MOBILE TECHNOLOGIES AND SUPPLY CHAIN MANAGEMENT – LESSONS FOR THE HOSPITALITY INDUSTRY

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Review

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Abstract
Purpose **–** The purpose of this paper is to define preconditions and integration capabilities of the mobile business in supply chain management (SCM) in the hospitality industry via mobile devices and mobile applications. The aims of this paper are to reflect on what mobile technology has to offer and to draw attention to the role of mobile applications and their use in the SCM. Although mobile technologies are present in almost all areas, they are not used to their full potential.
Design – The paper defines the concept of supply chain management in the hospitality industry and provides information about benefits of its successful implementation. Furthermore, this paper highlights the role of mobile technologies and mobile applications in supply chain management in the hospitality industry that bring numerous benefits starting with cost reduction, increased functionality, productivity, efficiency and ending up with satisfied users of logistics products in the hospitality industry.
Methodology/approach - Based on an extensive literature review, the authors propose new solutions, such us "Bring Your Own Device" (BYOD) in the field of mobile business. Therefore, this paper attempts to investigate the possibilities offered by mobile technologies in the SCM.
Findings **–** The paper introduces new trends in the field of mobile technology and emphasizes their importance and the impact in the management of modern supply chain. Furthermore, the findings in this paper may be useful in developing mobile solutions for SCM in the hospitality industry.
Originality – This article provides useful insights for all participants in supply chain to better understand the benefits of the application of mobile technologies and mobile applications in the management of modern supply chain. The paper can also serve as a basis for further research in the area of application of mobile technologies in creating logistics products in the hospitality industry.
Keywords supply chain management, hospitality industry, mobile technologies, mobile apps

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INTRODUCTION

Mobile technologies have become an essential factor in modern business. According to IDC (IDC, 2014) in 2014 shipments of "smart" phones will reach 1.2 billion. The fact that the number of mobile devices and in particular smartphones is being increased every year must not be neglected due to their significant role in all economic sectors.

Since the mobile and wireless solutions have become an integral part of everyday life, their simplicity, accessibility as well as easy use of mobile technologies and mobile applications have turned them today into an extremely important tool for companies in the hospitality industry. The tool helps them to provide information, to streamline processes, increase productivity and it also allows an easier supply chain management as well.

Mobile devices and applications have become the go-to tools for logistics and transportation professionals looking to stay connected and manage their supply chains from anywhere (Roach Partridge, 2011). Supply chain management is an important element in the hotel and hospitality industry. Taking into account that supply chain management is a service activity, it is important to establish an ongoing relationship with suppliers and to have a good demand system aimed at improving the level of service to customers. One of the key elements in supply chain management in the hospitality industry is the delivery of goods or services to the right place at the right time with the least cost. In a field that is all about getting goods where they need to be quickly and cost-effectively, it is no surprise that mobile applications and devices are fast becoming must-have tools for logistics, supply chain, and transportation professionals (Roach Partridge, 2011).

1. DEFINITION AND CONCEPT OF SUPPLY CHAIN MANAGEMENT (SCM)

A successful supply chain management is crucial to companies in the hospitality industry in order to make them different, i.e. to gain an advantage over the competition and take a new position in an increasingly demanding market. However, before we present the benefits of a good and successful supply chain management, it is necessary to define and explain the concept of supply chain management. There are many definitions that have been developed accordingly to the growth in popularity of the supply chain management concept.

According to the Council of Supply Chain Management Professionals (CSCMP, 2014), "supply chain management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers, and customers. In essence, supply chain management integrates supply and demand management within and across companies."

Bloomberg et al. (2006, 1) defines supply chain management as *a process of planning, organizing and controlling the flow of materials/raw materials and services from suppliers to final users / customers*. Each link in the supply chain is important, so that all participants should be taken into account when managing and coordinating a supply chain. The number of links in the supply chain is determined by the type of a product and the ability of a business agent to contribute to the increase of the product value at reduced costs (Mrnjavac, 2010, 134).

