Bespoke, Mdre And Challenges In Mdre In Comparison With Bespoke

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ABSTRACT

This paper gives an idea on the basic concepts of requirements Engineering (RE) and the differences between the Bespoke Requirements Engineering and market driven Requirements Engineering. It also describes the challenges associated with Market Driven RE in comparison to the Bespoke RE.

KEYWORDS: Large Scale Requirements Engineering, MDRE, Market Driven development, Bespoke, Bespoke Development, Market Driven Requirements Engineering, Bespoke Requirements Engineering, Challenges, Requirements.

1. INTRODUCTION

The main objective of every software organization in this competitive world is to taste success. Success of a software system most of the times depend on the extent to which it fulfills the purpose for which it is intended for [12]. To develop any software intensive system which satisfies the end requirements, requirements engineering arguably plays an important role [13]. The main goal of requirements engineering is to know what the system should accomplish, produce or provide in order to fulfill the needs of its stakeholders [2][14].

Requirements engineering plays a vital role during and after the development of a project. The project may be a disaster if the requirements are not clearly specified. In order to get the transparent results of the requirements Most of the companies follow two requirements engineering models namely Bespoke Requirement Engineering model and market Driven Requirements engineering model.[2]

In the following sections we have given a brief description about Bespoke requirements engineering model and Market driven requirements engineering model. In section 3 we have discussed some differences between the two models that we have identified. In section 4 we discussed some challenges that we have identified in both the models. With a small part of Discussion and future work we have concluded this paper by saying our opinion about the two models.

2. BESPOKE VS MDRE

In Bespoke model, the Development of the project is carried out based on the requirements of a specific customer. If there is a need of the software, the customer will contact only one supplier. Bespoke Development Assures the measurability of the software developed. The main advantage with Bespoke Development is that the requirements can be modified according to the customer needs any time during the project development. [1]

Market Driven requirement Engineering mainly focuses on large pool of Customers where the common needs of all the customers are satisfied. MDRE not only satisfies the common needs of the customers but also concentrates on the future requirements of the end-user and invention of the new products. Unlike the bespoke system MDRE develops the product to the market rather than fulfilling the requirements of the specific customer.

In order to place MDRE in a context, it is defined in two perspectives namely organizational and development.[3]

The organizational Perspective defines the product and organizational strategies where as the development perspective deals with requirements management and development activities in engineering view.[3] As the software is developed for a large member groups MDRE is also known as the packaged software development or Commercial –Off -the shelf component(COTS)[10].

3. DIFFERENCES BETWEEN BESPOKE AND MDRE

In Bespoke, the development organization focus the project on the requirements of a specific customer, i.e the requirements of one particular customer is satisfied. Where as in MDRE the requirements of large number of customers (market) is focused. Not only these, there are some main differences between the two models . These differences can be seen in the following areas:

1. Start or Initiation of the project
2. Objective
3. Success Criteria
4. Elicitation.
5. Analysis and negotiation
6. Validation
7. Financial Risk
8. Types of Customers and Customers Satisfaction.
9. Relationship
10. Constraint Based Delivery.
11. Invention of Requirements.
3.1. START OR INITIATION OF THE PROJECT:

In bespoke Model the development project is initiated and terminated when the project is finished (i.e., when final product is developed and released). This decision of initiation and termination of the development project is taken by both the management of the organization and the customer with mutual understanding. [4]

Whereas in market Driven model the project is initiated, and it’s a continuous process because the focus of MDRE is on large pool of customers, According to their needs the requirements also change (each customer may have different needs), in order to fulfill the requirements of the customers the products are released in different versions according to the changes in the requirements. Here after the initiation of the project, product management will take the decision according to the customer needs.[4]

3.2. OBJECTIVE:

After the initiation of the project the objective for a particular product is set by the organizations. In bespoke, the objective of the organization is to satisfy the customer needs (which helps them to get the future projects from the same customer), whereas in MDRE the key objective is time to market besides this the other objectives are: to achieve the large number of Customers Satisfaction, and concentrate on the correct market for the product, where, when and how to release the product in to the market with right time and in right place.[4] These objectives that are defined depends on the success Criteria of the product. i.e., if the product is success full in the market it implies that the objective of the company is achieved.

3.3. SUCCESS CRITERIA:

Success rate depends on the acceptance of the product by the customers. In bespoke model the Success criteria depends on convincing the Single Customer with the requirements that the customer needs and see whether the customer is satisfied or not. (if not change the requirements according to the customer needs), whereas in MDRE the Success depends on the product value, product reviews, market share, time to release (correct time), and the satisfaction of large number of Customers (market).[4][5]

3.4. ELICITATION PHASE:

In Bespoke, it’s easy to gather the requirements of a single customer and the sources of requirements are given by the customer. Where as in MDRE the source of requirements will be huge and it will be difficult to satisfy each and every requirement of the customer [4]. In order to achieve this goal the requirements are identified by the team in the first release of the particular product. [7]

