SUPPORTING SALESPERSONS THROUGH LOCATION BASED MOBILE APPLICATIONS AND SERVICES

Chihab BenMoussa
Institute for Advanced Management System Research, Turku Centre for Computer Science, Lemminkäisenkatu 14 A, FIN-20520 TURKU, FINLAND

Abstract: The paper aims at assessing how mobile location applications and services can support salespersons, for greater performance when they are operating within a mobile work environment. After briefly discussing the state of the art issues associated with mobile location technologies, the paper conceptualises key dimensions of location-based mobile support. The paper then suggests a categorization of salespersons tasks based on both properties of location-based mobile support and the areas of salespersons tasks that may be affected by mobile location technologies. A third section suggests potential mobile location services and applications that can support salespersons in performing effectively their everyday tasks and links such applications to the determinant of salespersons' performance. The paper concludes with a discussion of a number of critical issues such as salespersons privacy, risk of information overload, autonomy and some core areas of further research.

Key words: Mobile location technologies, Salespersons tasks, salespersons performance, knowledge-mobilisation

1. INTRODUCTION

It has been argued that the marketing department is the last organizational function to adopt information technologies (IT) in order to enhance its contribution to the overall corporate performance (Rivers et al. 1999). How-

ever despite such a laggard behaviour, the amount of IT investment the marketing department has received particularly in the form of sales force automation (SFA) is heavy compared to its counterparts functions within the organization. It was estimated that in USA alone 2.2 million salespeople were using SFA systems with a yearly growth rate of 40% (Engel et al.2000). Industry experts estimate that three-quarter of American large and medium-seized organizations have been implementing some degree of SFA. As a result, SFA market has been booming. In 1996, revenues from SFA industry reached US$ 1.5 billion (River et al.1999).

Companies have invested in sales force technologies such as sales force automation (SFA), knowledge management technologies and customer relationship management in order to take benefit from what such technologies promise in terms of decreasing costs (Taylor 1993), reducing cycle time (Thetgy, 2000), improving organization and access to information (Leifer, 1999). Some authors went too far as to claim that investments in sales force technologies are a sine qua non condition for an organization to remain competitive (Taylor, 1996; Good and Schultz 1997; Peppers and Rogers, 1998).

However, the expected benefits of such investments in terms of productivity do not seem to be realized. Studies show that for every two successful implementation of sales force support systems, there are three failures (Schafer, 1997). And given the costs in terms of both dollars and time associated with the implementation of such systems, some authors start questioning even the utility to engage in such investments. For instance, Thetgyi, 2000 believes that SFA has brought many companies pain rather than profit. Similarly Petersen, 1997 claims that the "jury is still out" regarding the true pay-back of sales force support systems. Indeed, it has been reported that the cost of implementing an SFA system can reach $ 3500 per salesperson (Girard 1998,Taylor, 1994,).

One possible cause of the gap separating sales force support systems investments and their impact in terms of salesperson 'productivity is that such systems have been designed with insufficient attention to the tasks and the social context of salespersons' work in general. For instance, many companies have invested in knowledge management systems such as knowledge repositories and intranets in order to support their salespeople for greater productivity. However, it has been found that most of such systems lack the customers (P. Keen et al, 2001). This is due to the fact that such knowledge management systems have been designed with stationary work setting in mind (BenMoussa, 2003). In order to benefit from their support, the sales person often has to be in a specific place (typically the office) use a specific tool (his/her personnel computer) and adapts to how the knowledge is stored and organized. However, salespersons spend a considerable portion of their

time on the move. And during their extensive geographical movement, they are often away from their desktop computers, which contain most of the information they need and impose rigid constraints on how and where they can be used. The use of laptops by salespersons has contributed in reducing this gap separating salespersons on the move and their access to critical corporate resources. However, laptops still impose limitations in terms of arming salespersons with instant updates at the moment of relevance that can enable them to perform effectively their various sales activities. For instance, in order to receive instant updates using a laptop, a salesperson has to connect to the Internet or through corporate dialup, which in many cases requires them to be tied to a physical location (Rodina et al., 2003).