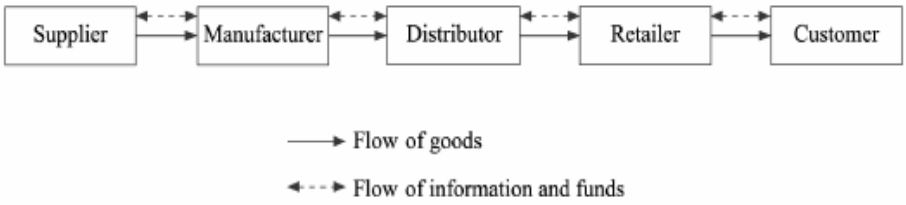
SCM is defined as the systemic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular organization and across businesses within the supply chain, for improving the long-term performance of the individual organization and the supply chain as a whole (Mentzer et al. 2001, 18). The objective of supply chain management is to be able to have the right products in the right quantities (at the right place) at the right moment at minimal cost (Cutting-Decelle et al. 2007). In other words, the objective can be translated into more precise areas of concern, which are: flexibility, delivery reliability, delivery time and inventory level. Accordingly, the importance of a proper and accurate delivery applies to all industries and activities and especially to the hospitality industry, where every mistake is paid by the loss of users, i.e. guests. Referring to all the above mentioned it can be said that it is important to know the flows in the supply chain in order to achieve the main goal of supply chain management in the hospitality industry.

Supply chain management flows can be divided into three main flows (Rouse 2010):

- The product flow
- The information flow
- The finances flow

The product flow includes the movement of goods from a supplier to a customer, as well as any customer returns or service needs. The information flow involves transmitting orders and updating the status of delivery. The financial flow consists of credit terms, payment schedules, e-payments, discount information and consignment and tile ownership arrangements.

Figure 1: **The Basic Supply Chain**



Source: Chopra and Meindl, 2001 (as cited in Habib, 2010)

All participants in the supply chain are interconnected through the information flow and physical flow (see Figure 1). Physical flow includes the movement and storage of goods and materials and represents the most prominent part in the supply chain. In addition, the two-way flow of information is very important in order to keep informed all participants in the supply chain about the flow of goods / services in both directions and thus timely detect possible problems and to control the flow itself. Financial flow, i.e. the flow of funds is also important considering that all participants in the supply chain want to be paid for their products and services in time or as soon as possible.

An efficient supply chain management encompasses all participants in the supply chain, i.e. all movements of goods, services, information and cash flows. According to Galičić and Pilepić (2007), information becoming a commodity in great demand, its simple and reliable transmission has become a key area of interest of many, and not only participants in supply chain management. Companies that have excelled in the implementation of SCM processes, analytical tools, and technologies have enjoyed several benefits such as (Daghfous and Barkhi, 2009):

- greater control over suppliers and their quality standards due to strong relationships, better coordination, and collaboration among supply chain members,
- better streamlined processes, shorter lead times and replenishment, and enhanced equipment readiness and utilization,
- enhanced communication and cooperation among members of the supply chain, leading to enhanced product/process designs,
- faster customer response and improved delivery performance,
- improved forecasting accuracy, and planning and scheduling capabilities,
- higher productivity and better responsiveness to demand fluctuations, and
- lower levels of inventory throughout the chain and substantial cost reduction.

2. MOBILE TECHNOLOGY AND SUPPLY CHAIN MANAGEMENT

Mobile technology has changed the everyday business life of most people and it is present in almost all areas of modern business. An increase in the number of mobile phones in the world and Internet access have enabled the performance of numerous activities regardless of their location and the location of the user. Traditional business operation is increasingly being replaced by e-environment, and through the rapid development of mobile technology an increasing number of business activities are directed towards mobile devices, especially smartphones.

According to Umney (2011), more and more supply chain managers are using their smartphones to manage their tasks. So far they have mainly used them to improve information flow around the supply chain, e.g. for transmitting tracking data and reports, or sending alerts as soon as a process deviates from the schedule. In most cases, the mailbox is still the supply chain manager's main tool.

The development of new technologies, especially the mobile ones was accompanied by new trends. One of them is the concept of BYOD (Bring Your Own Device) with employees using their own mobile devices to access company resources. This trend is certainly being influenced by the progress in the technology of smart phones whose hardware and software solutions can be equal with classical computers. Such approach to resources in a company can be applied in supply chain management in the hospitality industry so that logistics managers have information about the location of an employee or certain goods or services. The implementation of this concept also increases the productivity of employees who have access to all information in the supply chain in real time. The disadvantage of this concept is reflected in the security policy because the IT departments in the hospitality industry should provide access to resources by different devices (by different operating systems).

