

# Benefits Of Combining WSDM And Scrum Framework For Web Development

Atul Mishra

**Abstract:** This paper evaluates the benefits of combining Web Semantics Design Method (WSDM) and Agile Framework- “Scrum” for modeling and Project Management (PM), respectively, of a Web Applications (WA). Furthermore, it is to detail the potential benefits of combining WSDM and Scrum in the development of WA. Moreover, when WSDM is adopted in modeling, the potential benefits have been reflected. What lacks in WSDM and why there is need of agility has been illustrated and elaborated. Finally, the benefit of Scrum as an effective project management technique for WA development has been discussed.

**Index Terms:** Agile Development, Project Management, Semantic Web, Scrum, Web Development, WSDM, Web Methodology.

## 1 INTRODUCTION

Development of Web Application (WA) accommodates selection of suitable methodology and sound Project Management (PM) techniques. Nowadays, there are many methodologies available (traditional and modern) which were designated to software development and some of them are specific to web development that can be adopted for development of any WA. For instance, Web Semantics Design Method (WSDM), Extreme Programming (XP) and Web Modelling Language (WebML) are specific to web development. Every methodology has benefits and limitations associated with it and most of them are adopted by evaluating the suitability with the project. Thus, it is imperative to adopt any methodology by typically exploring the possible benefits associated with it. In the further sections, benefit of combining WSDM and Agile Framework- “Scrum” for modelling and Project Management (PM), respectively, of a WA has been detailed. These methodologies have been reflected by providing a hypothesis of a web application such as blog where an administrator add the content of application and users subscribe to the application to view the content.

## 2 BENEFIT OF COMBINING WSDM AND SCRUM

The WSDM alone can be used to create a WA, however, the contemporary web application have to be developed in short span of time [2]. The WA should also follow semantic structure for content and functionality [5]. So, WSDM is appropriate and it is specific to the development of web applications. However, for project management, WSDM is inappropriate and it does not guarantee agility and timely delivery of the end product. So, there is a need of combining appropriate project management techniques with WSDM. Consequently, for web development, combinations of different methodologies, tools and techniques are factors that influence success [3]. If Scrum and WSDM are bound together for project management and web modelling, respectively, then this technique can benefit the web developer(s) in delivering a high quality user centric WA within short time.

## 3 POTENTIAL BENEFITS OF APPLYING WSDM

### 3.1 Audience Modelling

In the first and second phase, the developer(s) can identify the purpose of web application and the targeted users. Further, model the targeted users in audience classes, which is, separation of users privileges to access the information and functionality. For instance, in web applications, there can be an administrator who can manage the content of system and users (visitors and registered) who wish to view the contents of web application. Thus, both classes have access to distinct functionalities.

### 3.2 Conceptual Design

In the phase three, the functionalities or tasks associated with audience classes are identified. For example, a visitor class of user can view set of pages that are public; registered users of the system can have extra privileges such as login, logout, change personal details and search products. In other words, the conceptual structure (often called navigational design) of web pages among the audience classes is defined in this phase.

### 3.3 Implementation Design

In the implementation design phase, the application structure is defined typically using HTML and presentation is designed using CSS and JavaScript. The relational model is defined and the ERD is developed with appropriate attributes to store the user and content data. In the last phase, the entire web-application is ready to be implemented. Altogether, it results in successful modelling of WA and the developer(s) can begin the implementation of the system.