Mobile (or wireless) applications, despite being different in their nature, they share a common characteristic that distinguishes them from their wireline counterpart: They put the user at the centre of information and communication by enabling him/her to both receive and get access to information support anytime and despite their constant move. Location identification has become a critical component of mobile applications as it opens the door to a world of applications and services that were unthinkable only a few years ago (May, 2001). The term mobile location services (MLS) refers to a group of applications and services that utilize information related to geographical position of their users in order to provide adding value services to them (Gialias, 2003). MLS as new entrants to the mobile application world have received to date limited focus with regard to their real potential and value adding impact in terms of performance enhancement especially to workers on constant move facing the uncertainties and constraints associated with their mobility. The phenomenon is indeed simply too novel for a proper debate to be emerged. The aim of the paper is therefore to analyse how MLS can support salespersons, for greater performance when they are operating within a mobile work environment. After briefly discussing the state of the art issues associated with mobile location technologies, the paper conceptualises key dimensions of location-based mobile support. The paper then suggests a categorization of salespersons tasks based on both the properties of location-based mobile support and the areas of salespersons tasks that may be affected by mobile location technologies. A third section suggests potential mobile location services and applications that can support salespersons in performing effectively their everyday tasks and links such applications to the determinant of their performance. The paper discusses and systemises examples of location based mobile application and services in terms of the four functional types: the time saver, the relationship enhancer, the proactiveness enabler and the morale booster location-based mobile applications and services. The paper concludes with a discussion of a number of critical issues

such as salespersons privacy, risk of information overload and some areas of further research.

2. TECHNOLOGY FOR MOBILE LOCATION ER-VICES AND APPLICATIONS

Location technologies can be divided into two main categories: core positioning and supporting technologies. Core positioning technologies refer to the technologies that allow the determination of the location of mobile users. Facilitating technologies refer to the complementary technologies that provide the contextual and /or infrastructural environment within which mobile location services can be implemented in a value added fashion (Giaglis et al.2003).

2.1 Core Positioning Technologies

There are several positioning technologies with their own advantages and drawbacks. The most popular positioning technologies are Global Positioning System (GPS) and non-GPS positioning technologies.

2.1.1 GPS Technologies

The Global Positioning System is a satellite based navigation system developed and operated by the US. Department of Defence. GPS 's operations rely mainly on 24 satellites that transmit signals. GPS receivers process the signals to compute positions in 3 D latitude, longitude, and altitude with accuracy of 10 meters or less. Therefore one of the main advantages of GPS technique is its high accuracy, when operational conditions are favourable. However in order for GPS technique to achieve high level of accuracy in determining the location of a mobile user, the handset must be visible at least to three satellites all the times. As a result, GPS cannot be used in indoors and it may not work in "urban canyons" area. In order to overcome the problem of positioning in weak signals environments (i.e. indoor environment, tunnels); assisted GPS method (A-GPS) has been developed. A-GPS uses the assistance of the mobile network that directs the handsets to look for specific satellites or collects data from the handset to perform location identification calculations.

2.1.2 Cellular Positioning Technologies

The most common cellular techniques for mobile positioning are cell or origin, time of arrival, Angle of Arrival and Observed Time Difference. Cell of Origin (COO) method is the most basic solution and uses the cell identification information within the mobile telephony network to identify the approximate location of the caller. The COO method identifies the approximate location of the user by knowing which cell site the device is using at a particular time. The accuracy of COO method depends on cell radius, which can be very large especially in rural areas. Therefore the accuracy of this method is higher in dense urban areas and much lower in rural areas. Time of Arrival (TOA) method determines the position of a mobile device by measuring the time of arrival of the signal from a user's mobile device to at least three cell sites. The TOA offers better accuracy (10-100 meters). Its main drawback is the additional investments network operators should undertake in order to equip cell sites with location measurement units (LMU). The Angle of Arrival (AOA) method seeks to determine the location of the mobile device based on the angle at which signals transmitted from the mobile device reach the cell site (s). The AOA technique requires line of sight between the cell sites and the mobile device in order to achieve accurate positioning results. Therefore it is not a suitable location method in dense urban areas where line of sights of two cell sites may not be possible. Observed time difference (OTD) technique determines the location of a mobile device by using location receivers, which are geographically dispersed across wide areas. OTD method determines a user's location by calculating the time it takes for a signal from at least three cell sites equipped with LMU to reach the mobile device. The main drawback of OTD method is that it requires additional investment in terms of both equipping network cell sites with LMU and the required modification of the mobile's device software in order to enable it to perform the necessary position calculation.