The most obvious advantage of using modern wireless and mobile technologies in supply chain management is in providing highly efficient, fast and accurate means of collecting and sharing information and data on the movement of goods and other important event (Arsovski and Ranković, 2011). Smart phones equipped with WiFi, barcode scanner, GPS, RFID chip, high-quality camera and other mobile devices can be found everywhere and it is no wonder that they are implemented in the logistics sector, i.e. the process of supply chain management. The accelerated growth and development of mobile technologies and smart phones has prompted many companies to adapt to new solutions and to use them in the process of creating logistics products in the hospitality industry. By using mobile technologies, supply-chain participants can reach new levels of visibility and productivity by improving the following decisions (Umar, 2004):

- Location decisions can be aided by employing handheld devices to capture, in real time, location of purchasing, manufacturing and distribution facilities.
- Purchase decisions can be aided by point-of-sales terminals and location-aware mobile devices that can find the cheapest materials quickly.
- Inventory decisions are especially impacted by the large number of handheld bar code readers that can read goods at hand and update inventories in real time through wireless connections.
- Transportation activities can be monitored through detectors and barcode readers that capture the item movements as they are transported in various stages.

According to Roach Partridge (2011), another supply chain functionality being enhanced by mobile devices is asset tracking and management. Mobile RFID (Radio Frequency IDentification) devices and bar-code scanners are gaining traction in this arena as a way for companies to keep tabs on transportation assets and high-value equipment. RFID technology is based on the data transmission via radio frequency or radio waves that can be used to identify and track products. It consists of three basic elements: RFID tag (transponder), reader and RFID controller (mostly a computer). In companies RFID technology helps to write and read data from RFID tags. According to Galičić and Šimunić (2006, 211), the advantage of this technology is that companies can use the data collected through RFID tags so that they integrate the software dealing with storage, inventory, automated ordering, supply chain management etc. by using applications that enable RFID. Some of the current uses of RFID technology include point of sale (POS), automated vehicle identification (AVI) systems, access control within buildings, animal identification, asset tracking, warehouse management and logistics, product tracking in a supply chain, and raw material tracking/parts movement within factories (Öztayşi et al. 2009).

In the academic literature (Pan et al. 2013, 175), mobile SCM can be characterized as a layer of mobile applications such as: warehouse management systems, retail distribution systems, shop floor systems, shelf management, consumer service systems and mobile point of sales (mPOS). Table 1 shows the examples of mobile-enabled supply chain systems.

Table 1: **Examples of mobile-enabled supply chain systems**

Type of application	Typical operations	Perceived benefits
Warehouse management systems	RFID-readers are installed at the entrances and exits of the warehouse automatically scaning cases, pallets, or individual products entering or exiting the warehouse	Real-time information provision about current inventory levels Reduced labor costs Automated proof-of -delivery Eliminating stock verification Real-time tracking of products
Retail distribution systems	RFID-readers and GPS are installed in the truck, enabling continuous monitoring of the products' current status. The RFID infrastructure communicates wirelessly with a terminal device located near the driver	Real-time information provision about the products' condition Real-time asset management
Shop floor systems	RFID-readers are incorporated in the shelf, continuously monitoring the quantity of products on the shelf	Tracking and elimination of out-of-shelf conditions
Shelf management		Initiation of the theft alerts Efficient waste prevention management
Consumer service systems	The MPOS consists of a handheld mobile computer that connects the wireless LAN, a payment transaction reader and a compact mobile Bluetooth-enabled printer	Delivering more personalized service
Mobile point of sales (MPOS)		Eliminating wait times at checkout Increasing sales

Source: Adopted from Doukidis and Vrechopoulos, 2005 (as cited in Pan et al., 2013)

Apart from the RFID technology, there are other systems that can be useful for supply chain management in the hospitality industry. The ease of use of mobile devices and the availability of cloud services have enabled the end users to negotiate access to a whole range of innovative services. The advantage of using mobile or wireless technologies is also evident in the companies that can access a user/client at any time, regardless the current location. Information services that are accessible via mobile devices are based on the current geographic position, i.e. location, and they are called location based services (LBS), which are also used in logistics and supply chains. The global positioning system (GPS) is mostly used to determine the position in order to find out the user's location and to provide information about products and services. GPS in mobile devices today offers a range of features and useful applications, primarily to navigate on the unfamiliar terrain, and tracking of vehicles and cargo (Arsovski and Ranković, 2011).

