

INVESTIGATION OF MASHUPS AS A POSSIBLE TOOL FOR MANAGERS

NECMETTIN OZKAN

UNIVERSITI TEKNOLOGI MALAYSIA

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NECMETTIN OZKAN

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ABSTRACT

The Web technologies have spurred a lot of changes across sectors. Specially speaking, Web 2.0 has come with the distinguished changes mainly in empowering end user, from being passive participant to being active contributor. Mashups on the other hand are one of the latest growing examples of Web 2.0 concept. With mashups it is possible to collect different sources of data from the Web into one application, aggregate them and to present to user in interactive manner. There are easy in development and less in cost. This thesis studies mashups as potential tools for managers from different aspects. Firstly, a deep investigation of mashup itself is done in order to know what mashups can do for managers. The further study is dedicated to defining a justification baseline to evaluate usefulness of mashups in management in a specific area. For this, School of Graduate Studies (SPS) Admission Unit in Universiti Teknologi Malaysia (UTM) is chosen as the case study. By using Yahoo Pipes and Open Kapow mashup editors, some mashup applications are developed and evaluated with corresponding managers. And the assessment of mashups as being tools to develop applications by managers themselves is done by asking SPS managers to develop mashup application and giving their feedback about their development process. Finally, the feedbacks from managers and the whole study are integrated to propose mashups for managers, at what extent and in what way.

ABSTRAK

Teknologi Web telah merangsang banyak perubahan dalam pelbagai bidang. Web 2.0 tampil dengan satu perubahan yang besar terutamanya dalam meningkatkan had pengguna, daripada penyumbang yang pasif kepada penyumbang yang aktif. Mashups merupakan salah satu contoh terkini konsep Web 2.0 yang dibangunkan. Data dari sumber yang berbeza dari web dapat dikumpulkan menjadi satu aplikasi, disatukan dan dipersembahkan kepada pengguna dengan cara yang interaktif dengan mashups. Ia adalah mudah dibangunkan dan hanya membabitkan kos yang sedikit. Tesis ini mengkaji mashups sebagai satu perisian yang berpotensi kepada pengurus dalam aspek yang berbeza. Pertama sekali, satu kajian yang mendalam dijalankan untuk mengetahui fungsi mashups kepada pengurus. Kajian seterusnya dijalankan untuk member justifikasi untuk menilai kepentingan mashups dalam pengurusan yang khusus. Dalam kajian ini, Sistem Kemasukan Pelajar UTM (SPS Admission Unit) telah dipilih sebagai kes kajian. Dengan menggunakan mashups editor seperti Yahoo Pipes dan Open Kapow, beberapa aplikasi mashup dibangunkan dan dinilai. Penilaian mashup sebagai satu alat untuk membangunkan aplikasi bagi pengurus dijalankan dengan meminta pengurus SPS membangunkan aplikasi mashup dan memberi maklum balas mengenai proses membangunkan aplikasi tersebut. Selepas itu, maklum balas pengurus dan keseluruhan kajian digabung untuk memperkenalkan mashups kepada pengurus, pada apa-apa tahap dan cara.

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CHAPTER 1

PROJECT OVERVIEW

1.1 Introduction

This project holds the purpose of investigation of mashup from point of being management tools. Chapter 1 puts forward the frame of project in terms of the problem background, defining statement of problem, objectives, scope and importance of the project.

Chapter 2 is a collection of concept explanations that the project has. It covers concept of mashups, technologies behind mashups, web platform, and mashup related management problems of today. The chapter will house the corresponding information about the topic of the project by giving the perspective of authority to.

Chapter 3 will determine the methodology that will be followed. The techniques, methods and principles that will be guide during the implementation of project will be given.

Chapter 4 is all about initial findings on mashup itself that will be obtained from study of the researcher. Draft of design for mashup applications, case study area

with needed information about it, introductive result from mashup investigation process will be in this chapter.

Chapter 5 will include complete design, implementation and testing phase of project for the particular case study example. The graphs, tables and print screen techniques will accompany in order to visualize the mashup applications that will be developed; and the other findings on mashup implementation phase will be provided.

Chapter 6 will give the organizational perspective of the project. The adoption and adaptation processes for the organization will be mentioned in this chapter. The affects of mashups to the case study organization in terms of effectiveness and efficiency will be explained through Chapter 6. Besides, appropriateness of mashups for managers will be discussed in this chapter.

Chapter 7 will be under the purpose of covering the achievements of the project, constraints and challenges encountered and aspirations of this study. It is to make a conclusion of the whole project.

1.2 Introduction to Mashup

Through the history of Web, there have been new Web technologies that make difference in both doing business and capabilities of Web end user. Now we have a new concept and some technologies of this concept that may change doing business. It is mashups.