2.2 Supporting Location Technologies

Mobile location supporting technologies include standards, protocols and other technological capabilities that contribute to the added value mechanism stemming from the ability of determining users' location. Supporting location technologies include mobile communication protocols such as Wireless Application Protocols (WAP), Standard technologies such as General Packet Radio Service (GPRS) or Universal Mobile Telecommunication Systems (UMTS) and other supporting capabilities such as Geographic In-

formation Systems (GIS) (see Geaglis 2003, Smith et al. 2002,Tarasewich et al.2002 for discussion of those technologies).

3. KEY PROPERTIES OF LOCATION BASED MOBILE SUPPORT

3.1 Relevance

The application of location-based mobile support has the potential of eliminating the spatial dimension of business processes. This is of particular importance for mobile knowledge workers who work at various locations: in their own office, at clients' offices, at other members' offices, at work sites, on train, plane and car, in a hotel room, and so on. Such modalities of mobility impose challenges on mobile workers in general, particularly in terms of achieving adaptability, to the different work environments resulting from their extensive move, which can enable them to keep themselves well informed in order to work more effectively. Location-based mobile support can enhance the ability of mobile workers to adapt to the spatial constraints resulting from their extensive move by been able, thanks to the knowledge of their geographic location by the service provider, to receive relevant information and targeted support that can fit the adaptability requirements raised by their spatial position. The user's spatial position can therefore become a key element in providing relevant and adding value support to the mobile worker. For instance, the knowledge of the location of salesperson can be used as one criterion in assessing whether or not an alert is relevant and has the potential to add value to the salesperson or in the opposite it may expose him/her to information overload. Similarly, the knowledge of the salesperson's location and thus the nature of the working environment within which the he/she is located (i.e. face to face meeting with a client, in the train or in restaurant) can enable the service provider to select the appropriate message form (voice versus text) that fits the working environment within which the salesperson is located. For instance, the service provider can push an alert to the salesperson's smart phone in the form of text message if the salesperson is in face-to-face meeting and thus enabling him/her to read the alert and potentially exploit it during his/her interaction with the client.

3.2 Convenience

The ability of the service provider to know the geographical position of the mobile user can make it faster and simpler for such user to be provided the targeted support he/she needs. Indeed it will suffice the mobile user to notify its request to the service provider to get the service he /she is seeking as the service provider can know where the user is located. For instance, a salesperson seeking road directions to get in time to a meeting with a potential client can just notify to the service provider "how can I get to address x?" then by locating his/her position the service provider can provide him/her by the requested directions that can take into account potential traffic jams. This constitutes a unique feature of location-based mobile support as the question "how can I get to address x" without mentioning the current location is unanswerable within a wireline context.

3.3 Timeliness

Another key characteristic of location-based mobile support is the timeliness of the support that service providers can provide users with based on the knowledge of their locations. The timeliness of location-based mobile support refers to the ability of the service provider to provide the user with support at the moment of value. The moment of value can be defined as "the moment when I a service provider can do something for you where you are and regardless of where I am or what time it is"(Keen, 2001). An example of a location based service occurring at the user's moment value is when the service provider, based on its knowledge of a user's location, push to him/her an alert about a traffic jam he/she is about to approach together with proposals of alternative paths. In the absence of this traffic alert at this specific moment (before approaching the traffic jam), the user would not be able to avoid the traffic jam and thus may experience the resulting consequences in terms of time wasting and meeting delays. Another example of timely location-based support is when a salesperson, during or just before his/her interaction with a major client, receives a useful alert about this client, pushed by his/her market research department based on awareness of his/her location. The salesperson can then reflect this latest update about his client during his/her sales presentation and thus practice adaptive selling.