Mobile technologies and their possibilities have become an indispensable factor of those companies that follow the current trends in supply chain management. On this basis the prerequisites for the creation of mobile supply chain management (mSCM) have been created. Mobile SCM (mSCM) refers to the use of mobile applications and devices to aid the conduct of supply chain activities, and ultimately help firms to gain cost reductions, supply chain responsiveness and competitive advantage (Eng, 2006). In addition to the above benefits provided by mobile technology it should be pointed out that the availability of mobile applications and their ease of use enables in real time the interaction with information systems of the companies in hospitality industry. Also, the possibilities offered by mobile technology, especially in the area of logistics and supply chain management, can be seen in Table 2.

Table 2: **Production, Operations and Delivery Enterprise Mobility Business Opportunities**

Tracking of goods in transport & logistics	• Using mobile applications in areas such as vehicle tracking, and tracing in transport and logistics companies. These typically relied on specialized devices, which looks set to change further. • Using applications to improve fleet scheduling, route planning, dispatching and tracking. • Real time connection between drivers and scheduling teams through fully connected vehicle terminals or personal devices.
Mobile Field Workers/Technicians	• Improving communication between field and office personal and increasing availability to customers, resulting in better employee productivity and customer service. • Detecting breakdowns and maintenance needs in real time, and using automated push alerts to schedule a response. Allowing better and faster decisions thanks to quicker reaction to unexpected changed situation in the field.
Internet of mobile things	• Leveraging Internet of mobile thing made possible by broadband connectivity, 3-D sensors, and enhanced geo location capability. This is turning the devices into intelligent, human-assisted network nodes on the public Web. • Adding social networking to that capability to get an emerging form of large-scale, contextually aware mobile networking.
Mobile Supply Chain Management	• Mobilizing supply chain to allow quick information sharing with various stakeholders thus enabling smoother work flow, real-time access to data, and proper monitoring. Tracking movement of goods, and orders in real time. • Managing shop-floor to forecast, deploy, monitor, and manage the workforce. • Updating inventory information through barcode scanning, enabling common warehouse and shop floor transactions, analytics, reports and other documentation.
Inventory Management	• Enabling tracking of raw materials, unfinished goods and final products with mobile devices and sensors from the moment they enter the factory to the moment they are sent to the customer. • Replacing paper based quality management systems with mobile ones.

Source: European Commission (2013), Business opportunities: Mobility

According to Eng (2006), mobile SCM applications can be used to streamline business processes of different business functions to ensure efficient flow and exchange of supply chain activities from the inception of a product, design, production, sales, customer service to the end of its useful life.

It is evident that mobility, mobile technologies and mobile applications bring many benefits to business functions in companies in the hospitality industry that are reflected in faster decision making, better flow of information, higher productivity, lower costs, etc. SCM apps will improve their ability to manage supply chains from just about anywhere, as long as there is a Wi-Fi or mobile signal (Umney, 2011).

3. ROLE OF MOBILE APPLICATIONS IN SUPPLY CHAIN MANAGEMENT IN THE HOSPITALITY INDUSTRY

Mobile applications are one of the newest and most effective channels of communication with the market. They are specially developed programs adapted for use on mobile devices, with the aim of functionality of the web service, computer applications, as well as making original ideas available to users of mobile devices. Application functionality is based on the needs of users to provide a requested service or to be used for a better flow of information or to facilitate supply chain management in the hospitality industry. Mobile applications consist of software/set of program that runs on a mobile device and performs certain tasks for the user. It is a new and fast developing segment of the global Information and Communication Technology (Islam et al. 2010).

Mobile applications achieve their significant growth and development through the introduction of 'smart' mobile phones in the market. Their purpose is similar to programs used on computers with certain corrections in appearance and operation, and they can be used on mobile phones as well as tablets. The market of mobile applications is growing rapidly, so that the creation of mobile applications presents the most logical choice for companies in the hospitality industry that want both to offer something new and to adapt to today's market trends. First of all, it results from the fact that today's mobile platforms offer a location-independent access to information via the fast 3G / 4G networks, which represent one of the most important factors in supply chain management.

Mobile applications allow companies in a distribution center to improve customer service activities, manage compliance requirements, assess inventory levels and provide information to other managers in real time. In addition, the mobile apps update in real time, facilitating quick decisions to adjust supply chain operations to meet industry and client demands (Lightwell 2013). According to European Commission (2013), mobile applications have now become attractive to user groups beyond traditional field workers to cover many worker roles including executives, business managers, sales, marketers, contractors and partners, warehouse staff, and general mobile knowledge workers. Accordingly, mobile applications can be useful for all levels of management and all participants in the supply chain in the hospitality industry.