3.5. ANALYSIS AND NEGOTIATION:

In bespoke RE, the factors such as Cost, features, modification and delay of the project can be analyzed and negotiated with the customer where as in MDRE though analysis of the product is done, negotiation with the customer is not possible alternatively to satisfy the customer new versions of the product is released into the market.[4][5]

3.6. VALIDATION:

Validation of the product is done to prove that a particular product meets the essential requirements of a customer for a particular purpose. In bespoke, the product is validated before it is released whereas in MDRE the product is validated after the release i.e., the validation is done by the customers on the beta version of the product, if there are any flaws in the product those flaws are corrected and the original version of the product is released.[4]

3.7. FINANCIAL RISK:

This type of risk is less likely seen in Bespoke RE, the customer and the organization will share the financial risk [5]. For example if the budget for development of the product exceeds than budget shown in the quotation produced in initial phase of the project, the customer may or may not accept to share the finance, if the customer doesn’t share, the organization has to invest the extra amount of the project.

In MDRE the organization solely is responsible For example Different versions of the same product is released due to the flaws in the previous versions, to attain the focus of the customer, the finance to release different versions would be huge. Company solely has to bear these expenses in order to gain the customers attention.

3.8. TYPES OF CUSTOMER AND CUSTOMER SATISFACTION:

Requirements differ from Customer to Customer. Not every customer has the same requirements. In order to achieve the customer satisfaction, the product that meets every requirement of the customer must be designed and developed. Customer satisfaction can be achieved easily from a known customer.[2][6]

In bespoke RE as the product is developed based on the requirements of a known customer, customer satisfaction can be achieved easily. For example, construction of house, engineer plans the design of the house according to the requirements of the customer which helps the engineer to achieve the customer satisfaction.

In MDRE, as the customer is unknown the focus is made on mass-markets where the product consists of common features which fulfills the common needs of all the customers. Different Versions of the product is
released in order to retain Customer Satisfaction, these
version changes corresponding to the changes in the needs
of the customer and the technology[2][6].

Example: All the organizations producing electronic
goods such as Refrigerators, Digital Cameras etc., follow
MDRE to attain customer Satisfaction. (Best example
Sony cyber shot cameras).

3.9. RELATIONSHIP:

Relationship between the customers and the
organization is a key factor for the products success. The
more close you are to the customers the more requirements
can be gathered, if more requirements are fulfilled there
will be a increase in the products success rate along with
customer satisfaction.[11]Organization management is
always closer to the customers in the bespoke projects.

In MDRE, as the product is developed and
Distributed in the market there is a huge gap between the
customer and the organization ,though there is a huge gap
the organizations and the customers interact in different
ways such using Intermediary strategies such as market
research, product review[7][11]. Through this the
requirements of the particular software are gathered from
various sources, which helps the organizations to improve
the features of the product and attain the customer
satisfaction. For example: Microsoft has published some
online surveys to collect the reviews of the beta version
product such as Microsoft office 2010.

3.10. CONSTRAINT BASED DELIVERY

In the traditional approach release date is dependent
on the agreement between customer and organization
whereas in MDRE it depends on the market, based on the
expectancy of such a product in the market the release date
is planned [15][16][17].

Example: The release of a laptop might depend on several
issues or constraints such as the competition in the market,
need for the product, expected date etc.

3.11 INVENTION OF REQUIREMENTS

In Bespoke there is no need for the inventing the
requirements as there is only single/fixed set of customers
where as in MDRE there are no fixed set of customers, so
there are no fixed set of requirements. Depending on the
product new requirements are invented [18], Example:
TOUCH screens in mobiles. Before screen were present
without the touch feature. This turned out to be an
invention which was a tremendous hit.

4. MAIN CHALLENGES IN MDRE IN
COMPARISON WITH BESPOKE

The main challenges associated within MDRE model
in comparison with Bespoke are:

1. Time to market.
2. Technology Push Vs Market pull.
3. Abstract level and contents of Requirements.
4. Requirements overload
5. Prioritization
6. Allocation Of Resources
8. Volatile Requirements

4.1 TIME TO MARKET:

In bespoke, as the product is focused and developed
according to the need of a particular customer, and the
software is adopted by the supplier the time frame and
when to release the product is set by the customer [3]. Time
to market doesn’t carry any importance as there is no
competition for the product developed and the dead line
may vary according to the customer requirements.