4. SALESPERSONS TASKS CATEGORIZATION

Perhaps the most rigorous study of the activities that salespersons perform during the course of their everyday work life is the one conducted by

Moncrief (1986). Moncrief found 121 activities that were factor analysed into ten activity dimensions: selling functions, working with others, servicing the products, information management, servicing the account, conferences and meeting, training and recruiting, entreating the clients, travel and working with distributors. Other authors (i.e. Copett 1995) categorise salespersons' tasks into five categories: planning the sales call, approaching the prospect, making the sales presentations, negotiating resistance, confirming and closing the sale, follow up and servicing the account. More recent academic researches (i.e. Colombo, 1994, Parathasarathy, 1997, Petersen, 1997) have focused on salespersons tasks when discussing the potential impact of SFA systems on salespersons.

By combining both the information contained in the personnel selling literature about salespersons' tasks and the proprieties of location-based mobile support in terms of relevance, convenience and timeliness, the paper creates taxonomy of salespersons tasks based on the areas that can be affected by mobile location technologies. In this structure the paper discusses three categories of salespersons tasks: Information gathering tasks, planning tasks, and interaction tasks. Each of these categories is discussed in the following section.

4.1 Information Gathering Tasks

Salespersons spend a considerable portion of their time on information gathering tasks such as prospecting, seeding and customers analysis. Prospecting is the label attached to the activity involved in generating sales leads and prospects. A sale lead is basically the name and address or telephone number of persons or organisations that may have a need for the company's products or services. Prospects are leads that are screened and qualified by salespersons to be worthy of further attention. Seeding is an agricultural metaphor frequently used by salespersons to describe prospects-focused activities. Theses activities are intended to "sow" the seeds of potential sales "harvest" and involve the gathering of such information as prospects' industries characteristics, return on investment, profit and product quality.

Customer analysis tasks refer to activities undertaken by salespersons in order to stay at the top of new developments in their current customers operations (Coppett, 1990).

Location-based mobile support can help salesperson in their information gathering tasks through enabling them to receive useful leads, competitive or customer information, despite their constant move at the moment of relevance and without been obliged to gather such information themselves. The ability to know their geographical position together with other element such as their activity agenda would provide more specialized parties (i.e. market

research department, customer support centre, external consulting firms and so on) with relevance criteria against which they may assess both the spatial and temporal relevance of the information they intend to provide salespersons with. This has the potential to enable salespersons to spend more time in revenue generating activities such as selling and still staying alerted about any development in their clients' businesses or competitive environment.

4.2 Planning Tasks

Salespersons planning tasks include sales call planning and route planning. Sales call planning involve identifying and selecting profitable customers (Kotler 1994). Often called the "80-20", the concentration principle says that most of salesperson's sales, costs and profits come from a relatively small proportion of customers and products. That's why salespersons spend a considerable portion of their time classifying and analysing potential accounts so that they can devote the largest portion of their time to accounts with the highest buying potential.

The purpose of route planning is to minimize travel time and maximize time in front of customers and prospects (Colombo, 1994). In most companies, individual salespersons still route themselves because they know their territories and their customers best.

Location-based mobile support can affect salesperson planning tasks through relevant and timely location-based real time alerts associated with the orders of salespersons' clients, their buying potential as well as their profitability so that the salesperson can adjust his /her call schedule and thus devote his/her time to clients with the highest profitability potential. For instance, the market research department can use its knowledge of the salesperson's location to provide him/her with alerts about the changes in the buying potential of the clients located in the geographical location where he/she is located, together with the urgency level of making sales visit to such clients. The market research department can determine such urgency of sales visits based on such information as real time client's profitability, competitors' moves or any press release that can affect the buying potential of the salesperson's clients.