The increase in number of mobile devices caused the introduction of many mobile applications some of which are free of charge, while certain applications have to be paid upon downloading. Regarding the peculiarities in operation of companies in the hospitality industry and the competition getting tougher, it is necessary to monitor the current world trends and opt to create mobile applications that would provide a significant assistance and support to all levels of management in the company as well as all participants in the supply chain.

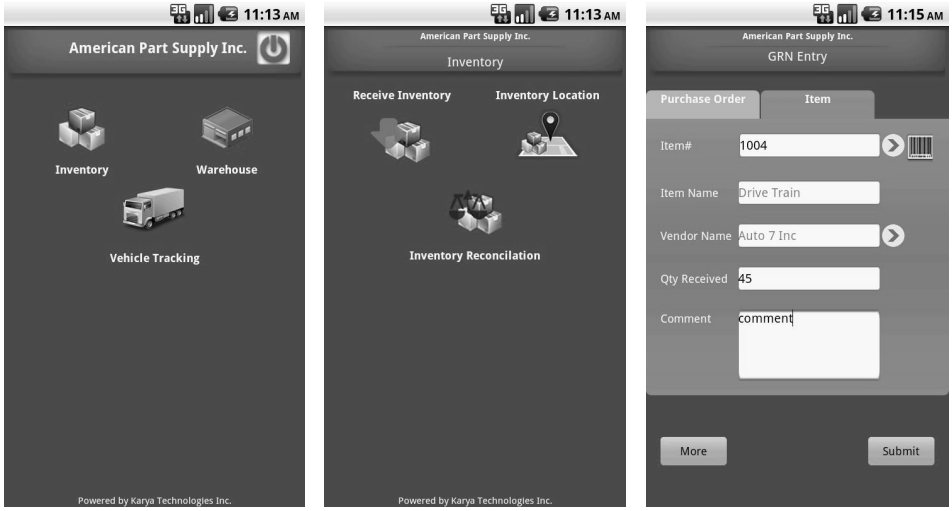
In other words, those companies in the hospitality industry that want to communicate with all participants in the supply chain in real time, reduce operational costs, increase competitiveness in the market, who at any time want to know the location of goods, services and their employees, are faced with the need to create and design their own mobile applications. There are many advantages offered by the use of mobile applications in logistics and supply chain. Logistics viewpoints discussed some impacts social and mobile applications will have on the supply chain in the future (Lightwell 2013):

- Enable a network of people to manage a supply chain worldwide;
- Wrap a community of people around transactional workflow;
- Create unified communications sources for instant updates and decisions;
- Eliminate limitations on operations such as time of day or location with mobility;
- Advance connectivity to accelerate information sharing and improve supply chain performance.

According to Arsovski and Ranković (2011), on the market today there are several commercial solutions for mobile supply chain management, developed by the famous companies in the field of software and business information systems: SAP, Oracle, Motorola, Guotong Supply Chain Corporation, etc, applicable on supply, production control, warehouse management, transportation, etc. Besides the above mentioned companies engaged in development of mobile solutions and applications, there are many startup companies that are also trying to develop mobile applications or to find a software solution to satisfy the needs of all participants in the supply chain. Preceding the process of creating a mobile application, in order to effectively manage the supply chain in the hospitality industry, it is necessary to take into account the opinion and advices of all participants included in the supply chain. In this way it is possible to avoid possible malfunction and bugs in the creation of the application itself.

According to Karya Technologies (2014), application for mobile SCM (see figure 2) helps companies to stay in control of trade and logistics. This solution not only monitors entire supply chain, but also cost less and delivers a brilliant return of investments. Mobile SCM has a middle ware, which can integrate into any SCM application/database, which hospitality companies currently have.

