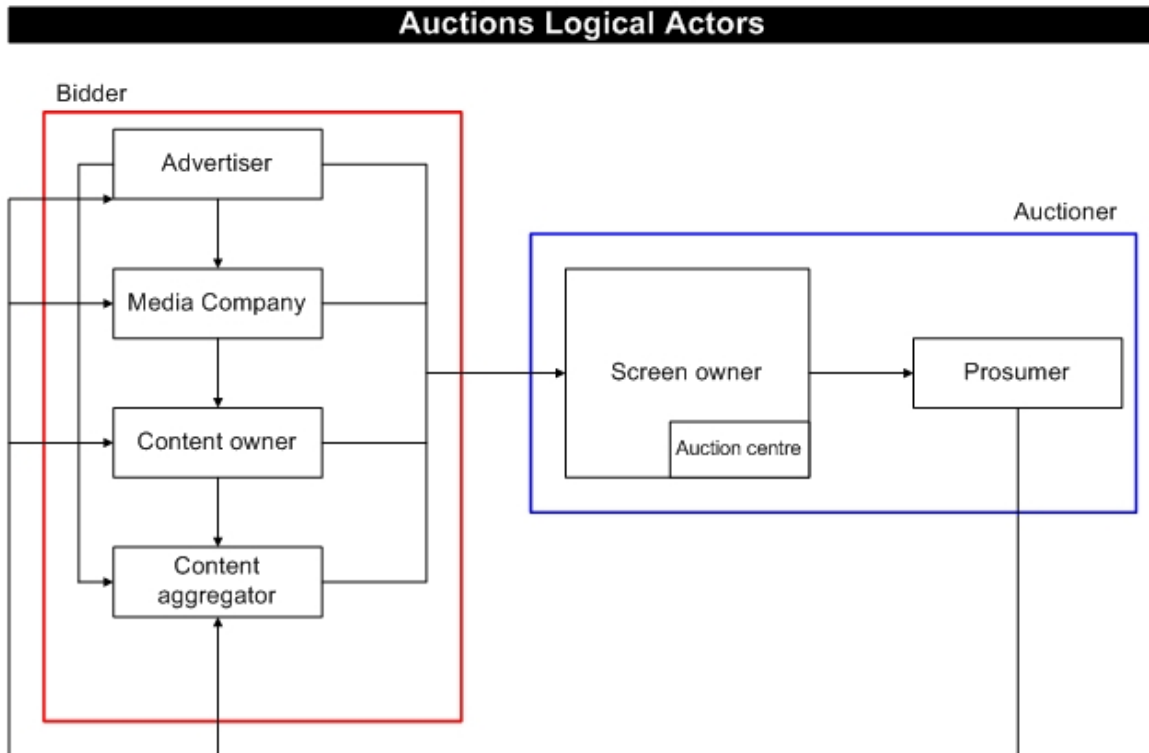


Figure 3.2.2 - Auctions Logical actors



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### 3.3 Strength and weakness point analysis

In order to analyze in details the role of each actor mapped in Figure 3.2.2 in the competitive system with the introduction of SAC technology, the “**Porter’s Five Forces**” model [6] will be followed. The well-known Porter’s model makes it possible to draw the opportunities and threats, outside a company, related to a specific target market and innovative product/service offered. More precisely, the Porter’s model analyses and measures, in a qualitative manner, the “widened competition degree” of the Business Area in which the products/services will be positioned. A “Business Area” (BA in the following) is the set of companies that will compete to provide the market with a product/service that is truly competitive. Referring to the 2015-2020 projection, in the scenario introduced here the BA is expected to be composed not only of media companies or TLC players, but also of all enterprises providing personal behavioural advertisement.

Clearly, the lower is the widened competition degree, the more attractive is the BA: the current and prospective average profitability is high and, consequently, it is attractive to invest on the product/service taken into account, as well as to go into the specific business. In our opinion, this is the case for the pervasive behavioural advertisement.

Going into the model’s details, it is possible to discover opportunities for building or improving marketing strategies, as well as understanding threats in competitive strategy by studying the structure of, and dynamics between, these forces [7]. Porter designed his basic model to be applied to an entire industry, which is the Business Area previously defined. The same analytical method, however, could also be used to study a narrower universe, such as for instance the online presence within a specific industry. When developing the marketing and competitive strategies, the following “forces” can be identified:

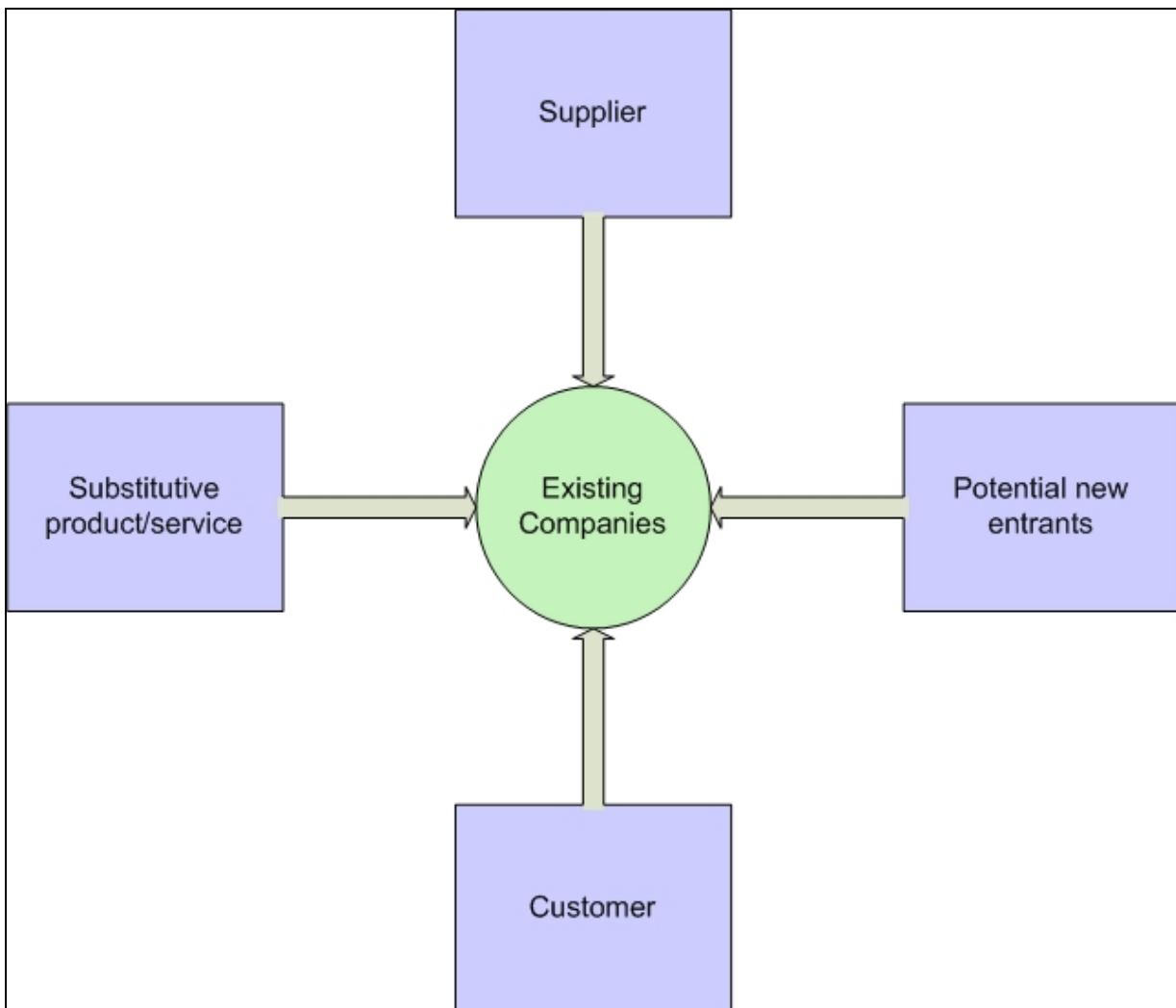
- *Current competitors* (existing companies): those companies that offer the same product or service as the company under consideration. In the demonstration scenario, these will be all **companies capable of providing screens** to show behavioural advertisements. This may seem surprising, but it is intentional. It could seem natural instead to see the **advertiser** as the centre of competition, but from service delivery system point of view, this is not correct.
- *Potential new entrants*: those new companies that could enter the industry in the future, but that currently are offering products/services in other markets. For example companies that have sufficient economic resource, competence or interest (strong interest and a good project could result in strong resourcing of research).
- *Customers*: potential and current visitors, users and providers of the product/service.
- *Suppliers*: those companies that supply the company under consideration with the products (or parts of them) and/or services embedded or offered by the company. Examples of suppliers could be, for instance, Web hosting companies or software and other vendors that supply Web-enabling technology.
- *Substitutes*: other Business Areas that offer different products/services satisfying the same customers’ requirements. For example, areas providing personal behavioural advertisement with different technologies.