Salespersons route planning can be supported by the different location based navigation services the operator can provide them with based on its knowledge of their geographical position. Such services may include location based alerts about traffic congestion or road-blocking accidents, driving direction and the provision of travel pattern based on the salesperson's current location, the list of clients he /she plan to visit and traffic conditions.

4.3 Interaction Tasks

Interactions tasks involve interactions of salespersons with both customers and co-workers within the organisation. Interaction tasks with customer are the core of salespersons' daily work and include such activities as making sales presentations, answer clients' questions, handle shipment problems, take the client out to lunch and calls on potential account (Moncrief, 1986).

Location-based mobile support can affect salespersons' interaction tasks through its ability to mobilize relevant knowledge to salespersons despite their constant move and at the moment of relevance. For instance, a salesperson can get, based on his/her location, notifications about the client he/she is about to visit and thus adjust his/her sales presentation accordingly. Likewise, location-based support can reduce the time it takes to salesperson to address customer problems associated with orders or products through empowering the salespersons to deal with customer problems without referring to the head office. For instance with the ability to track the product locations, the salesperson can answer to order related questions without referring to the logistics department.

Interaction tasks with co-workers include cooperation between salespersons and other functions in the organization including marketing research, customer service, logistics, finance and engineering. Examples of interaction tasks with co-workers include reporting sales calls information to the sales managers and to the competitive intelligence department, providing sales information to other salespersons, keeping track of invoices with the finance department and handling shipment problems with logistics department. Location-based mobile support can affect salespersons' interaction with co-worker by enabling them to locate the geographical position among each other and cooperate accordingly. For instance, based on his/her location, the salesperson can receive relevant alerts about his or her clients. Example of such alerts are "the client X you are about to visit has just paid its last invoice", "there will be a delay in delivering the order of client Y situated in the nearby". Furthermore, salespersons can locate each other and exchange, based on their location, useful information that may enable them to exploit cross-selling opportunities that may arise.

5. LINKING SALESPERSONS MOBILE LOCATION APPLICATION AND SERVICES TO THE DETERMINANTS OF THEIR PERFORMANCE

After discussing a taxonomy of salespersons tasks, which is based on both mobile location-based support key properties and the areas of salespersons tasks that may be affected by mobile location technologies, the paper now presents potential mobile location applications and services (MLS) to support salespersons tasks for greater performance. The paper categorises such mobile location applications and services as time-savers, customer relationship-enhancers, proactiveness-enablers and morale-boosters. The paper shows how each category of such mobile location services and applications can support salesperson tasks and enhance their overall performance through its impact on a number of mediator variables that constitute salespersons' performance determinants. Indeed, several authors (Mooney et al. 1996; Huber, 1990; Davenport 1999) have proposed that in order to uncover the added value mechanisms and the impact of information technology on productivity, studies should include intermediate benefits of information technology. For instance according to the theory of the effects of advanced information technology (Huber's 1990), the benefits in individual and organizational effectiveness occur" indirectly "through the positive impact the technology has on information and communication processes. Figure 1 depicts a framework linking location-based mobile support with salespersons' performance.

5.1 Time-Saver MLS

The purpose of time savers mobile location services and application is to enable salespersons to achieve a better use of their time by avoiding daily time traps and thus spending their time in value generating activities such as selling. Salespersons' time traps can be result form such factors as traffic conditions, emergency situations, poor tasks planning and occurrence of dead time.

The ability of salespersons to effectively manage their working time so that they can get the most out of each working hour is well recognized in the personnel selling literature as a key determinant of their performance (Green, 1987, Weeks, 1990, Henry, 1975). For instance Green (1987) stresses , "how a salesperson allocates his or her time across activities directly affects his or her performance and therefore impacts a firm's sales and profits."

