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"m-commerce"

Deliverable summary

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Introduction

This Deliverable is the final report of the works of e-Business Forum Task Force 5 (TF B5) on **"m-commerce",** carried out during the first half of 2002. It includes the results of works, proposals – considerations, and a wider objective framework concerning the making of a strategy for the development of m-commerce in Greece.

Greek society is transforming into a "post-industrial" society characterized by radical changes in production, economy, and daily life brought about by new Information and Communication Technologies (ICT).

The citizens, businesses, and other public and private entities, as well as the government need to realize, as soon as possible, the consequences and challenges of "e-business" and systematically plan those actions that will ensure a self-promoted development and social cohesion.

The "Framework for the *Development of m-commerce in Greece*" oriented towards the needs for creating a strategy within the next five years, includes those strategy proposals that constitute a wider framework of reference, so that they can specialize in detailed action plans aimed at serving the design of Operational Programs by the competent government authorities. In addition, the *Framework* includes proposals for large scale actions and activity plans, that need to be undertaken by the public sector, businesses, local and regional government and the citizens.

TF5 was oriented towards new business models, competition conditions in the market, the possible sociogeographic impact of mobile Internet and the appropriate regulatory structures and policies at both national and European level.

Methodology

The task force, using specific methods (Scenario Planning Methodology) focused on the presentation and analysis of scenarios concerning future m-commerce

applications and services [1]. The procedure followed included three results analysis and one results synthesis stages.

I. I. Presentation and Analysis of Hypothesis on m-commerce evolution in Greece. Specifically, development of scenarios was based on the evaluation of the following 7 hypothesis on how things can evolve 5 years into the future. Each hypothesis is evaluated in terms of the extent that it can be implemented or not. A further analysis gives a picture of the extent to which various combinations of the following hypothesis may become reality or not. This combination analysis formed the basis for the development of the scenarios that were presented and analyzed by the regular members of TF5.

Hypothesis about the future

1. Mobile telephony and network services providers prevail in terms of the control of the value chain and the subscription base, and determine the services to be provided and by whom.
2. There is full interconnection among services, devices, and networks.
3. Investment in the wider public sector ensure incentives for the development of new services and networks.
4. Doubts and differences related to the intellectual property rights of m-commerce contents are rare.
5. Open standards that have dominated m-commerce technologies and networks.
6. There is an efficient regulatory framework concerning personal data.
7. A technological pluralism prevails. UMTS is not the only platform, but it coexists with other network technologies (e.g. wireless local networks, GPRS, etc.).

II. Rate desirability and attainability of each end-state

The remarks collected at this stage (by means of electronic questionnaires distributed to all members of TF5) were an important finding in the adaptation of scenarios to Greek reality.

[1] The above methodology was adapted to the extensive study conducted within the framework of MobiCom, the European research project, which is financed by the European Union Information Society Technologies (IST) Program and is coordinated by the research team of the Athens University of Economics and Business ELTRUN (cf. Annex B for more details).

III. Presentation of scenarios of m-commerce evolution Specifically, four evolution scenarios were presented and analyzed:

Scenario 1: Usual suspects: slow development in the search for business models

Although UMTS, a 3rd generation network, made its first appearance and prevailed in 2003, the largest part of the population has not yet gotten to know with the possibilities and benefits offered by this new network. Technologies, such as the wireless local area networks (WLAN), the ADSL technology, home networks and wire modems compete greatly amongst them, since they are alternative technological solutions.

Lack of interconnection possibility of networks in conjunction with the intense competition for attracting subscribers, results in incompatibility among the services of different providers. In general the extension of services per user, and the introduction of new competitive services has been proven to be a difficult hypothesis.

Although the technological picture is heterogeneous, mobile communication companies are those to decide which services are available, over which channel they shall be provided, and which are favored services providers. Attempts for the standardization of services and interfaces face the reaction of mobile communication organizations, since the latter believe that technological pluralism is the principal means of competition. Venture capitals show particular hesitation in terms of monetary investment by companies dealing with m-commerce.