It is clear that each firm who decides to utilize this framework is required to put itself in the central position and from this point start analyzing its competitive position.



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The **graphical representation** of **Porter’s Five Forces** is showed in next Figure:



**Figure 3.3.1 – The Porter’s Five Forces Model [Source: Michael Porter, 1980].**

In order to identify the principal changes deriving from introduction of the SAC, the situation of each actor is analyzed in a **differential way** focusing on the forces most affected.

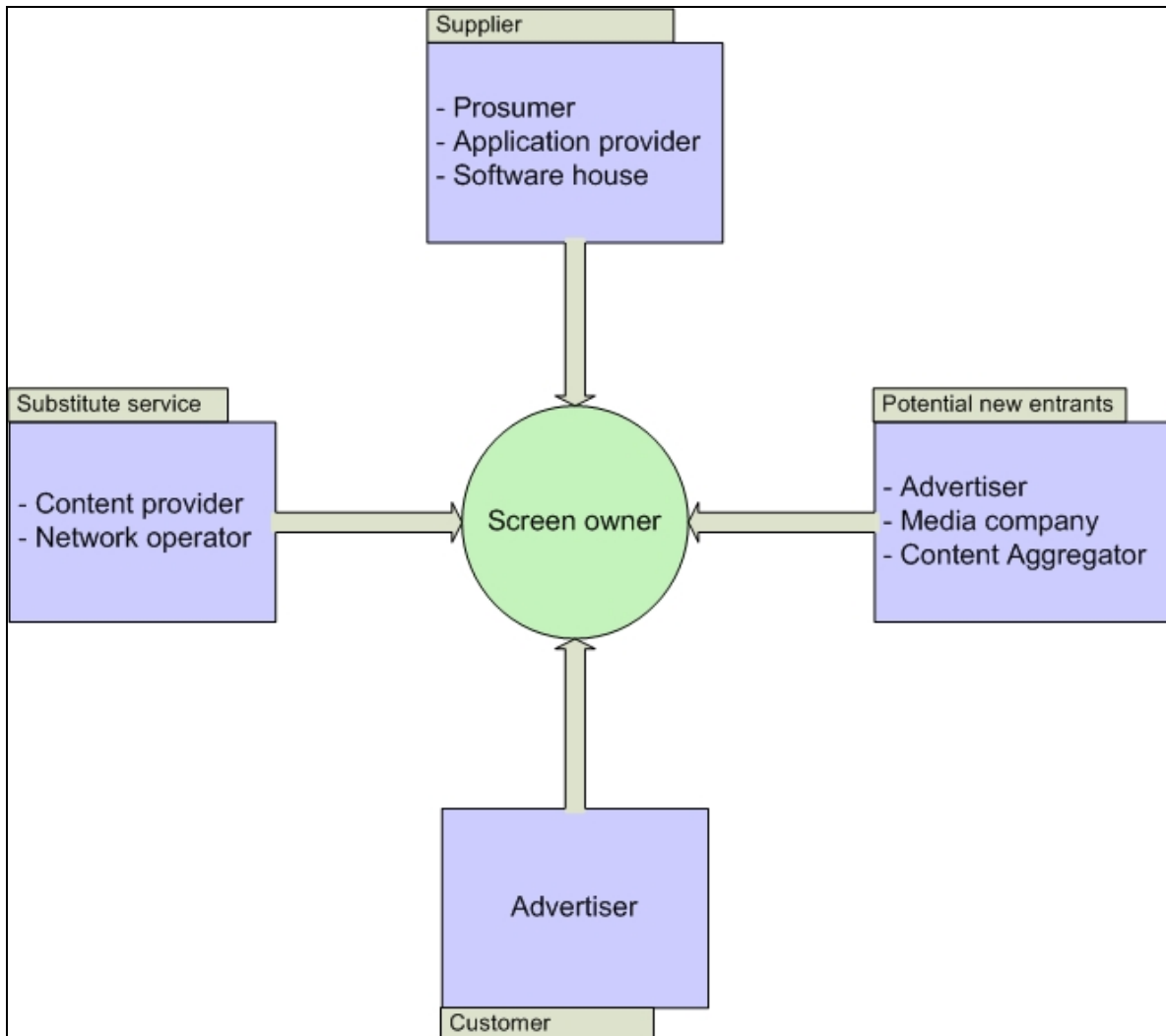
### Screen owner



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In the current state-of-the-art this actor has different screens on which to show advertising messages. The messages are pre-loaded and totally independent from the person situated in front of the screen.

Considering the owner of the screen in the central position of the Porter schema, it is possible to make some observations.



**Figure 3.3.2 - Screen owner tag system**

First, their capacity to gather many people in a single place makes it possible to shift the contractual power away from the advertiser (which, in this case, holds the role of customer) leading to a higher advertisement price. Screen owners have scarce resource that will be available for a short time. On the other hand, the reduced amount of time available for the auction reduces the risk of an excessive increase of the contractual power that could form a barrier to the introduction of SAC.



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Other topics in favour of the increase of contractual power for the screen owner over the customer are:

- The replaceability of resources they sell, which is negligible. Screen owners sell a unique resource, composed of the screen and the prosumer(s) in front of it. Clearly this combination is already unique, given the current state of the art, in a precise instant in time. However, it is possible to think that an advertiser could hire some person to directly promote its service. In the demonstration scenario prosumers identify themselves automatically, providing some anonymous information. This identification of a specific target adds to the value of what the screen owner is offering, so the probability to increase the return is higher.
- The differentiation of the product is very high because it is indissolubly tied with the prosumer in front of the screen; the item auctioned is composed by the screen and prosumer need/interest, so it's impossible to replicate it.
- The capacity to influence decisions of the prosumer grows since the screen shows exactly what the prosumer needs.

Potential new entrants could be companies interested in the advertisement area and in the adoption of SAC, however this does not change the situation.

A completely different analysis needs to be done for substitute products and direct competitors. Service differentiation drastically reduces the possibility to offer alternative products/services, therefore the contractual power of screen owners might increase in respect of substitute products too. It is necessary to note that while the usage of SAC constitutes a great differential, other companies might employ the same technology in a different way. For instance, a content provider might sign an agreement with a network operator and provide personal behavioural advertisement directly on devices. In this case, substitute products might be a threat, even though it need not necessarily be a problem as the screen owner is in a comparatively better position considering that the screen is visible by everyone in a particular situation and this constitutes a great advantage.

### Advertiser

The competitive position of advertisers changes considerably. In previous paragraphs we analyzed the link between customers and vendors, putting emphasis on how the contractual power for advertisers decreases.

Now, it is worth placing the advertiser in the central position in the business arena (figure 3.3.3).