In MDRE, the focus is on large number of customers,
the time frame of the product and when to release the
product is set by the development organization [3]. Time
to market plays a critical role in MDRE. Time to market
means it’s not necessary that the product should be
released first than others but it depends on the choice of
the development organization where, when and how to
release the product in the right time and at the right place.
Here the important thing is that, an organization should
maintain their product uniqueness such that the product is
ahead from other competitors present in the chosen
market.[3]

4.2 TECHNOLOGY PUSH VS MARKET PULL

“The requirements are invented rather than
discovering them.”[7][9]. According to carina alves , the
requirements in MDRE are changed according to the needs
of the customer. The requirements from various sources
fulfill only basic needs of the customers, in addition to that
innovative requirements are invented and added such that
it used for a particular purpose.[7]

These requirements which are invented should be
carefully added to the products and released into the
market. According to Gorschek, there are two types of
requirements [4]: 1) Innovated requirements (i.e.,
Inventing the requirements) 2) requirements based on the
market needs. [4]. If the above two requirements are used
together it could be a disaster [4]. According to Gorschek’s
explanation, prioritizing any of the above requirements
leaves the customer with dissatisfaction [4]. The best
equation to explain is the Microsoft company has came up
with many innovative products which are in use now, they
have released every product at the right time (according to
the current practices of technology)and in the right place.
If the surface computer is released in early 1990’s none of
the customer would go for it because at that time people
were technologically backward and they don’t even know
what it means. At that time the market need was
concentrated and the market need was a desktop computer.
According to my view the innovation of new requirements
must be added keeping in view of current practices and by concentrating on the market needs. Where as in Bespoke the customer will approach with the current practices because using the outdated technological requirements doesn’t help the product to survive in the market for a long time.

4.3 ABSTRACT LEVEL AND CONTENTS OF REQUIREMENTS:

Before developing a product the requirements needed to develop that product must be understood. The requirements must be crystal clear in order to develop a good product.

In Bespoke the customer presents the requirements that are understood by the management and developers of the organization, there is no problem with understanding the requirements because if there are any issues the organization consults the customer when in need.

But in MDRE the requirements from a large pool of customers from different background is collected which can be rather specified as a “raw data” of requirements which should be filtered before giving those to the developers and the management of the organization. If the requirements are not clearly specified there is a chance that the development of the product is directed in a wrong way which leads to a unknown developed product or may be a disaster [10]. Considering a real life example, if an engineer doesn’t calculate the exact dimensions to build the basement for a building for n number of floors, and the construction is carried out, the building collapses either at the end or when it is under the process, in the same way if the requirements of the product are mis-interpreted or not clearly explained there won’t be a fruitful ending (correct product cannot be released).

4.4 REQUIREMENTS OVERLOAD

There is no difficulty in taking over the requirements in the Bespoke RE, as the Supplier is adapted to the particular software; the requirements are specified by the particular customer. Unlike Bespoke RE, the requirements in MDRE is a challenging task to handle, as it deals with large markets the requirements are many, sometimes the organization has to handle the requirements when the resources are insufficient[3]. It is good to have large requirements because it gives an opportunity to see the needs of different customers which helps to produce enhancing products based on the market needs and also achieves customer satisfaction[4].

4.5 PRIORITIZATION

In MDRE, Most of the requirements collected from different sources consist of irrelevant requirements as it is a “raw data”, these requirements needed to be prioritized to reduce the time wastage. These requirements may be prioritized based on the market needs, using the early triage method or by refining the results of requirements. This prioritization in MDRE is very difficult because of continuous flow of Requirements from the customers [4][6]. There is a little need of prioritization in Bespoke RE as the requirements are extracted from a single Customer, to manage the time effectively these requirements must be prioritized.

4.6 ALLOCATION OF RESOURCES

Resources must be allocated at the right time and at the right place. Lack of Resources results in the failure of the project.[8].

4.7 MARKETING STRATEGY:

Marketing Strategy is one of the success factors of the product in the mass markets. In other words presenting the features, functionality and working of the product plays a vital role. The Customers get attracted with an effective presentation of the product. This is all done by the marketing department in an organization [11].

The presentation on the overview of the product is required in Bespoke RE, as the there is only one customer; no special marketing strategies are needed.

In MDRE, to attract the pool of customers from different backgrounds organization has to follow some strategies such as providing user-friendly functionalities, Discounts, promotions, and Conducting Social Events on the name of the product, Advertising the product etc...[3][11].

4.8 VOLATILE REQUIREMENTS

The requirements in the MDRE approach changes continuously. There are many reasons for the changes in the requirements such as the changes in the markets, changes made due to competitors, feedbacks etc. Handling these changes is a tedious task [12].

Example: when a computer company is ought to release its product on a certain date, which there is really less time, if the requirements keep changing it becomes hard to deliver that product.

5. DISCUSSION

Some of the differences identified at times depend on the nature of the project, goals of the organization and other influencing factors. Differences like Success Criteria always depend on the mindset of the customer. The success of the product may vary depending on the openness of the customer to receive the product.

6. CONCLUSION

Following the Bespoke model is easy but it limits to a limited resources, and market. Though MDRE model is a bit difficult there are many advantages such as access to large markets, large sources of requirements etc.. The risks involved in MDRE is large when compared to
Bespoke models. According to different authors and my point of view, a product must be designed and developed with transparent requirements which is understood by everyone and the gap between different levels of abstraction and the customers must be very low, which helps the organization to know the requirements from different sources, and produce a product which achieves the objectives of the organization.

7. FUTURE WORK

Though we have discussed many differences between Bespoke and Market Driven Development, there might be a scope to list out few more differences by conducting an industrial survey. Further research can be carried out in prioritizing the challenges faced in this area of requirements engineering.

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