Mashup is a web application that combines more than one source into one integrated tool. Content used in mashups is typically sourced from a third party via a public interface or web service. Other methods of sourcing content for mashups include Web feeds (e.g. RSS or Atom), and screen scraping. Many people are experimenting with mashups using Amazon, eBay, Flickr, Google, del.icio.us, Microsoft, Yahoo and YouTube APIs. Here is a simple representation of mashup platform in Figure 1.1.

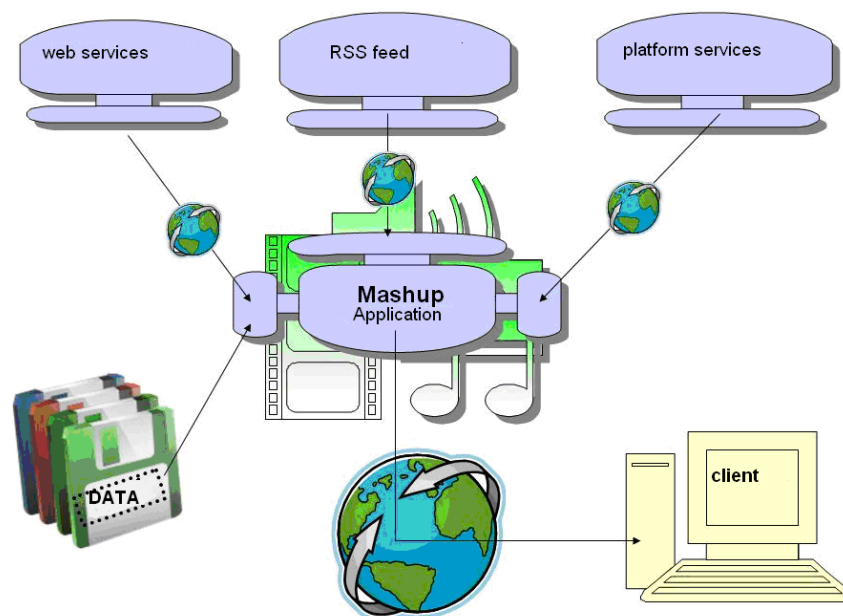


Figure 1.1: Representation of Mashup Platform

In order to have clearer picture of what mashup is, it would be appropriate to give a usage example of it. Assume that we have market place including wide range of products to consumers. At the same time, to compete in the Web, we support people a web site that exhibits our products. Unless the user who visit web site gives his/her personal information, the basic data belonging user that we can have is IP number of client computer. By using this IP number, we can identify the exact location of user, country and specific location in that country (<http://www.ipaddresslocation.org/>). Then, we can get the forecast in that particular region of user by taking service from, for example www.weather.com, a forecasting

web site. Finally, by checking our stock data we can define goods that user may be interested in. Let us say that next 3 coming days the weather in user's region will be raining. So we can offer him/her relevant stuff with a promotion.

1.3 Background of Problem

The problems related to mashups can be listed from two angles as following.

1.3.1 Exploring New Technology

The Web is evolving. We have lived the era of Web 1.0 as a time in which users of web were passive. They were to use web as an environment to which some certain web page creators put their information regardless of end user interest. Then it has evolved into Web 2.0 which is more user-centric. Unlike former one, end users can contribute their own contents in a way they like. It has changed direction of Web for business also. Now business should be more end user focused and more dynamic to meet users' demands according to Web 2.0 principles. To benefit from Web 2.0, mashup is an opportunity organizations may take.

For the time being, mashup is still a new technology that needs to be explored from different angles. One of the sides of mashup is the usability of it in managers' lives. That there are not satisfactory sources and work done so far about management perspective of mashup, mashup should be investigated from this window.

1.3.2 From Point of Business

Some problems businesses have can be solved by adapting mashup. Through the study the attention taken mostly encircles this aspect. Therefore, it is important to put forward well-defined problems businesses have.

Information overload is a problem that many companies face with, no matter information is flowing inside company or when presenting information to users. It suffices to say that on account of this problem businesses have lost their resources and can not use documents in a productive way causing waste of time leading over cost. Mashups can help overcome this problem by allowing company to display detailed concise information derived from a wide variety of sources.

Adaptation of different types of technologies to join them together and using many types of implementation languages in one platform is still a problem of business. This problems decrease efficiency, cause lack of reusability and more consumed resources of company for integration. In this case, mashups that are technology independent applications can give a hand to business to integrate diverse platforms as it uses XML data description and data exchange protocols that are common across different technologies. On the other hand, services on the Web are important sources of applications in terms of reusability. If business wants to have a service to adapt, fist it should look at the existing services that can be used directly with no need to develop it from beginning. This way increases reusability and decreases cost. Nevertheless, to synchronize different web services or sources of information on the web is a problem business suffers from. From this point of view, mashups can combine different existing services in a way which users implement their new ideas so that enterprises can easily build applications that are cheaper, more reusable.