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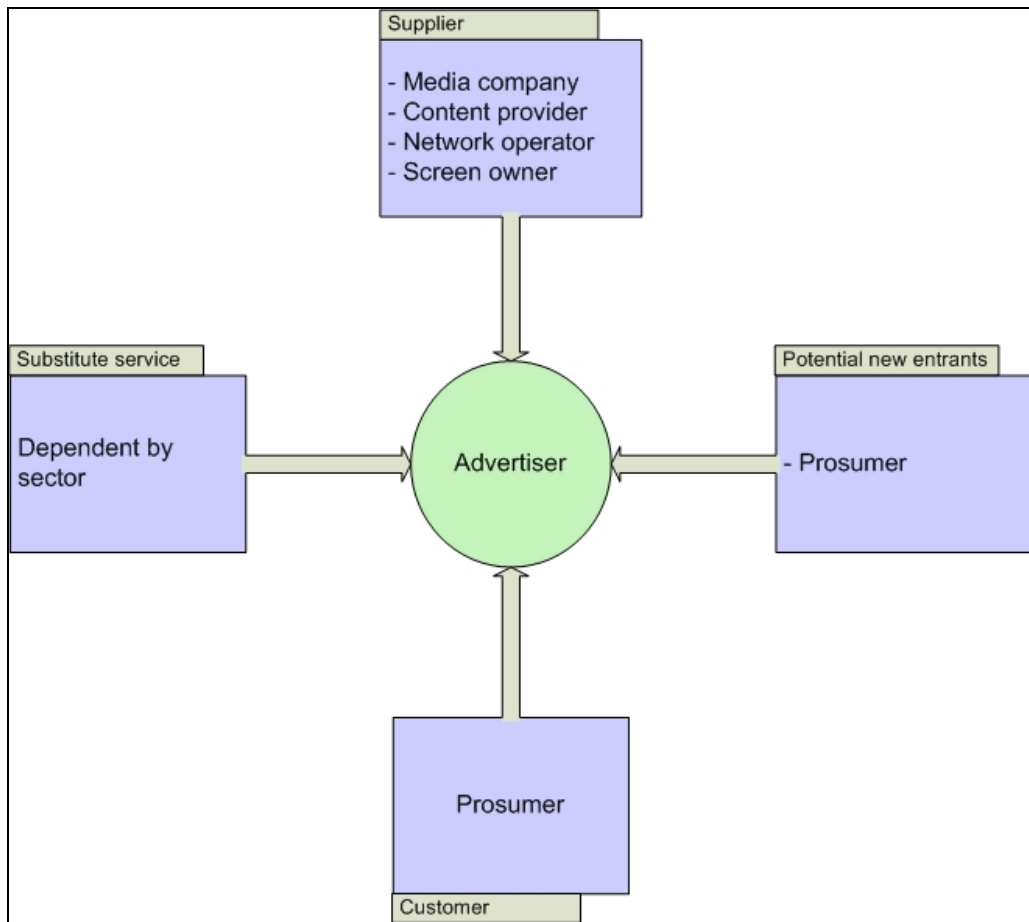


Figure 3.3.3 - Advertiser tag system

From the advertiser point of view, SAC technology revolutionizes the way to capture customers’ attention through advertisement. The target is automatically selected by the SAC technology and the revenue from the advertisement is expected to increase. The necessity to obtain a precise slot of time increases, while the contractual power exercised by the advertiser decreases when bidding for a slot. The influence the advertiser expects to have on customers increases, because of the growing consciousness in the market resulting from the increase in information available.

From an economic point of view the increased revenue resulting from more effective advertising will be offset by the expected increase of price: the growth of competition among advertisers from the same sector (direct competitor from the advertiser point of view), and others offering substitute products/services. It is impossible to understand, at the present time, the implications and the speed of these two factors. However, it is arguable that the investments in advertisement will increase thanks to SAC technology, with the consequence of sharpening the competition among direct competitors and substitute products.

Advertisers might also be able to reduce their dependency on media agency, content owner and content aggregator. The architecture of the entire system encourages advertisers to produce their own content, negotiating directly with the screen owner. On one hand, this is due to the fact that the negotiation is not influenced by the critical mass,



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while on the other hand the possibility to obtain and transform information is greatly increased and facilitated. Media agencies and content owners/aggregators will have to increase their competence in order to develop added value for services and hence justify their existence.

Finally, SAC might have a significant impact on competition with potential new entrants. If revenues from advertisements grow more rapidly than the corresponding costs, it is simpler for a potential new entrant to get started. A potential new entrant has the necessity to enhance revenues in less time, so as to cover the investment needed to expand into this Behavioural Advertisement.

Summarizing, it is possible to say that advertisers might see an increase in advertisement returns, but this will be counteracted by an increase in competition.

### Prosumer

The analysis on the position of prosumers competition needs to start from the two tag systems analyzed for advertisers and screen owners.

In the advertisers tag system (Figure 3.3.3), prosumers hold the customer position; they increase their position in the competition because of the growing information on the market they have, which depends on the advertisement services, especially the pervasive ones. This does not apply to the other tag system, in which screen owners occupy the central competition (Figure 3.3.2). In fact, in this system it is logical to consider the prosumer as a part of a bid, given that the screen owner sells a time slot when a particular prosumer could see the device.

This analysis cannot be considered complete; in fact, a prosumer might change his/her role in the delivery model because he/she will also manage content. This could provide him/her with a decisive increase of contractual power not only because he/she could become a competitor, but also because he/she could get services from other prosumers, avoiding intermediary costs. In particular<sup>6</sup> they increase the competition sharpness for both content provider and media company because they can't be considered as customer; in fact they will be able to offer some content provider and media content activities (without having their market position and their competence). So the media company and content provider market could reduce and the competition could grow significantly.

### Handset manufacturer

The handset manufacturer role does not change significantly; in fact, manufacturers are responsible for providing prosumers with devices. The first obvious difference with respect to the envisioned situation is that they have to equip their products with ACEs. Since they typically assemble components originally provided by other suppliers, it is normal to think that they will act similarly with ACE components. However, the most important changes for

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<sup>6</sup> Content provider and media tag system analysis will be skipped because the unique change is represented by prosumer role that is analyzed in this section





### Bringing Autonomic Services to Life

this actor derive from the market implication behind the use of ACEs. With the introduction of ACEs, in fact, it is reasonable to expect an increase of services offered and, consequently, in the demand for devices which is expected to increase immediately. In particular, referring to a tag system in which handset manufacturers represent direct competitors, it is possible to foresee some opportunities and threats. First, ACE developers are not expected to be numerous, thus their contractual power will be higher. This not a threat from point of view of the costs, as this kind of innovation is sold by handset manufacturer with a premium price tag. However, the threat might derive from the service level that the vendor will guarantee. This aspect is crucial, and needs to be faced in the negotiation phase of the contract.

Another threat relates to speed of adoption of the innovation. The path towards market might be long, and the handset manufacturer takes the risk of deteriorating its image because customers can identify other companies as “expert” in SAC field.

### Network operator

The position of Network Operators is not expected to change significantly. SAC technology is expected to replace the current network, but it will operate at a higher level exploiting services offered by network operators. Clearly, such operators will need to catch this great opportunity, and provide themselves with SAC compatible toolkits. Placing the network operator in the centre of the Porter’s schema, it is reasonable to think that the competitive position will not change, as the infrastructures they provide constitute a very important strong point.

Interestingly, many European network operators come from a situation of monopoly, and this might have repercussions on their performance in research of innovation and efficiency. Putting network operators in the centre of a tag system, they will have the strongest position against customers and vendors, because of their numbers and dimensions. The same consideration is valid for potential new entrants, because the investment required is really high.

Currently the market is open. However, there are high entry barriers; these barriers could be reduced by new opportunities of integration and service offerings. As a consequence SAC represents a threat and an opportunity, since it could cause a company to feel the necessity of performance improvement acutely.



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### 4- Segmentation and target market identification

The aim of this paragraph is to precisely identify the qualitative features of target markets and applications for SAC technology in the scenario of personal behavioural advertisement. To do so it is necessary to find drivers (or similar business applications) to reach an idea of the impact of SAC technology on future markets.

The **principal features** of the demonstration scenario application are:

- user mobility;
- possibility to propose personalized advertisement messages;
- usage of media content for advertising.

It is easy to see that the main features of SAC applications belong to the **interactive media** field. Thus, evaluation of the potential market for the personal behavioural advertisement needs to start from an analysis in the area of interactive media.

One purpose of interactive media is to promote and/or influence the consumer's buying decisions in both an online and offline environment. Interactive advertising can employ media such as the Internet, interactive television, mobile devices (WAP and SMS), as well as kiosk-based terminals [13]. The objective is to maximize the influence on the final consumer, and then the revenue for the effort inherent to the advertisement.

SAC technology is in a good position to deliver these things - an advertiser might reach a prosumer's needs or interests on a specific situation with a high level of accuracy. So we could loosely view interactive media as an approximation of the SAC target market.