Figure 2: **Mobile SCM**

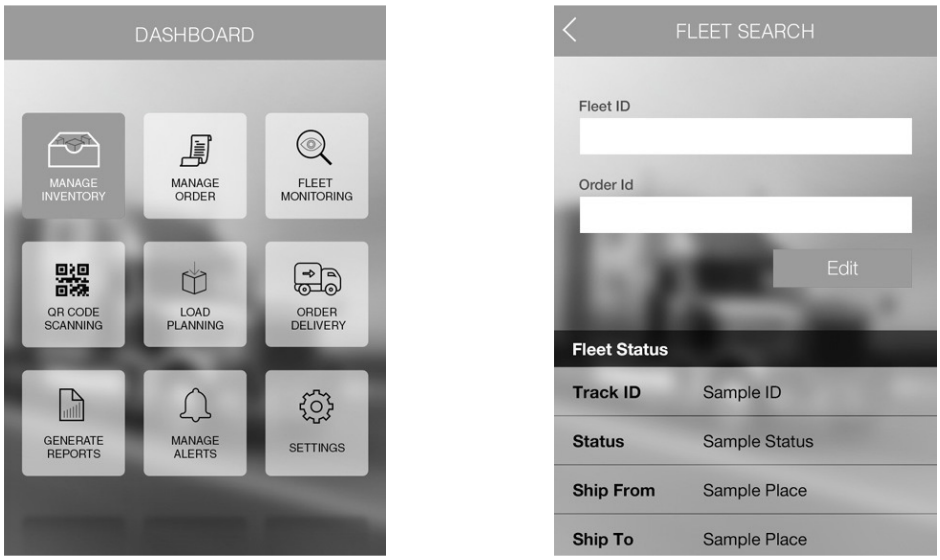


Source: Karya Technologies (2014)

The main benefits and features of this (SCM) mobile application are: monitors stock movement from warehouse, track fleet and shipment, monitor customer shipments and reconcile inventory.

Several apps have already been created for the supply chain management sector, allowing employees to keep up to date with real time supply management. The mobile apps developed allow users to know a lot of information such as: capture and retrieval, dispatching, driver and route progress tracking, location and event reporting (Jenkins, 2013). The figure 3 shows what such mobile application for supply chain management looks like. According to Softweb Solutions (2013) supply chain management application can assist companies in planning, distribution, and transportation of any goods from one destination to another. Featured with inventory management, logistics management, and fleet management enable companies to track and monitor products. In addition to the above solutions, it is possible to create an application with an innovative content and additional features that were proposed by the companies in the hospitality industry aimed at the improvement of supply chain management and competitiveness in the market.

Figure 3: **Supply chain management mobile app**



Source: Softweb Solutions (2014)

Provided that mobile applications for supply chain management have not yet been fully accepted by all logistics companies, the expansion in the use of the same is expected, having in mind that the mobile industry is currently one of the fastest growing industries in the world. Users / clients as well, are one of the reasons for the rapid development of technology. Contemporary users want to know in advance what they can expect from a particular product / service of the company in the hospitality industry, what price to pay for the product / service and other useful pieces of information. Through mobile applications mobile technology in real time allows all users to get informed about everything they are interested in, which is of paramount importance in a modern supply chain in the hospitality industry. Modern supply chains have recognized the importance of mobile applications and the importance of timely and accurate information in real time, and based on that they started with the implementation of mobile technology in supply chain management.

CONCLUSION

This paper provides an overview of the role of mobile technology that can be used in supply chain management. Companies in the hospitality industry that want to be competitive in the market should catch up with the times and start using the new technologies, especially the mobile ones, in supply chain management. Mobility is an imperative, since it brings many advantages such as cost reduction, increased productivity, more satisfied customers/guests and others.

In a modern supply chain the information flow is one of the most important items, and just mobile technologies and mobile applications allow all participants of the supply chain to obtain the necessary information in real time. To manage modern supply chains, and not to take into account the importance of mobile technologies and applications is unthinkable. Managers of companies in the hospitality industry are expected to recognize the benefits of implementing such technology and to inform all participants in the supply chain about its capabilities.

Due to constant changes, particularly in the field of information and communication technologies, it is necessary to continuously monitor the further development of technology and keep pace with competitors in an increasingly demanding market. Those companies in the hospitality industry that have recognized the role and importance of new technologies (especially mobile ones) in supply chain management will in an easier way follow all business processes in the supply chain resulting in reduced costs and the satisfaction of all participants as well.

REFERENCES

Arsovski, Z. and Ranković, V. (2011), "Mobile supply chain management–key technologies and applications", *Center for Quality*.

Bloomberg, D.J., LeMay, S. & Hanna, J.B. (2006), *Logistika*, Mate, Zagreb.

