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Mobile *edoclink*: a mobile workflow and document management application for healthcare institutions

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Abstract

The exponential growth of mobile devices, like smart phones and tablets, has led to a growing ubiquitous computing paradigm, in which computing is distributed and available anytime, anywhere and supported by different devices. The document and workflow management in organizations is made through computers connected to one or several servers via a networking infrastructure. The emergence of ubiquitous computing paradigm leads those solutions to be adapted for mobile platforms. Thus, users tasks can be done in a more efficient way due to the availability of information wherever they are using a mobile device, improving both the time needed to complete tasks and organizations' efficiency. In this paper we present the mobile version of *edoclink* document and workflow management solution. *Edoclink* system was developed by Link Consulting© and is widely implemented in several healthcare institutions.

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1. Introduction

Healthcare institutions have to prepare and process a growing amount of paper document. Some examples are the diagnostic tests, medical appointments and patient records. The nature of those documents makes them susceptible to be lost or damaged during its lifetime, mainly due to human action or accidents. Moreover, in healthcare institutions, like hospitals, the information needs to flow in real time, in particular if it is related to clinical episodes. This means that critical data has to be delivered to several players, such as doctors, nurses or administrative employees. These issues are part of a large amount of concerns, which underlie the document management and workflow management solutions.

A document management solution is an information system or a set of information systems responsible for capturing, managing, storing and distributing documents related to the business processes belonging to an organization. On one hand, the implementation of a document management solution optimizes the flow of documents between employees. On the other hand, these solutions eliminate the need of paper documents by making them electronic. Thus it is possible to suppress the problems related to paper format documents.

The document management solution *edoclink* [1] developed by Link Consulting© [2], is a renowned solution in Portugal and has a growing international expression. It has about 130 installations with more than 30000 users. This solution is implemented in several healthcare institutions like Administração Regional de Saúde do Norte (*ARSA*, *CHLO*), Saudaçor and Unidade Local de Saúde do Baixo Alentejo. In those organizations, *edoclink* solutions are responsible for the optimization of the administrative and expedient processes.

The *edoclink* solution is web-based, which means that it was designed to be accessed through a web browser in a computer connected to the network. With the exponential growth of the mobile devices, such as smart phones and tablets, the migration to a ubiquitous computing paradigm emerged, meaning that many computational tasks can be done anytime and anywhere with a mobile device.

This paper describes the development of mobile *edoclink*, a mobile solution that integrates with the existing *edoclink* solution. This mobile solution implements the access to workflow documents through a mobile device. It embodies access to documents information, documents, workflow and decision making while the user is on the go. It is thus intended to optimize workflows duration, leading organizations in general and healthcare institutions in particular to an improved performance when dealing with their business processes.

This paper is organized as follow. In Section 2 we present the fundamental concepts needed to understand the rest of the paper. We also summarize the state of the art in mobile document management applications and their integration with desktop solutions. We proceed in Section 3 with a description of the major features analyzed in the development of mobile *edoclink*. In Section 4 we describe the results we have obtained and finally, in Section 5 we delineate the conclusions for our work.

2. Background

This section comprehends the description of the main background knowledge need to understand the decisions we have made during the mobile *edoclink* development phase. We make a brief foray into the following subjects: *edoclink* document management solution, generic mobile computing concepts and state of the art mobile applications.

2.1. *Edoclink* document management solution

The *edoclink* document management system is intended to support the dematerialization of administrative and decision-making processes. It is developed on Microsoft© technology for a web environment, allowing

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