We can further restrict the field and focus on a specific part of the interactive media area: **online advertisement**. Online advertisement appears to be in constant growth due to the increase in both the number of customers<sup>7</sup> and the return rate of advertisers [14]. This area is growing in popularity with respect to many businesses willing to promote products and services on the Internet. With an increasing slice of the world population accessing the Internet for the search of news and information, it is no wonder that businesses are increasingly led to advertise online. Moreover, online advertising is cost effective and gives businesses a way to disseminate more information to potential customers than most traditional forms of broadcast and publications. As Danny Meadows-Klue, Chief Executive of IAB<sup>8</sup> Europe said "*Behavioural targeting emerged last year as the new power tool in the web marketers toolbox. It helps planners get more value from their media, advertisers get higher conversion rates, media owners boost the efficiency of their media space by freeing up new areas, and it even helps viewers by providing more relevant content: win, win, win.*"

Revenues from online advertising are expected to grow up to \$16.8 billion, according to new research from the Interactive Advertising Bureau (IAB) and PricewaterhouseCoopers (PwC). This figure would represent an increase of more than a third (34 per cent) over the \$12.5 billion calculated in 2005, demonstrating the sharp growth of online advertising. Moreover, revenues for the fourth quarter of 2006 totalled just under \$4.8 billion, registering an increase of 32 per cent over the same period the year before. This is very encouraging

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<sup>7</sup> Referring to figure 3.3.1, customer is represented by the advertisers

<sup>8</sup> Interactive Advertising Bureau



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for SAC technology, since the service personalisation so well served by SAC is seen as the major contributor to the upward market trend.

From the **technology point of view**, advances in online advertising are being made every day to the end of enhancing contents that visitors would like to see: such advances testify that the final customer needs, and the advertiser wishes to furnish, a more personalized service. This can only be really accomplished with the adoption of autonomic communication. With online advertisement, potential customers can find what they are looking for through searching keywords, categories, and browsing. Businesses can now interact with their visitors and make promoting their goods and services an enjoyable experience for potential customers. Businesses can also use the internet to keep in touch with customers through newsletters, chat, and promotions on their websites [15], in particular in a more personalized way.

Online advertising currently appears the **closest solution to the personal behavioural scenario**; it could be applicable to mobile users who are often segmented in a precise way, and receive media contents. These are the main characteristics of personal behavioural advertisement. Clearly, segmentation for online advertisement cannot lead to a service personalisation degree comparable to the one provided by SAC technology; as only through SAC technology is it possible to reach prosumers needs with an accuracy level reaching right down to the individual consumer. As a consequence, online advertising impacts customer buying to a lesser extent, and it is possible to consider the segmentation of online advertisement as a first step towards the personal behavioral advertisement.

If it is clear that online advertising is the business closest to personal behavioural advertising, and online advertising has less potential as compared to the latter, it is possible to assume that the **reference value** of the future SAC market could be initially estimated as at least \$16.8 billion per year (actual annual value of online advertising market).

To identify in more detail the SAC target market, it could be useful to understand the type of advertiser that uses online advertisement these days. According to a “Direct Marketing Linked Resources” (DMLR) research, the online advertising<sup>9</sup> share of the European market was 4.7% of total communication investments in 2002. However, advertisers’ comfort degree with online advertisement, and possibly to personal behavioural advertisement, would be influenced by the economic situation of the different business sectors and the economy in general. It is thus logical to assume that the inclination to personal behavioural advertising will be higher because of the higher personalisation.

As said before, the principal difference between personal behavioural advertisement and online advertisement is, from the customer point of view, the degree of personalisation. Thus, it is logical that a **higher personalization degree might bring higher returns for the advertisers**. However, there is another important difference to be taken into account: SAC technology will be able to increase customer information, thus it will not be necessary to be online in order to obtain information. Moreover, SAC is expected to bring new functionalities and new application areas, such as the one chosen for the demonstration. At present, exhibition centres could bring information in a very different way through the same devices (new functionalities); it’s simple to think that SAC technology could enable personal behavioural advertisement on customers’ PDAs or mobile phones, introducing a new service.

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<sup>9</sup> <http://www.dmlr.org/1ite/One.htm>



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Finally it is important to understand that personal behavioural advertisement concerns not only the Internet, but also all actors analyzed in paragraph 3.4. An interesting example of this concept is the world's first trial [16] of **personalized mobile TV advertising**, conducted by Ericsson and the Norwegian Broadcasting Corporation (NRK), which has proven its effectiveness with a positive consumer response. The results of the three-months trial, which have been processed by M:Metrics [18], show that the average click-through rate reached 13%, and the average viewing time of each mobile TV user more than doubled - to seven minutes per session - when users interacted with customized ads. The trial also showed that this behaviour was sustainable in terms of the click-through rate and session times since usage was consistent throughout the trial. Almost half of the users were 30 to 44 years old, followed by those 18 to 29 years old. Participants identified entertainment and music as their most common interests when starting in the trial. Advertisements in the trial were interactive, customized in such a way to ensure their relevance to individual users, and tailored to the age, gender, location, and personal interests of the user. Advertising content also spanned an array of formats, including videos, banners, ticker texts, and branded downloadable content. Kurt Sillén, Vice President, Ericsson Mobility World, says: *"For broadcasters and operators, the mobile TV application results in increased traffic and new revenues from advertising and paid interactions. This opens the way for new advertising formats, widens target groups and builds customer loyalty while giving end users an enhanced TV experience."*

Previous research by M:Metrics has shown that pricing is a major deterrent to the adoption of mobile TV, and that up to 41% of mobile TV consumers would accept advertising-subsidized services. The results of this trial confirm the willingness of viewers to embrace advertising.

The trial started in Norway in December and is open to the public. Volunteers are able to access three NRK TV channels and four of its radio channels. A made-for-mobile 24/7 sports TV channel is among those available during the trial. Customers may use their handsets to interact with the show's host via voting and chatting, and can contribute content by uploading photos and video clips.

Content and services can be accessed via a downloadable client, a Java application providing fast channel switching, interactivity and the new personal advertising features.

The new interactive mobile TV advertising application is an end-to-end solution based on existing technology. It enables mobile phone users to watch live or on-demand streamed TV programs and interact with their favourite brands or shows. The trial is being run over existing mobile network infrastructure and uses current, commercially available mobile phones. The encouraging results of this trial could be considered as an incentive to CASCADAS; in fact personalized mobile TV advertising could represent a good application for SAC technology.

Summarizing it's possible to start a first evaluation of personal behavioural advertisement from interactive advertisement and more precisely by a part of this business: online advertising. It is applicable to mobile users, segmented in a precise way and receiving media contents.

Personal behavioural advertisement will have a more intensive impact on the market given the possibility to provide a more customized service and to exploit different channels. An example of usage of different channels is the personalised mobile TV advertisement, for which a trial by Ericsson and NRK is giving encouraging responses from the customer's point of view.



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## 4.1 Prosumer segmentation

Segmentation is one of the most important and creative moments in the strategic design of every firm (in this case of a consortium). Referring to personal behavioural advertisement, the actor who needs to segment the market to offer his service is represented by the advertiser. It is useful to refer to the tag system of product/service delivery, in which advertisement is configured as an instrument to increase sales. As a consequence, the aim of this section is to provide a qualitative segmentation of prosumer<sup>10</sup>.

The model we will use to provide the prosumers' segmentation is based on a **nested approach**, proposed by Bonoma and Shapiro [17]. This model analyzes in succession five different classes of segmentation basis, increasing at every step the degree of detail. This path is conceived to allow a guided and coherent analysis.