Content providers do not believe that wireless networks shall be able to compete with the Internet for providing access to their services. Although provision has been made for intellectual property rights in applicable legislation, they still present problems.

The standard development procedure proceeds at a slow pace. This is partly due to the existence of problems in the integration of different standards, as well as to the action of closed groups that promote their interests to the expense of reaching unanimity. As a result, large players attempt to create their own incompatible specifications, hoping that they shall have exclusivity over their customers.

The public sector does not play an active part in market development, hence the dissemination of mobile services is not strengthened through state investments. With regard to the regulatory framework, there is a tacit agreement that mobile communication organizations must be allowed to maintain their current position in the market in the expectation of high profits in the near future. Consumers complain about particularly costly services. Finally, m-commerce is the privilege of the few and rich. The masses enjoy only simple entertainment services (e.g. the Big Brother show) and not advanced added value services.

Scenario 2. Institutionalization: Unanimity of authorities on a controlled development

This scenario reflects an optimistic viewpoint about the future market of e-commerce. There are many available technologies, hence mobile technology companies can provide their services over multiple heterogeneous networks, such as UMTS, WLAN, GPRS, etc. In order to face technical challenges, small mobile communication organizations are trying to create synergies with the powerful ones.

The domination of mobile communication companies is partly due to the control of the customer base and their exclusivity to provide systems for payment through mobile phones. From the point of view of providers, the situation is more problematic. The existing power asymmetry among operators, obliges them to compete strongly in order to assure their cooperation with the few prevailing players in the market.

The protection of intellectual property rights is considered an issue that has been resolved, and this is due to the cooperation of legislative and regulatory authorities with mobile communication organizations. The cooperation of mobile communication organizations with content providers is a benefit relationship with regard to both parties. The larger the market, the more attractive it is for those mobile communication organizations that pursue a cooperation with content providers.

Standardization is on a good way. Standardization organizations have been able to apply detailed standards for services and devices, but not to such detail so as to avoid symptoms of adherence to specific technological solutions. Those who benefit from the existence of compatible services with sufficient differentiation possibilities are large players in the area of telecommunications, such as manufacturers, mobile communication organizations, and service packages providers.

The legislation protecting personal data has been applied successfully, and the first problems have been solved in cooperation with mobile communication companies and the authorities. In 2006, the mobile communication channel is still an expensive alternative, particularly for sparsely populated areas, where service quality oscillates around low levels. In this market, non governmental authorities place emphasis on services targeted at special groups of people, such as the elderly and the disabled, and are wary of the development of polarization trends in the Information Society.

Scenario 3. The world has changed: the operators are withdrawing

In 2006 there shall be many technological platforms in m-commerce. The UMTS has shown some progress, particularly in the business market, but with regard to individuals, cheaper WLANs and GSM 2.5G+ networks prevail. Mobile communication companies have reassumed their traditional role of network providers. Thus, it is to their own interest to enable connection among services, devices and networks so that they increase traffic over their networks.

Based on the fact that mobile communication organizations have withdrawn from the services sector, this has prepared the ground for other interested parties. Therefore, an open and quickly growing market has been created for the integration and provision of services, as well as for the development of applications which results in the provision of a number of services easily accessible by all consumers. Unanimity with regard to the importance of the implementation of open standards aids in this market acceleration.

Traditional content providers worry due to the fact that the rapidly growing market is not efficiently regulated. New entrants perceive the situation as very attractive, since there are many opportunities for them. The competition policy has been successful. *De facto* identification, authorization, and security standards are widely used. For instance, services providers have introduced their own reliable payment systems. Payment methods vary, resulting in the existence of many different SIM cards at special discounts, special schemes aiming at retaining customers, etc. However, this does not mean that services are compatible.

