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## Context Aware Mobile Learning as a Factor for Economic Growth

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### Abstract

Mobile technologies have become an integral tool for communication and information delivery. It transformed educational paradigms from traditional one-size-fits-all to personalized and context aware learning. Such education can support human resources development, resulting in improved outcomes. Quality of education and working skills are the important driving force for economic development. This paper deals with the role of mobile learning in education, which is unique in terms of flexibility of time and location, but it requires extra planning and analyses of appropriate technologies during learning design process. The contextual information can be static, but some parts are dynamic and unpredictable. In this paper the model which combines static and dynamic context for mobile learning content development is proposed. This model will promote the productivity growth that has a major impact on economic growth.

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### 1. Introduction

Last 20 years has shown significant number of examples about the contribution of information and communication technology (ICT) on productivity and economic growth (Jorgenson and Stiroh, 2000; Vu, 2011). ICT technologies have changed from static and standalone to portable and interactive devices, which enables communication and cooperation nearly everywhere we go (Hamdani, 2013).

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The rise of the Internet combined with modern technological advances has reshaped the way businesses operate, but at the same time it requests for new knowledge and skills for achievement of economic goals. Technological and economic progress depends on the access to more and more knowledge and information. This means that organization workforce has to be educated and have to reach information as fast as possible. Education and information accessibility is powerful factor in promoting economic growth along with other social growth.

Organizations that incorporate mobile learning can provide new ways to deliver training, develop talent and build a workforce with the capabilities and knowledge needed to meet current and future demands. But it's not just the organization that wins: Employees benefit from new skills, supporting career advancement and personal development – two factors that contribute to increased job satisfaction and employee engagement (Grossman, 2013). Of course, the main point is not just technology, it is necessary to perform accurate planning and implement meaningful strategy to get value from such technologies.

This paper deals with possibility to improve economic growth of organizations through mobile learning. The model, which combines static and dynamic context for mobile learning content development, is proposed. This model will promote the productivity growth that has a major impact on economic growth. Main benefit of this model is that it can offer not only mobility and flexibility, but it combine static and dynamic context for context-aware m-learning content development. Such technique offer better personalization of content and improve productivity and personal success.

## **2. Mobile Learning for Economic Growth**

The diffusion of wireless mobile technologies in the developing world has been one of the most astonishing trends of the present and future (Rogers and Liddle, 2007). The major changes in the last years – the exponential growth of investments in knowledge, mobile communications and Internet users accelerated development of new economy. Knowledge has become key driver for economic competitiveness and success: it has added massive value to economic production through increases in productivity, and the application of new technologies and new ideas - both in the form of new inventions and also new applications of existing knowledge - has brought revolutionary change to virtually all markets and sectors (Batagan, 2008).

In relation to education, mobile devices enable innovation and help learners, and teachers to access digital content, it also provides personalized assessment which is vital for post-industrial world. Mobile devices can be used during working time for more advanced problem-solving and building critical skills for better productivity. This translates to real business impact enhanced speed and reduced cycle time, better informed decisions, enhanced connections to customers and more (Intrepid Learning Solutions, 2010), it also enables users to communicate with more trusted sources for the information they seek. Idea behind this is that innovation and technologies is related to productivity, and productivity is one of the main factors for economic growth.

The right information delivered at the right time can have significant impact on productivity, but when information is wrong, it can be a distraction as well. Sum Total Systems states that 66% of CEOs say the lack of the right skills is their biggest talent challenge and that 20% of organizations state learners need to connect with learning resources on daily basis to effectively perform their job (Parker, 2013). Therefore, mobile learning becomes so popular and this has led to increased interest on personalized and context-aware learning. Such applications lets users interact with their environment in an absolutely new way, it is possible to offer personalized information depending not only on their profile, but also on their location and position in time and space. Without context-awareness, the same learning experience would be presented to every user.

Gartner research has shown that context-aware computing has a high correlation to business expectations and therefore is a natural place to invest time and effort as business leadership responds to turbulent economic conditions and positions the business for future growth. Context-aware computing can help by improving business processes, reducing enterprise costs, attracting and retaining new customers, improving workforce effectiveness, creating new products and services (Pettey and van der Meulen, 2009). Gartner states that context-rich systems will be able to understand the context of a user request and adjust their responses to deliver tailored and valuable information (R & G Technologies, 2014).

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