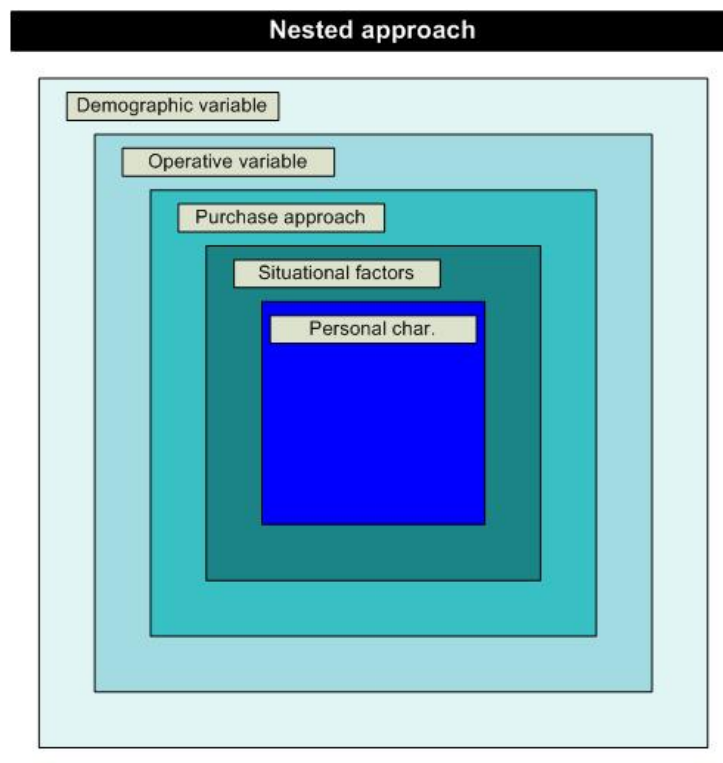


Figure 4.1.1 - Nested approach; proposed by Shapiro and Bonoma

The external class contains the more generic segmentation criteria, the **demographic variable**. This gives an essential vision of customers by describing the sector they belong to and their geographical location. The scope of this class is to cut a great part of the

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<sup>10</sup> To introduce a more quantitative segmentation, it would be useful to refer to a precise market; however it is out of the scope of this deliverable



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potential market. The second step is relative to the **operative variable**, which allows us to identify more precisely reachable customers. In particular, this step considers the services/products used by customers. We could focus on the customers' usual employment, for instance separating the way consumers use the device in advanced and beginner mode. The third class of variable, relative to the **purchase approach**, is usually skipped. However, it is fundamental to accomplish a correct segmentation. The aim of variables in this class is to identify what are the habits and the decision processes that lead to the purchase. Proceeding, **situational factors** are similar to operative variables, but have a more transient nature and require a more precise knowledge of the customer. For example, a customer that spends more time in a wet climate might need different delivery models as compared to other customers living in other dry areas. Finally, **personal characteristic** variables are considered.

As we make our way towards the centre, variables change visibility, stability and temporal validity. Outer information is inherently more general, criteria are more easily interchangeable, more stable and they don't require a deep knowledge of single customers. On the contrary, situational factors and personal features have reduced visibility and imply a specific research or direct contact with the customer. For this reason it is impossible to apply the last three steps of segmentation in a generic way, since they are inherent in each combination of prosumer and advertiser. Moreover, we can note that SAC technology provides unique information to bring segmentation to personalization.

In the remainder of this section we detail an example of application using a nested approach; the first step in it (demographic and operative variables) is general enough to be adopted in many SAC applications, while the rest is specific to the example.

#### **An example<sup>11</sup> of the nested approach application**

A business school decides to promote a new master in business administration (MBA); in particular, the business school decides to adopt personal behavioural advertisement. The exhibition centre selected is a European stadium.

Applying the nested approach, the first phase is relative to the search for demographic variables. Among these, accessibility to the exhibition centre might be selected. First, the selection accounts for persons supporting one of the teams involved in the match. Moreover, they must be between 15 and 80 years old. The geographical distance does not represent a real obstacle, since the fall of national barriers and reduced travel cost. On this target, we decide to select people with a bachelor degree.

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<sup>11</sup> The example has only a didactic function and it doesn't correspond to a real application



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	15-80	Other
Bachelor degree		
No bachelor degree		

Figure 4.1.2 - Demographic variables segmentation

After demographic variables, the nested approach foresees the selection of operative variables. Given the innovation of this, we introduce indicators about the innovation demand. The Innobarometer 2005 [12] provides a **measure of innovation** demand and divides EU citizens into 4 groups:

- 11% are enthusiast toward innovation;
- 39% are attracted by innovation;
- 33% are reluctant by innovation;
- 16% are anti-innovation.

In the first phase after the launch SAC, we can consider as target the enthusiast toward innovation, because they will probably equip themselves with a device SAC compatible. Since the difficulties of technology usage by the prosumer don't appear very high, we can affirm that at least the attracted by innovation in a brief time will imitate the enthusiast.

	15-80	Other
Enthusiastic		
Attract		
Reluctant		
Anti-Innovation		

Figure 4.1.3 - Operative variables segmentation

Then purchase approach has to be considered; MIP could decide to divide the target into two classes utilizing age as a variable:



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- People who are between 25 and 50 years old;
- Other.

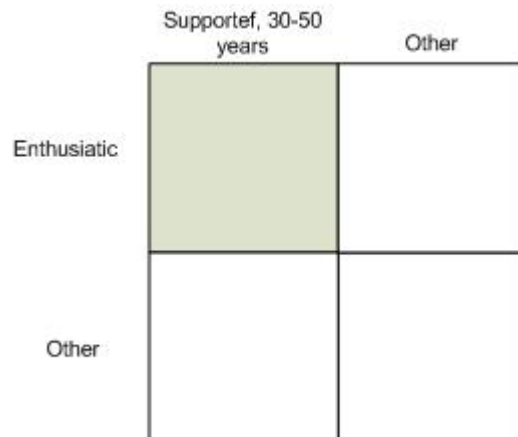
MIP could decide to discard the second category because people belonging to this are usually not very interested in MBA.

Then situational factors have to be considered; the exhibition centre is a stadium, so a place in which people could experience intense emotions and where external stimulus could be amplified. People could be divided into receptive and non-receptive. Clearly it isn't simple to identify this characteristic; however it's possible to affirm that a person unhappy about his/her job, could feel more ready to take a decisive decision, especially in a euphoric situation. A report presented by the EU commission (Eurobarometer) affirms that 41% of European people feel unhappy about their job. This percentage represents the output target of this segmentation step.

Then considering personal characteristic it's useful to note some typical feature of people between 25 and 30 years:

- They often live with their family, that could influence their decision;
- They often have insufficient savings to pay for their MBA (or other postgrad qualification);
- They often have insufficient consciousness about their future career.

MIP could consider only people belonging to 30-50 class because they don't have the opposite characteristic of the 25-30 class.



**Figure 4.1.4 - Nested approach segmentation**





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## 5 Conclusions

The main goal of CASCADAS is to develop and exploit a service framework enabling Prosumers, Service/Contents Providers to create and use dynamic and situated services across a multiplicity of environments. In particular, the service eco-system offers capabilities of exposing and federating resources, enablers and service components in order to execute (in a distributed way) innovative communication and content-media services with guaranteed end-to-end quality.

The CASCADAS service framework meets:

- Desire of end-users to participate in the creation of content and applications.
- Need for cross-media customised applications spanning different domains.
- Need for enterprises to access flexible ICT-TLC infrastructure to improve their competitiveness and adjust to the emerging global service economy.
- Ability to identify new value networks ever faster thus offering new business opportunities for LEs, SMEs and people through open and standard service platform for creating and using services.
- Pressure to reduce cost of ownership of service environments.

This document has analysed the conceptual map in which SAC technology might be introduced. First of all, it has been noticed that the autonomic component-ware technology could bring a definitive step to sectors convergence on service frameworks, because it affects TLC, ICT, Consumer Electronic and media actors.

The prosumer role is particularly interesting because he/she appears as an evolution of the final customer; in fact thanks to SACs a prosumer could receive and provide contents in an absolutely anonymous way. This fact revolutionizes the business arena, since we no longer have individuals permanently in the role of either consumer or provider.

Moreover we have provided a conceptual framework for segmentation; we can infer that the application of this framework has demonstrated that the SAC target market could be really wide; in fact if we overcome access barriers it can permit a personalization level that is unthinkable with other technologies. This certainly aligns closely with the actual market trend.

In D6.6 “Organizational Model for new communication paradigms (2nd release)” a complete business plan about personal behavioural advertisement will be described considering all the actors identified in the conceptual map and the specific demonstration scenario.



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### Appendix

The aim of this appendix is to collect some examples (e.g. through Press Releases) of business positioning that some key players in TLC, Consumer Electronic, IT and media sector have promoted. This part has been considered quite important because of its direct link to "business world".