Time-savers mobile location services and application include location-based emergency services, navigation services and location based travel pattern update.

Emergency Services

Location-based emergency services can provide salespersons with emergency support in such situations as car breakdown, accident, injury and so on. As typical road-users, location-based emergency services can enable salesperson to save a considerable amount of their time because of their ability to be provided with emergency services even in the case when they are unaware of their exact location or not able to reveal it due to the emergency situation (Geaglis, 2003).

Navigation services

Location-based navigation service can allow salespersons to receive, based on their location, point to point driving directions in order to get to a desirable destination. The salesperson Navigation services can also provide them with location aware alerts about traffic conditions (i.e. traffic congestion or a road blocking accident) and suggest alternative routes to salespersons.

Furthermore, navigation services can enable salespersons to update, irrespective of their location, their daily travel pattern based on their location and changes in their call schedule resulting form the occurrence of dead time. The salesperson can select his/her current location as a starting point; send it to the service providers together with the list of addresses he/she has to visit. The service provider can then suggest an appropriate travel pattern t together with driving directions.

Mobile yellow pages

Mobile yellow pages services can enable salespersons to receive upon request and based on their current location and preferences, information regarding nearby facilities such as the nearest restaurant, hotels or gas station. Receiving such location-based alerts would enable salespersons to save time when travelling to visit customers or taking clients out for lunch.

5.2 Customer Relationship-Enhancer MLS

Customer relationship-enhancers mobile location services and application would support salespersons during their daily interactions with customers through enabling them to practice adaptive selling, enhance their customer orientation and customer's perceptions of their expertise. Salespeople's adaptive selling is one of the main determinants of their performance. Adaptive selling behaviours are characterized by altering sales approach across and during customer contacts (Weitz et all, 1986; Sipro and Weitz 1990; Sujan 1986). Through the practice of adaptive selling, salespeople exploit the unique opportunities of personal selling. The personal selling litera-

ture proposes that adaptive selling can be improved by providing salespeople with the necessary market information and resources such that they can link insights from other sales situations to the customer contacts in which they are currently engaged (Weitz et al. l986).

Customer orientation can be viewed as the practice of the marketing concept at the level of individual salesperson. The marketing concept calls for an integrated, company wide approach in which all the firm's activities are directed toward providing customer satisfaction and establishing mutual beneficial relationship (Saxe and weitz, 1982). Reducing the time it takes to deal with a client's concern or difficulty may have a positive impact on customer orientation. Indeed, customer orientation is a key enabler of buyer-seller relationship developments (Lawler, 1992). Keeping promises is indeed a main determinant of trust, which is in turn a major factor affecting long-term relationship.

Salespersons expertise has been investigated as a crucial determinant of salespersons' performance (Grosby et al.1990). Beatty et al. (1996) have noted that a customer who is initially attracted to a knowledgeable salesperson will feel positive about the salesperson.

Customer relationship-enhancers mobile location and services include product tracking, customer support staff locators and location based customer analysis alerts.

Products tracking applications

Product tracking application consist of enabling salespersons, irrespective of their locations, to track the delivery status of products ordered by customers, either by connecting wirelessly to smart tags incorporated in the products or through receiving location based alerts about the order status of clients situated in the same geographical location where the salesperson is located. This would enhance salespersons' ability to answer rapidly, accurately and irrespective of their locations to customer order related inquiries, which their customer orientation. Furthermore, receiving location based alert about customers' orders status would enable salespersons to react to eventual shipment problems that may result in a delivery delay to customers.

Customer support staff locator applications

Customer support staff locator applications would enable salespersons to locate the nearest customer support staff in order to address a client's problem. The salesperson can send a request to locate customer support staff, display their locations on a map and forward the client's request for service to the nearest field worker. Upon receiving confirmation to perform the service by the field worker, the salesperson can then be able to provide his/her client with accurate personnel arrival time. Dispatching the nearest customer support field employee has the potential to reduce the time needed to provide

support to customers, and would enhance the customer's perception of the salesperson' empathy.