Big increase in the number of services, business models and services providers has created a situation in which consumers cannot easily understand the quality and different prices among the services provided. On the other hand, the advantage of

this situation lies in the fact that there are numerous services provided. The main issue are data protection and price non-transparency issues. Data protection is of great interest, since existing technologies do not suffice. The use of personal data while on the one hand adheres to applicable legislation, on the other hand it is moving towards a more “liberal” direction.

Scenario 4. The “invisible hand”: free, liberal markets

This scenario reflects the development of e-business from the market point of view. It is an ambitious scenario, since according to it market competitiveness shall provide the means for solving problems and market growth. Technological pluralism is an outstanding issue in this scenario. There are multiple technologies and m-commerce takes place on many technological platforms such as UMTS, GSM, WLAN, GPRS, etc. Interconnection among different networks is possible and this is particularly appreciated by users and the industry in general. Standardization organizations and device manufacturers have succeeded in their efforts to introduce open standards.

The service providers and application development companies market is also very competitive. There are many players, and their number is constantly increasing due to the liberal market structure. On the other hand, the part played by network providers has diminished as a result of the separation of their roles as network providers and not services providers. Regulatory authorities see in this a sufficient condition to create a competitive market in Europe.

The players involved have not realized the need to gain advantage by drawing on personal data for the development of new services. Besides, it has been proven in many cases that it is to the interest of consumers to provide service providers with their personal information and data so that they receive personalized services.

As a result of this whole growth, services follow a liberal pattern. There is fierce competition among services providers, as well as among services and applications development companies. However, as was expected, big names are in control because consumers trust them.

Results synthesis: Conclusions & Suggestions

In total, the European m-commerce market, and despite the world recession, holds an advantageous position since it is constantly growing in the mobile technology area, while experience from e-commerce in the US, is a useful guide. The following are of critical importance: a) the creation of an efficient regulatory framework; b) security of transactions; and c) the provision of rich and interesting content to end users.

Within this scope, TF5 was driven toward a number of conclusions on the evolution of m-commerce both nationally and at a European level. The most important conclusions can be summarized as follows:

- broadband technologies are still at a low development level compared to the US, however rapid growth is expected in coming up years;
- the liberation of the telecommunications sector shall strengthen competition to the benefit of end consumers;
- at the present stage the **ARPU (average return per user)** tends to reach the highest possible levels; this creates a need for the development of added value services for customers; in this framework, m-commerce application shall have a rapid growth equivalent to that of the e-commerce markets, giving added value to the mobile telephony market;
- financial transactions and entertainment services are expected to be the domains of the most important application of m-commerce in Europe;
- the part plaid by mobile telephone manufacturers shall be critical;
- at the present stage, technological limitations are a critical suspensive factor; however, this cannot be an excuse for the players active in this area;
- a critical success factor is the “socialization” of new m-commerce applications and not the adaptation of consumers to a sterile technoeconomic model;
- investments among young people (12-25 years of age) shall be of particular value;
- despite the development of global strategies, there an ever increasing need for the development of local services.

Based on the above conclusions, the strategy proposals of TF5 fall under the following four action “priorities”:

PRIORITY I	Services for supporting the public sector - citizens relation
I.1 Actions for the dissemination of the use of m-commerce	***Government and Public authorities, Businesses Welfare Organizations and Associations*** **I.1.1** Implementation of at least one citizen service program through extensive use of mobile technology applications (e.g. payments to the Ministry of Finance), so that it becomes a point of reference in the next two-year period, and it also reinforces other similar programs in the next five years. **I.1.2** Cooperation among businesses and other non governmental organizations with public authorities for the provision of citizen service (e.g. health schemes addressed to vulnerable population groups) **I.1.3** Incentivation of employers, so that all employees have access to the mobile Internet from their workplace. **I.1.4** Incentivation of employers (private and public entities) for providing employees with access to the mobile Internet outside the workplace (e.g. from home). ***Welfare Organizations and Associations*** **I.1.5** Adoption of new methods for the development and provision of high quality digital content and services for use through m-commerce. ***Local and regional government and Businesses*** **I.1.6** Priority to the establishment and operation of local information and mobile Internet access centers (one-stop centers). **I.1.7** Promotion of the provision of local "content" over the mobile Internet, as well as information programs adapted to local needs. **I.1.8** Design and implementation of innovative local m-commerce programs (Flagship initiatives –clusters of innovation).
I.2 Development and expansion of the regulatory framework	***Government authorities*** **I.2.1** Immediate priority to the determination of the institutional framework for the development and expansion of the government - citizen transactions over the mobile Internet.