#### ***1- Microsoft eyes making desktop apps free***

(From CNET [www.news.com](http://www.news.com), 14.11.2005, Ina Fried)

Even as Microsoft readies a host of new ad-supported online services to battle rivals, the software maker has been mulling a plan to offer free, ad-supported versions of some of its desktop products, CNET News.com has learned.

Although no specific plans have been made, executives within Microsoft are examining whether it makes sense to release ad-supported versions of products such as Works, Money, or even the Windows operating system itself, according to internal documents seen by CNET News.com.

"As Web advertising grows and consumer revenues shrink, we need to consider creating ad-supported versions of our software," two Microsoft researchers and an MSN employee wrote in a paper presented to company executives earlier this year. The document was prepared for one of Microsoft's twice-yearly Thinkweek exercises, in which Chairman Bill Gates and other top executives gather to consider potential new avenues for the company to follow.

#### *What's new:*

As part of its attempt to fend off Google and others, Microsoft is looking at whether it makes sense to release ad-supported versions of Works, Money, or even Windows, CNET News.com has learned.

#### *Bottom line:*

A move to bring ads into Microsoft's desktop software, though risky, would offer the company an ability to move the battle with rivals onto its home turf.

Microsoft officials confirmed the authenticity of the paper, dated Winter 2005, but declined to comment on its contents. However, a Microsoft source characterized the paper as an internal brainstorming exercise.

"It is simply an exploration of different models of delivering software to customers," the source said. "It is not policy, it is not a plan, and no decisions have been made--it's just some thoughts from our research and business units."

In recent weeks, Microsoft has identified a number of ways to increase its online advertising business as it seeks to fend off rivals such as Google. A move to bring ads into its desktop software, though risky, would offer the company an ability to move the battle on to its home turf.

The document also sheds light on Microsoft's concerns over the erosion of revenue from shrink-wrapped software, particularly in the consumer market.

Chief Technical Officer Ray Ozzie and Chairman Bill Gates outlined some of the opportunities and the challenges Microsoft faces in a series of October memos. In the



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blunter of the two missives, Ozzie said Microsoft had an obligation to act on the shift to ad-supported software.

"It's clear that if we fail to do so, our business as we know it is at risk," Ozzie wrote. "We must respond quickly and decisively."

Already, the company has announced plans for Office Live and Windows Live, two products that are ad-supported complements to its existing desktop software. But in the internal documents, Microsoft workers maintain that the software maker may be forced to go further if rivals launch ad-supported versions of popular programs such as PowerPoint.

"If our competitors release free, advertising-supported versions of these programs, we may need to do the same," the two researchers and John Skovron, who works in MSN's Money unit, wrote in the winter 2005 paper.

Microsoft has been mulling a shift to ad-supported software for some time. A paper prepared for a summer 2004 Thinkweek gathering noted the decline in consumer software and suggested Microsoft's MSN online business might benefit from moving from a subscription model to one paid for through advertising.

The more recent paper outlines a number of factors for identifying which desktop software could be ripe for moving to an ad-based model. Such factors include whether the software is frequently used online, whether it contains good data for targeting ads and whether it is likely to face ad-supported competition. Among the products it identifies as meeting some of those criteria are Works, Money and OneNote.

But others both inside and outside Microsoft, have called on the company to go beyond the types of services offered by MSN. An online version of Office is one of the products most often talked about. The company has in the past mulled such a move. But a commercial product never materialized, due to internal political battles and fears of cannibalizing revenue from Office, which is among the company's most profitable products.

#### Plan extends to Windows

The company's exploration of ad-supported software extends even to Windows, its most important product. An ad-supported version of the operating system could make some sense, the Microsoft researchers argue in their Thinkweek piece, noting that the product reportedly earns \$9 per year per user.

"It seems possible that we could match that revenue via ads, but there are difficult UI (user interface) issues to solve, since the OS does not have a natural way to display ads that does not annoy users," the Microsoft workers said in the paper. One suggestion is a low-end version of the operating system that comes bundled with other ad-supported programs, such as Works, Outlook Express and Windows Media Player. However, the writers point out that "it's not clear how to prevent these elements from being replaced." The key is creating a robust enough advertising business to pay for more expensive content than what has been traditionally offered for free on the Internet. At the centre of Microsoft's efforts here is a product called AdCenter. Its initial role is to offer the same kinds of text-based keyword ads as Google serves up through its AdWords, but Microsoft's ambitions for AdCenter go much further.

Executives see AdCenter, which has been known internally by the code name Moonshot, as a way to offer all manner of ads, text, display and video for use both online and offline on a PC, and on other devices, such as the Xbox gaming console or mobile phones.



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"It's not just about (ads that run) in your PC with your browser open," Joanne Bradford, Microsoft chief media revenue officer, said in an interview last week. "Today, it's keyword...We believe in the future it will be about display (ads), video and all that is advertising."

Microsoft is clearly looking to forge new ground with AdCenter, said Matt Rosoff, an analyst at Directions on Microsoft. "It's pretty clear that AdCenter is going to be more than a traditional paid search platform," he said. "They are taking the idea of contextual advertising and applying it fairly broadly."

Rosoff said it makes sense for Microsoft to explore which types of products might be supported by ads.

"It doesn't surprise me at all that they are looking at all possibilities, especially given that a lot of people feel Google is going to go this direction," Rosoff said. He notes that Money, for example, is already a hybrid product that has both a desktop software and an online component.

However, he is not convinced that consumers will accept a vast quantity of ads rather than pay for software.

"Are people willing to pay \$100 every three or four years not to get bombarded with ads?" Rosoff said. "I think a lot of people will."

### Finite market

He also notes that however promising the ad market, it is a finite one that can only support so many products. Today, online advertising is growing as businesses shift from things like yellow pages, print and TV ads, but, Rosoff said: "Eventually that tops out."

Microsoft faces other challenges as well. One problem with inserting ads served over an Internet connection into desktop software is that while broadband access has grown, many computers spend a significant amount of time offline. Also, to pay off, such advertising must be targeted and relevant enough to both generate higher revenue and avoid annoying users.

"It's definitely an idea to pursue, but it's fraught with perils," said Forrester Research analyst Charlene Li.

Li said the move could open up new markets for Microsoft, but notes that it is also a move into largely uncharted waters. "The challenge becomes users aren't necessarily used to having ads on desktop applications."

These concerns could explain why Microsoft held discussions to buy controversial adware maker Claria this summer, though ultimately no deal was announced.

Privacy is another major issue Microsoft expects to face. The paper suggests some options such as offering paid, ad-free upgrades; allowing users to turn off some of the personalization options in favor of more generic ads; and choosing applications to be ad-based in which users are already sharing private data. Even those moves may not be enough, the paper suggests. "Unfortunately, even where consumers are willing to make this trade, privacy advocate and perhaps European regulators are not," the authors wrote.

Li notes that some users might feel comfortable, say, writing a letter about their trip to Costa Rica in a free, ad-sponsored word-processing program and seeing ads for Costa Rica travel, while others may find that crosses a line.



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"Everyone has different thresholds for how much their privacy is worth," Li said.

Despite the concerns, though, the researchers argue that Microsoft needs to act.

"As online advertising increases our competitors will enter many markets with free, ad-supported products," they wrote. "We must have free, ad-supported entries in these same areas."

## **2- New Microsoft Services Will Rely on Online Ads**

(from The Wall Street Journal, 02.11.2005, Roberta Guth)

Microsoft is creating online services coupled with its two major software lines, Windows and Office, which are designed to help the software maker tap into the swelling market for Internet advertising. The new offerings are an attempt by Microsoft to tie its biggest software franchises to the rich pool of online advertising that has fueled the growth of companies like Google, the Web-search giant. Microsoft has built its fortunes on licensing its software to corporate customers and selling it preinstalled on personal computers. But a relatively small amount of its revenue flows from online advertising; a market that one Microsoft executive said could grow to \$150 billion by 2015 from \$15 billion today. One new offering is Office Live, a set of online services aimed at small businesses with limited computer expertise. The service includes Web-based email and software for collaborating online, and is designed as a complement to Microsoft's Office suite of business-productivity applications.