To business managers who have limited capabilities of programming and to users who are as well in lack of developing an application with basic technical knowledge on programming, it is big challenge to manage to have needed application developed unless IT department does it for them. At the same time, according to Welles[1] it a bottleneck to make users join in development life cycle of a system or application as it may require a technical process. This leads lacks of user requirement gathering and related problems leaning it. However, it is becoming more straightforward for end-users to create mashups regardless of their technical skill level. This provides a simple way to implement mashups for both managers and end users.

In large companies there have been problems in determination of a clear border between the designer of product and those who turns the design in reality. This issue leads changes during the production processes based on desire of a unit without taking consideration of side affects of changes to other unites or departments. Instead of letting this happen, it can be low in cost, short in time, advance in effectiveness to adapt mashup for prototyping any products that will be produced. This minimizes probability of ending with unnecessary and detrimental changes on processes. Mashups holds an opportunity to involve a much larger portion of the company in the design process, leading to a broader set of ideas to develop and a better understanding of consumer needs throughout the company [1].

1.4 Statement of Problem

During the study the questions looking for answers are:

1. What are the characteristics and capabilities of mashup applications?

2. What is the position of mashups among Web technologies that keep evolving?
3. What are the current managerial problems related to possible mashup solutions?
4. Is there any value that mashups can contribute for managers in organizations?
5. How should organizations adopt and adapt mashup in use of managers to get value of it?

1.5 Project Objective

The objective of this project is to come up with a solution to business from management point of view by supporting them with mashups' capabilities. To reach this final aim, the objectives are divided it into incremental steps that must be met by the end of the project. Objectives of this project are:

1. To investigate mashup concepts, its underlying technologies and IT managers' issues that mashups can find a way of solution at some extent.
2. Conducting an experiment by adapting mashups to admission process in SPS, UTM, by giving chance to managers to develop mashups and use mashups for evaluation.
3. Defining a way of adaptation of mashups to managers' usage in organizations in order to get value from it.
4. Determining possibilities of mashups as possible tools for managers.

Because mashups have already been born at the time of this study, it is first objective is to come up with the characteristics and capabilities of mashup applications in terms of platforms and technologies. This will underline the understanding of mashups to know the domain precisely.

To have a concrete result to see value of using mashups by managers in business, it is needed to continue with choosing one sample of organization to apply mashup applications. Then the value of mashups will be evaluated in this specific business area. To reach this objective, managers in SPS will be asked to create mashups in mashups editor and to use mashups created by the researcher. Interviews and questionnaires will accompany the researcher as techniques to get ideas of managers during the evaluation phases.

It is next step to define possible ways of adaptation mashups into organizations to get value from them if any to managers in business. The study holds the aim of defining a method of adapting mashups in managers' usage as the third objective.

Final objective is to position mashups in managers' usage. During this part of the project the justification will be done according to the results of experiment of mashups in SPS. Also the cumulative information collected and given in Chapter 2 will be one of the channels to get the big picture of Web world that mashups are in. Briefly, all information gathered throughout the study will be main baseline for having a look to mashups' appropriateness for managers.

1.6 Scope of Project

The scope of this study will be limited to the following:

1. Investigation of mashups will be done by collecting information, ideas, views and experiment of other people dealing with the same domain of the technology. The way of gathering this information will be done by visiting

web sites, forms, blogs, chat rooms and having reference of text book, related articles and journals.

2. Experimental results will be collected by delivering questions to the evaluators via interviewing and questionnaires.
3. End users of developed mashups for evaluation are restricted to SPS administration unit managers.
4. The system will be a web-based system residing on web.
5. Developer will use existing mashup editors to develop mashups. Commercial products are out of scope.
6. The system will use test data to simulate real data in making data access, data analysis and implementation of the system.
7. The system will focus on admission process of overseas in SPS, UTM only.
8. Mashup application will be using few real examples of international people to justify the accuracy of applications.

1.7 Importance of Project

The study investigates mashups as a tool for managers in organizations. However there are a variant of business areas and managers in businesses, the points they suffer have similarities. Some of problems they have can be solved by adopting and adapting mashups into their organizations. This study will put a path to adopt and adapt mashups into business to solve some managerial problems.

At the same time, defining capabilities, characteristics and trend line of mashup will be important for organizations because mashups are already new to business. As this study includes an experimenting mashups in a particular area, it will be possible to see the real effects of mashups to organizations. When aimed objectives turn into results of study, managers in organizations will have a clear sight for their organizations in terms of using mashups.

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