Council of Supply Chain Management Professionals (2014), *CSCMP's Definition of Supply Chain Management*, Available at: http://cscmp.org/about-us/supply-chain-management-definitions (accessed 30/06/2014)

Cutting-Decelle et al. (2007), "A review of approaches to supply chain Communications: From manufacturing to Construction", *ITcon*, Vol. 12, pp. 73-102. Available at: http://www.itcon.org/data/works/att/2007_5.content.06399.pdf (accessed 01/07/2014)

Daghfous, A. & Barkhi, R. (2009), "The strategic management of information technology in UAE hotels: An exploratory study of TQM, SCM, and CRM implementations", *Technovation*, Vol. 29, No. 9, pp. 588-595.

Eng, T.Y. (2006), "Mobile supply chain management: Challenges for implementation", *Technovation*, Vol. 26, No. 5, pp. 682-686.

European Commission (2013), *Business opportunities: Mobility*, Available at: http://ec.europa.eu/enterprise/dem/sites/default/files/page-files/mobility_v1.1.pdf (accessed 09/06/2014)

Galicic, V. and Pilepic, L. (2007), "The role of logistics information system in the business-decision process", *Tourism and Hospitality Management*, Vol. 13, No. 3, pp. 571-582.

Galičić, V. and Šimunić, M. (2006), *Informacijski sustavi i elektroničko poslovanje u turizmu i hotelijerstvu*, Fakultet za turistički i hotelski menadžment, Opatija.

Habib, M. (2010), "Supply chain management: theory and its future perspectives", *International Journal of Business, Management and Social Sciences*, Vol. 1, No. 1, pp. 79-87.

IDC (2014), *Worldwide Smartphone Market Grows 28.6% Year Over Year in the First Quarter of 2014*, Available at: http://www.idc.com/getdoc.jsp?containerId=prUS24823414 (accessed 28/06/2014)

Islam, R., Islam, R. & Mazumder, T. (2010), "Mobile application and its global impact", *International Journal of Engineering & Technology (IJEST),* Vol. 10, No. 6, pp. 72-78, Available at: http://www.ijens.org/107506-0909%20ijet-ijens.pdf (accessed 13/07/2014)

Jenkins, J. (2013), *Mobile Trends Shaping Supply Chain Management,* Available at: http://www.smallbizclub.com/technology-sections/software/item/760-mobile-trends-shaping-supply-chain-management?Itemid=731 (accessed 10/07/2014)

Karya Technologies (2014), *Enterprise Mobility Solutions*, Available at: http://www.karyatech.com/mobile-solutions/mobile-products.html (accessed 30/08/2014)

Lightwell (2013), *Mobile apps make supply chains more efficient*, Available at: http://info.oxford-consulting.com/blog/bid/142449/Mobile-apps-make-supply-chains-more-efficient (accessed 06/07/2014)

Mentzer, J.T., DeWitt, W., Keebler, J.S., Min, S., Nix, N.W., Smith, C.D. & Zacharia, Z.G. (2001), "Defining supply chain management", *Journal of Business logistics*, Vol. 22, No. 2, pp. 1-25.

Mrnjavac, E. (2010), *Logistički menađment u turizmu*, Fakultet za menađment u turizmu i ugostiteljstvu, Opatija, Sveučilište u Rijeci.

Öztayşi, B., Baysan, S. & Akpinar, F. (2009), "Radio frequency identification (RFID) in hospitality", *Technovation*, Vol. 29, No. 9, pp. 618-624.

Pan, Y., Nam, T., Ogara, S. & Lee, S. (2013), "Adoption model of mobile-enabled systems in supply chain", *Industrial Management & Data Systems*, Vol. 113, No. 2, pp. 171-189.

Partridge, A.R. (2011), *Mobile Communications: Managing Supply Chains on the Go*, Available at: http://www.inboundlogistics.com/cms/article/mobile-communications-managing-supply-chains-on-the-go/ (accessed 13/06/2014)

Rouse, M. (2010), *Supply chain management (SCM),* Available at: http://searchmanufacturingerp.techtarget.com/definition/supply-chain-management (accessed 25/06/2014)

Softweb Solutions (2014), *Mobile supply chain management solutions*, Available at: http://www.softwebsolutions.com/mobile-supply-chain-management-solutions.html (accessed 30/06/2014)

Umar, A. (2004), *Mobile Computing and Wireless Communications*, nge solutions, inc.

Umney, C. (2011), *Supply chain execution goes mobile*, Available at: http://www.supplychaindigital.com/logistics/2695/Supply-chain-execution-goes-mobile# (accessed 30/06/2014)

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