In another thrust, Microsoft plans to package elements of its MSN online service under a new service called Windows Live. The services included in the new offering, include Microsoft's Messenger instant-messaging service; a new Web-mail service dubbed Kahuna; and Spaces, the company's service for creating the online postings known as Web logs, or blogs. The offerings are designed to be used on a personalized home page, at [www.live.com](http://www.live.com), and also are linked to an online virus-scanning service called Windows Live Safety Center. "This advertising model has emerged as a very important thing," Microsoft Chairman Bill Gates said. "We want all software developers to tap into that." Each of the new offerings will be supported mainly by advertising. Microsoft's MSN service has been developing an online-ad brokerage service that potential advertisers can use to buy ads on MSN's Internet search engine. That brokerage service, called AdCenter, will be the foundation for ad sales on Windows Live and Office Live and other online services, including services run by Microsoft's videogame and mobile-phone units, Microsoft executives said. Microsoft executives emphasized that the new services aren't replacements to the company's existing Windows and Office products, but rather additions. Office Live, for instance, assumes that customers have Office applications like Excel and Word, installed on their PCs, and adds online elements that could enhance use of the applications. At an announcement yesterday, a Microsoft executive showed how a small business could share a financial document online with an accountant, demonstrating how changes to the document on a PC at the small business are reflected automatically on the accountant's PC. Such functions are available to large corporate customers now through more complex software from Microsoft. Microsoft is offering most of the new services free, hoping that advertisers will support them by buying banner ads displayed on the Office Live and Windows Live services. Each of the services can match ads to Internet users' interests and Web activities. For instance, if a Windows Live user has his



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personalized Web site set to include information on cycling, software can direct ads for cycling gear to the site.

<b>Online Push</b>		
Microsoft has created online services coupled with its two major software lines:		
	<b>WINDOWS LIVE</b>	<b>OFFICE LIVE</b>
<b>What it is</b>	Personalized Web services and software for individuals	Internet services for small and mid-sized businesses
<b>What users get</b>	Personalized home page with Web email, instant-messaging and virus scanning	Domain name, Web site with 30 MB of storage, five email accounts and variety of business applications
<b>Business model</b>	Most services free to users and supported by advertising, though some fee-based services will be added	Business applications will require subscription fees; other services free to users and supported by advertising

Source: Microsoft



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### **3- Watching the Web on TV**

(from The Wall Street Journal, 03.01.2006, Peter Grant e Don Clarck)

The past year has seen an explosion of video content on the Internet as major entertainment companies have begun making thousands of hours of sports, music videos, movies, news and other programs available on the Web.

Now some of the biggest technology and media companies are trying to make it easier to watch Web-based content on TV sets, as well as on computers.

Those efforts, a major focus at this week's Consumer Electronics Show in Las Vegas, eventually could have a major impact on the way consumers throughout the world watch television. While cable and satellite TV services offer hundreds of channels and up to thousands of video-on-demand choices, the amount of content available on the Web is virtually limitless.

"We're going to see in 2006 and 2007 a much more well-established Internet access into televisions," says Peter Weedfald, who heads the consumer-electronics business in the U.S. for Samsung Electronics Inc.

For consumers, this could mean instant access to hard-to-find content, such as films in foreign languages and old TV shows, as well as on-demand episodes of prime-time fare that networks like NBC have started to make available. Starz Entertainment Group LLC announced today an Internet-based movie-subscription service called Vongo that will offer users unlimited access to more than 1,000 movies and other programs for \$9.99 a month.

But the trend is a threat to some entrenched players, such as cable operators.

While cable companies now make billions by selling high-speed Internet connections, TV on the Web could threaten their traditional role as middlemen between viewers and programmers. They haven't rushed to offer set-top boxes, for example, that combine their conventional menu of scheduled programming with access to the broader Internet.

Leading the Internet TV charge, rather, are computer-industry players like Microsoft Corp., Cisco Systems Inc. and Intel Corp., which have long been trying to muscle into the living room. Cisco's Linksys unit, for example, in Las Vegas plans to show a DVD player that also plays video in Microsoft's Windows Media format -- a standard on the Web -- and has a broadband connection for routing content off the Internet to TV sets. The product is expected to be available in Europe in February and in the U.S. this summer.

Intel will unveil "Viiv," a technology and branding campaign designed to spur a new generation of media-oriented PCs and content that will work with them. Using new low-powered Intel chips, Viiv PCs will come in small, quiet models that consumers are more likely to put next to their TV sets. "Viiv is targeted for the living room, with a beautiful TV screen," says Eric Kim, Intel's senior vice president of sales and marketing.

To be sure, it will be a long time before viewers can sit on their couches and easily watch any piece of Internet video on their TVs. Some service providers plan to follow the lead of cable and satellite operators, cutting deals with content owners to offer only a selection of Web-based programs rather than opening up the TV to the Internet.



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"What you are going to see in the near future is just another walled garden," predicts Saul Berman, a global partner in International Business Machines Corp.'s media-and-entertainment consulting business. "It's not true Internet TV."

There are other hurdles. In most homes, Internet content arrives through a PC, which is usually in a different room than the television set. Microsoft and others have promoted devices to wirelessly stream video from one room to another, but most don't work well enough -- leaving customers with the daunting prospect of stringing cables through the house.

Some companies, such as Akimbo Systems Inc., sell TV set-top boxes that connect directly to the Internet and provided select Web video. But some consumers aren't eager for another set-top box, unless it is easy to set up and install.

What's more, little Web video has been adapted to look good from 10 feet away on a TV screen, or work with a remote control. "The gap between the TV set and the computer is one of the most difficult gaps to bridge in the whole digital world," says Josh Bernoff, an analyst at Forrester Research.

In an earlier phase, PCs assumed many of the roles of TVs, letting consumers download and play all manner of entertainment. But most industry executives agree that Internet content doesn't really become a mass medium until it can be viewed by a consumer on the couch with a TV and a remote control.

But technology companies are attacking these problems. In Las Vegas, Hillcrest Labs Inc., for example, plans to display a new donut-shaped remote control that uses two buttons and a scroll wheel to zoom in and out of graphically displayed content choices. The device "looks promising" for solving navigation problems, according to a recent Forrester report.

Meanwhile, the quantity and quality of Web video have steadily improved as the number of households with high-speed Internet connections has skyrocketed. (More than 40 million U.S. households have one today.) A long line of major networks and entertainment companies including ESPN, MTV, CBS, NBC Universal and Comedy Central have started to look to Internet content for growth. America Online and Yahoo have also developed original content for the Web.

One reason for heightened interest in moving video from the PC to the TV is the improving capability of software for limiting piracy, which enforces rules on how content purchased from the Internet is viewed and redistributed. But those safeguards don't prevent users that have illegally downloaded content from watching it on their TV sets.

Many new content offerings are expected at the CES show from technology companies, satellite TV operators and even television manufacturers.

The Starz service, for example, will start with content from studios affiliated with Walt Disney Co. and Sony Corp., but is expected to later broaden its offerings. Starz executives say they worked closely with Microsoft to make sure the videos look good on Windows PCs and portables as well as TV sets.

"There was a point in time where you needed to hurry up and get a Web site," says Dan Putterman, chief executive of Mediabolic Inc., a Silicon Valley company that makes software for Internet TV. Now, content providers "better hurry up and get a 10-foot view of whatever they are trying to present."

Web content also will likely get a lift from satellite TV operators, hoping to use it to counter cable companies' video-on-demand services. The next generation of set-top boxes that





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both DirecTV Group Inc. and a partnership of AT&T Inc. and EchoStar Communications Corp. display in Las Vegas will have Ethernet jacks for broadband connections. Subscribers to these services, along with their regular satellite TV channels, will be able to choose from hundreds of movies and other programs piped over the Internet.

Combining the Internet and TV isn't a new idea. In an early push into the living room, Microsoft in 1997 acquired WebTV Networks, a company that developed a set-top box that enabled users to flip back and forth between the Internet and TV programs. That service mainly attracted a small audience of people who wanted to view Web pages without buying a computer. It eventually was absorbed by Microsoft's MSN TV service.

In 2002 Microsoft rolled out its Media Center operating system, which helps users navigate through audio and video files using a remote control. So far, though, Media Center PCs have tended to attract consumers who want to use the devices instead of a TV.