Location-based customer analysis applications

Location based customer analysis applications consist of linking corporate customer analysis database with the salespersons calendar and exploiting his/her geographical location in order to provide them with actionable alerts about their clients which situated in the same geographical location where he/she located. Alerts may be associated with products, customer information or service delivery that salespersons can both exploit in both adapting their sales presentations and increasing their customers' perception of their expertise.

5.3 Proactiveness -Enabler MLS and Applications

The purpose of proactiveness-enabler MLS and applications is to enable salespersons to continuously search for market opportunities and experiment with potential responses to changing environment. (Venkattraman, 1989)

Proactiveness-enablers mobile location services and applications include location-based lead alerts and location-based intelligence alerts.

Location-based leads alerts

Location based leads alert consist of alerting the salesperson about qualified leads that are situated in the same geographical location where the salesperson is locates. By identifying the salesperson 's geographical location, the telemarketing support centre can provide a real time alert to the salesperson about high-quality leads that are in the same area where the salesperson is located. Depending on the quality of the lead (that is, sales versus no sales) and the salesperson's sales calls schedule, the salesperson can accept or deny making face-to-face sales visit to the sales call identified by the telemarketing support centre. If the salesperson accepts to make the sales visit then additional information from the marketing research department can be pushed to his/her mobile terminal about the lead including a rebuttal to prepare him/her for question that the prospect may raise. Location-based leads information would enable salespersons to adjust their sales call schedules in order to exploit sales opportunities and thus practice target selling. Target selling is defined as a salesperson's ability to identify, select, and call on profitable customers (Kotler 1994). Target selling is recognized in many selling textbooks (e.g. Stanton and Sirpo, 1999) as a determinant of salespersons performance.

Location-based intelligence alerts

Location based intelligence applications can let salespersons receive alerts about possible competitors' threats and how such threats would affect the clients situated in the same geographical location where the salesperson is

located. The salesperson can use the alert both to assess the urgency of visiting the clients and to adapt of his /her selling approach so that it can take into consideration such potential competitors move.

5.4 Morale booster MLS

Morale-booster mobile location service and applications intends to enhance salespersons' morale by adding some fun to their job and enabling them to keep touch with their family members despite their constant move. Indeed, the unique nature of selling with its time demand, psychological strain, work-related role stress and performance orientation can put unusual pressure on the salespersons (Dubinsky et al., 1986). Organizational psychologist have pointed out that sales managers, who concentrate on creating intrinsic rewards in selling among salespersons-through setting the job up to be fun and work rewarding in itself- are likely to be more successful at encouraging adaptive selling and improving the productivity of sales force (Amabil, 1983 Sujan et all, 1988,).

Morale booster mobile location service and applications include children tracking and location-based entertainment services.

Children tracking services

Children trucking can enable salespersons to locate anytime and anywhere the location of their children. With this service the salesperson can be able to receive upon request a graphical map displaying the location of his/her children. Additionally an alarm system can notify them when their children are closed by.

Such a service has the potential to provide salespersons with assurance about their ability to react in time in dealing with problems that their teenagers especially problematic ones may experience, which would enable them to concentrate more on their selling activities.

Location-based entertainment services

Location-based entertainment services consist of providing salespersons, based on their location, with such entertainment services as games, songs and videos. For instance by identifying the position of the salesperson (i.e. in the train, airport) the operator can push an

Message suggesting to salesperson alternative entertainment services that fit his/her preferences. Then it is up to the salesperson to accept such services and have some fun or elect to focus on other activities.

6. CONCLUSION

The paper explored the area of mobile location technologies within salespersons' work environment. More specifically, the paper discussed potential location-based mobile application and services to support salespersons tasks and linked them to the determinants of salespersons performance. The paper aims at assisting stakeholders including sales managers in understanding the potential added value that mobile location technologies can provide salespersons with and that takes into consideration the nature of their tasks and the determinants of their performance.