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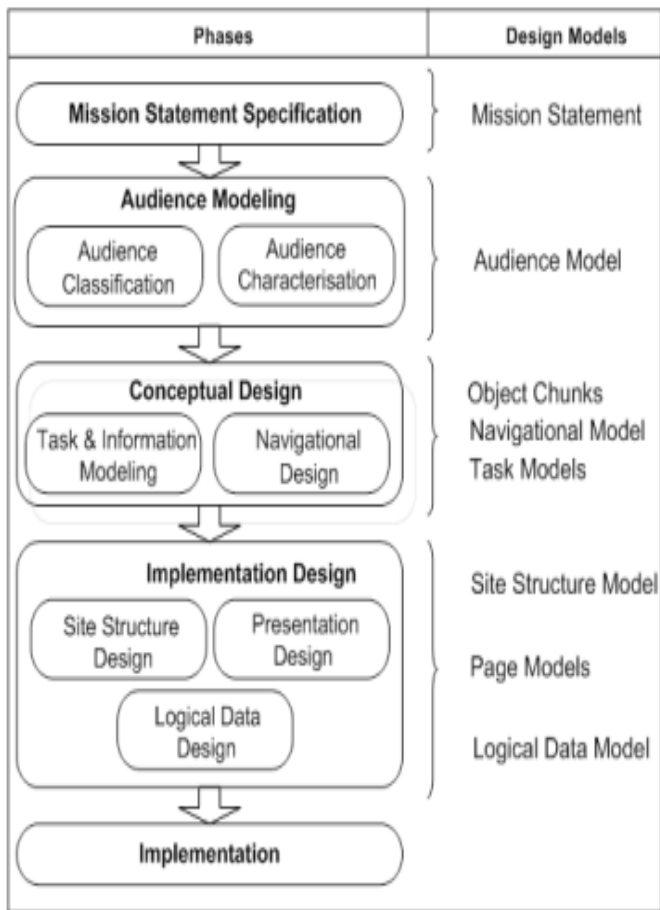


Fig 1: WSDM Overview [5]

#### 4 BENEFITS OF WSDM

The chief benefit of WSDM is that it has been particularly designed for semantic web development and it is web-focused [5]. Moreover, it is a multi-phased model and it enables the developer(s) to break down the WA into layers or phases (as shown in figure 1), and also to describe it from different perspectives. In other words, the phases of WSDM reflect the systematic way of modelling the system and design. The developer(s) can easily envision what is to be developed and the designer(s) get a systematic way of obtaining design models.

#### 5 LIMITATION IN WSDM AND NEED OF AGILITY

By the structure of WSDM it can be seen that it follows tradition flow of waterfall model where the phases are dependent on the completion of previous phases. However, it can be argued that for development of WA, traditional methodologies such as waterfall are inappropriate and inflexible due to their sequential structure and lack of user participation [8]. Moreover, the implementation phases do not reflect the processes involved in the implementation and also lack in project management. On the other hand, for more than a decade agile group of software development framework has been researched within the several research communities and utilized among software industries as a project management technique. The contemporary methodologies such as agile and scrum, in particular, satisfies the dynamic need of stakeholders and

are capable of delivering value to users at earliest and are suitable for adoption in small and medium scale WA [1], [8].

#### 6 SCRUM AS PM TECHNIQUE FOR WA

In Scrum, at first stage, the team develops the product backlog (the list of features of WA). Then, in the next stage-sprint planning, the entire team identifies the tasks for sprint and the distribution of tasks is carried out among the team members. It benefits the team in having a common idea and understanding of the problem. The tasks are registered in sprint backlog and would be treated as a forecast for the functionalities to be developed in the coming sprints. The sprints or iterations are time boxed (up to four weeks), comprise planning, daily and review meetings and are followed till the goal is reached.



Fig. 2: Scrum Framework[7]

#### 7 POTENTIAL BENEFITS OF SCRUM

Scrum is an effective project management technique for development of WA [8]. The principle benefit of Scrum over the traditional methodologies is its iterative and incremental development to optimise predictability and control risk [6]. Furthermore, it is primary agile practice and involves user participation. The change of requirements are anticipated and accommodated in Scrum and the product benefits can be seen earlier.

#### 8 CONCLUSIONS

In this paper, benefits and suitability of WSDM, for adoption in Car Sales WA project (in general small and medium scale projects) has been addressed. It has been identified that WSDM is web-focused, making it an appropriate methodology for modelling of websites and web applications. Furthermore, it has been recognised that WSDM follows traditional waterfall structure and contemporary WA requires more user participation, agility and timely delivery of end product. Moreover, the WSDM does not employ project management techniques and implementation phase lacks necessary guidelines. Subsequently, it has been identified that Scrum is a methodology that effectively employs project management throughout the cycle of project. It is adaptive to change of requirements, focuses on user participation and suitable for WA, making it suitable for adoption in web development.

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