But Microsoft has been making it easier to connect to TVs. For example, its new Xbox 360 game console can connect to Media Center PCs -- using wires, or wirelessly -- to move video or other content to TVs more easily. For nongamers, Microsoft will be showing in Las Vegas its MSN TV 2 Internet & Media Player, which includes a broadband connection and places more emphasis on video content.

Even traditional television manufacturers are preparing for Web TV, although they're reluctant to add expensive new features to sets before there's a clear consumer demand.

Samsung, for example, will show in Las Vegas how its so-called "expandable home theater," or XHT technology allows TV viewers easier access to Web content. Panasonic this year introduced its first line of plasma TV sets with a special computer input that essentially turns them into screens for any computer that's plugged into them. Company executives say it's a first step toward sets that in the future could make watching TV off the Internet as easy as watching it off cable or satellite connections.

"Content originally came over the air, then over the cable and now over the Internet," says Andrew Nelkin, a vice president of Panasonic Corp. of North America. "We have to display content no matter how the customer wants to get it."

### Net Works

Some new products that are bringing Internet video to TV screens:

	PRODUCT	DESCRIPTION
<b>Intel</b>	Viiv	Platform for computers that makes them easier to hook into TVs
<b>Cisco</b>	DP 600	DVD player with a broadband connection for pulling content off the Web
<b>Microsoft</b>	Xbox 360	Not just a gaming console, the Xbox routes videos and other content from Microsoft Media Center computers to TVs
<b>AT&amp;T and EchoStar</b>	Homezone	Satellite TV service that provides video on demand via the Internet
<b>Panasonic</b>	PX 500	Line of TVs with computer inputs that can display any content off the Internet or a computer

Source: the companies



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### Watching the Web

A sampling of video content available now or soon online:

- **AOL (aol.com)** Starting early 2006, episodes from TV series such as 'Welcome Back Kotter,' 'The Fugitive,' 'Eight is Enough,' 'Growing Pains' and 'Lois & Clark;' on six online channels
- **CBS (cbs.com, cbsnews.com)** Web-only video supplements, soaps and shows such as 'CSI' and 'Survivor;' talk-shows and interviews with contestants and actors. CBS News offers Web-only breaking-news coverage, evening news segments and behind-the-scenes pieces
- **Comedy Central (comedycentral.com/motherload)** Clips from shows such as 'Chappelle's Show,' the 'Daily Show With Jon Stewart' and 'South Park;' shorts, short clips from comedians' stand-up acts
- **ESPN (espn.com)** ESPN Motion videos are embedded in most Web pages and include game highlights and athlete press conferences; ESPN 360, only available to some broadband providers' subscribers, offers full archived games and live sporting events
- **MTV (mtv.com/overdrive)** Live performances, music videos, interviews with musicians, movie trailers, news
- **Starz Entertainment Group (vongo.com)** Subscribers pay a monthly fee for unlimited downloads of more than 1,000 movies, including 'Finding Neverland,' 'Annie Hall,' 'Good Will Hunting,' as well as concerts, extreme sports and Starz TV programming

Source: the companies

## 4- Telefonica to Buy O2 For \$31.4 Billion

(from The Wall Street Journal, 31.10.2005, Keith Johnson e Jason Singer)

Telefonica SA agreed to buy British cellphone operator O2 PLC for £17.7 billion (\$31.4 billion or €26 billion), the Spanish telecommunications company said Monday. The deal is part of Telefonica's efforts to expand in Europe after years of building its business in Latin America. The agreed cash deal, at 200 pence a share, represents a 22% premium to O2's share price at the close of trade Friday. The deal ends years of speculation about O2's future. O2, the star performer in the European mobile telecoms sector over the past three years, has attracted attention from German telecoms giant Deutsche Telekom AG and Dutch incumbent operator KPN NV over the past two years. Telefonica will acquire O2's assets in the U.K., Germany and Ireland, and won't face the same regulatory hurdles as other rumored bidders as Telefonica doesn't operate in those markets. Madrid-based Telefonica, which is the world's fifth-largest telecommunications company by market value, has been looking for an acquisition in Europe, where the telecommunications industry has been on a mergers-and-acquisitions spree in the past year. Telefonica recently approached KPN NV of the Netherlands over whether the companies should begin merger negotiations. But KPN was cool to the overture and no talks ensued, people familiar with the matter said. The Spanish company then focused its sights on O2, these people said. O2 was spun out of BT Group PLC, the United Kingdom's largest traditional phone-service company, in 2001. Based in Slough, England, O2 has 15,000 employees and 24.6 million mobile-phone customers in the U.K., Ireland and Germany. After working their way out from under mountains of debt incurred in the late 1990s, many European telecommunications companies are flush with cash, prompting the larger ones such as Telefonica to look for deals and making smaller ones attractive acquisition targets. This year operators have been snapped up in multibillion-euro deals in the Netherlands, Austria, Italy, Spain and the Czech Republic. Private-equity firms are in the midst of attempting a \$12 billion deal to buy TDC AS of Denmark, that country's largest carrier, which also has big businesses in Switzerland, Poland, Germany and elsewhere. Moreover, some of Europe's huge traditional, fixed-line service providers such as France



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Telecom SA and Telecom Italia SpA are pushing their wireless and fixed businesses closer together. In July, France Telecom in a surprise move that encroached directly on Telefonica's turf, spent €6.4 billion (\$7.7 billion) for Spanish mobile-phone operator Amena. Buying cellphone operators makes sense for fixed-line providers because the intense competition and new technology such as telephone calls over the Internet have turned traditional telephone calls into a low-margin, commodity business. Upstart companies offering extremely low-cost voice calls also have driven prices down. Telefonica's mobile-phone division, Telefonica Móviles SA, has more than 90 million customers in 15 countries. (Telefonica owns 92% of Móviles.) But the cellular operator derives about half of its sales from Spain and much of the rest from Latin America. Telefonica had first-half revenue of €17.4 billion and net profit of €1.8 billion. For Telefonica, O2 will provide geographic diversity. It will also boost Móviles's size. That is important for cost savings through sales and distribution, but perhaps more so because bigger cellphone companies pay manufacturers less for handsets that they then sell to their customers. After acquiring Bell South's Latin American cellular assets last year, Móviles lowered by 35% the average cost of handsets because of its greater clout in that market. In the second quarter, Móviles's net profit rose 4.5% to €495.7 million from a year earlier on sales of €4.1 billion. Takeover speculation has swirled around O2 for months. Deutsche Telekom and KPN together tried to formulate a plan to buy O2 earlier this year, the companies said at the time, but no deal emerged. The two companies were forced by U.K. takeover regulators to shelve their plans for six months, but would be allowed to revisit the proposal and potentially make a counterbid if Telefonica launched a formal offer. The U.K. cellphone market is extremely competitive, with four major players -- Vodafone Group PLC of the U.K., the world's largest cellphone operator by sales; Orange, owned by France Télécom; O2; and Deutsche Telekom's T-Mobile. In addition, a service called "3" owned by Hutchison Whampoa Ltd. of Hong Kong has aggressively been promoting the next generation of cellphone service known as 3G, which permits users to perform more sophisticated functions such as browsing the Internet and watching video clips. But O2 has been performing strongly. The company said recently it expects stronger growth in revenue in the U.K. and more robust profit margins in Germany than it previously anticipated. In the U.K., the company said rapid growth in subscribers pushed its customer base to more than 15 million for the first time, excluding 750,000 customers using the Tesco Mobile service, a joint venture with the U.K.'s largest retailer, Tesco PLC. Telefonica invested several years ago in third-generation licenses to operate in Germany, Italy and Switzerland but eventually wrote off more than €5 billion in the value of those investments. Goldman Sachs Group Inc. and Citigroup are acting as advisors to Telefonica in the O2 deal. Telefonica has obtained committed financing, arranged by Citigroup, Goldman Sachs and the Royal Bank of Scotland Group PLC. J.P. Morgan, Cazenove and Merrill Lynch & Co. advised O2. In London on Friday, shares in O2 climbed 2.7% to 164.25 pence (\$2.91); in Madrid, shares in Telefonica closed down 0.3% at €13.62.