It is worth mentioning that mobilizing location-based application and services to support salespersons for greater performance may raise a number of critical issues. One issue associated with the use of location based mobile services and application is the protection of salespersons' privacy. Salespersons may show a concern about having their location revealed by other parties such as network operator and market research companies. Furthermore, the lack of a unified regulatory body pertaining to location-based application and services may impede the ability of salespersons to benefit form location based support when they are visiting countries that impose regularatory constraints on such applications. Another issue associated with providing salespersons with location based mobile services and applications is the functional deficiency of information overload, where the amount of alerts the salesperson receives extends his or her cognitive capacity (Ljungberg and Sorensen, 2000). For instance if the service provider only knows about the location of the client and not for example the speed and direction in which the user is travelling, the service provider may overload the user with information. This may be the case of a user driving along a motorway and rapidly crossing the borderlines between three locations, and as a consequence being bombarded with notifications from each location (Sorensen et al., 2002).

Finally a subtle but powerful potential inhibitor to the acceptance of location-based application and services by salespersons is the "big brother issue". Big brother issue may rise if salespersons feel that location-based mobile applications services that their company provide them with reduce their freedom on the field and turn their mangers into cops (Falvely, 1994).

As the analysis of the impact of the above issues on both the added value mechanisms and the potential acceptance of location-based mobile application and services by salespersons goes beyond the scope of this paper, future research is needed to address the above-mentioned issues together with the integration of the continuous progress of mobile location technologies with the evolution of salespersons tasks and activities to generate new innovative applications that match their needs and requirements.

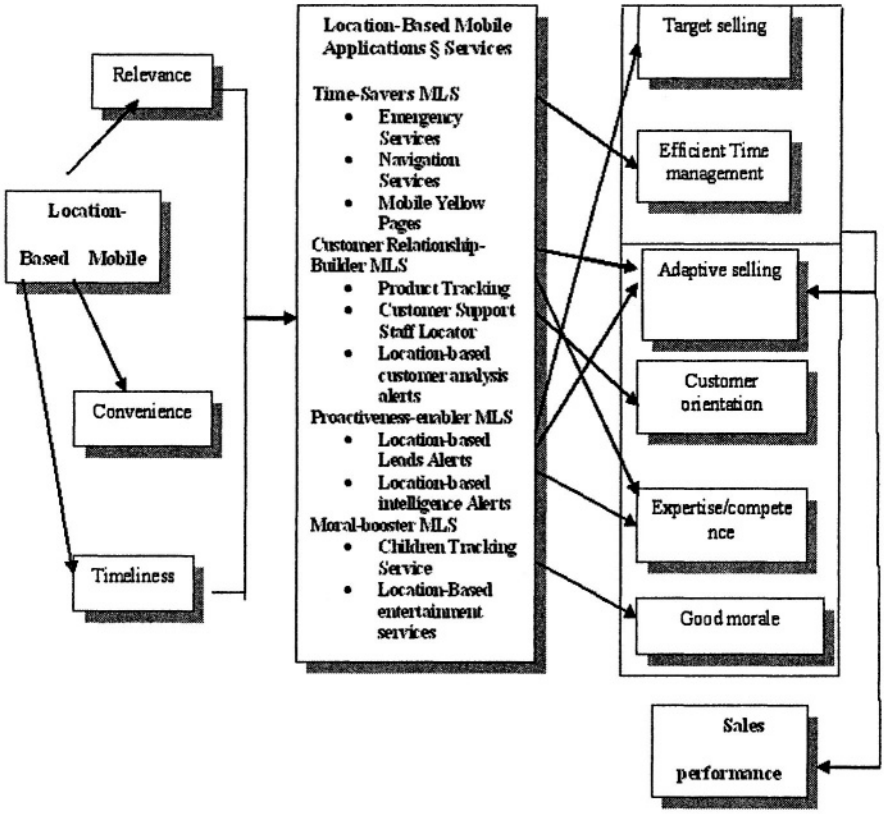

Figure 1. A model linking location-based mobile support to salespersons performance

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