	I.2.2 Development of intellectual property control and assurance mechanisms of the content provided through new m–commerce services. **I.2.3** Ensuring the protection of customer—consumer personal data.
PRIORITY II:	**Reinforcement of intervention, monitoring, and analysis structures**
II.1 Coordination of government agencies (Ministries, organizations etc.)	***Government and public authorities*** **II.1.1** Coordination for making collaboration/ information exchange policies among government authorities over the mobile Internet.
II.2 Reinforcement of the m-commerce market monitoring and analysis mechanisms	***Government and public authorities*** **II.2.1** Monitoring of changes in the m-commerce content in the following areas: • information technologies; • high technologies; • education; • health; • agriculture; • tourism; • banking; and • the mass media in cooperation with business and employees representatives. **II.2.2** Implementation of an indicators system for recording developments and interventions. Design and conduction of longitudinal surveys and the relevant econometric studies. **II.2.3** Renewal (every two years) of the "Framework *for the Development of m-commerce in Greece*"
II.3 Decentralization and reinforcement of the part of the Regions and of the local and regional government	***Local and regional government organizations*** **II.3.1** Cooperation with public authorities, businesses and welfare organizations in the coordination and implementation of national programs related to the mobile Internet. Half-yearly monitoring and assessment of the results of actions.
PRIORITY III:	**Reinforcement of entrepreneurship**
III.1 Identification	***Government authorities***

and mitigation of institutional constraints	**III.2.1** Mitigation of institutional constraints to the entry of new companies in the m-commerce services sector. **III.2.2.** Regulatory measures for the clear separation of the part of players acting in the m-commerce value chain. **III.2.3.** Acceleration of the adoption of EU Directives on the competitiveness and transparency in the services sector.
III.3 Strengthening private initiatives	***Government and public authorities*** **III.3.1** Reinforcement of the (special) SME Support Centers, particularly with regard to the development of innovative m-commerce applications. ***Businesses*** **III.3.2** Creation of autonomous units/ organizations separated from the main business backbone (through support to venture capital funds, incubators, business "angels").
PRIORITY IV:	**Information and awareness raising**
IV.1 Information about the aforementioned actions and raising of awareness with regard to the relevant impact within the next five years	***Government and public authorities, local and regional government organizations*** **IV.1.1** Provision of large scale information and services over the Internet ("online", "m-government services") to the public. Particular emphasis on user-friendly environments. **IV.1.2** Taking of initiatives for informing citizens locally. ***Businesses, Welfare Organizations and Associations*** **IV.1.3** Taking and/or reinforcement of initiatives (through subsidies) for promoting actions among citizens. **IV.1.4** Support to initiatives for creating a positive public opinion. **IV.1.5** Mobilization of the mass media.

In order to achieve our objectives at national level, since they concern the long-term development effort of the country toward the Information Society and the global Knowledge Economy, combining economic growth and social cohesion, ***the suggestions presented above need to be combined with measures concerning***

the institutional framework, on the regulatory role of the government and the decentralized administration and planning structures (the Regions, and local and regional government).

Lastly the large scale actions and the action frameworks suggested here, require coordinated design and planning on the part of the Ministry of Finance and National Economy, the Ministry of Development and the Ministry of the Interior and Public Administration.