Alignment of Software Development Life Cycle and Product Life Cycle
(Lesson learned from BBM fall down)

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Abstract

Blackberry Messenger (BBM) has already announced its shutdown on May 31, 2019. With their massive growth in 2014, BBM slowly decreased the number of users due to their competitor's growth, such as WhatsApp and Telegram. In the marketing life cycle, when a product already reaches its maturity level, it will enter a decline gate, which means that if a product wants longer existence in the market, it should prevent that decline level, or it will be gone just like BBM. While the product life cycle is related to marketing strategy (in this case BBM is a software product), the software development life cycle (SDLC) is related to information system design and analysis. Thus, this research tries to align both of life cycle and find out which step or level that should be anticipated by the board of director or project manager in software development. The result of this research finally declared that the mature stage should be aligned with the test and operation stage. It also stated that there are some suggestions on avoiding the decline stage, such as implementing change management, take customers' suggestions and critics seriously for future development and execute strategy into action immediately. Thus, it can delay or even avoid software products entering the decline stage just like the lesson learned from BBM fall down.

Keywords: product life cycle, software development life cycle, mature stage, BBM

INTRODUCTION

BBM (*Blackberry Messenger*) has already announced its shutdown on May 31, 2019, and will be replaced by their descendant *BBMe* (Fauzan, 2019). This shutdown becoming such a disappointment for them, especially after their glory time in the messenger world. BBM who created massive growth from early 2008, and reached its peak in 2014 with more than 90 million monthly users (Technology Times, 2014), suddenly collapsed in 2019.

From its massive growth in 2014, BBM slowly decreasing its users due to its competitor's growth, such as WhatsApp and Telegram. Some said that after BBM was being developed by Emtek Group in 2016 (S.A & Syahrul, 2016), it seems that they lost their magic touch in innovating. It also assumed that BBM is not aggressively adding new features, while their rivals keep doing innovation through those years, such as WhatsApp (Steyn, 2017).

Perhaps, that assumption is not completely true after all. BBM still doing its homework to prevent its downfall and is still competing in the market. They still innovate using BBM money (and later it has become DANA) (Jawa Pos, 2018), to engage their current customer and attracting new customers. They even tried to award prizes for their customers (Iskandar, 2017), in order to beat their rivals.

However, those efforts seem not working anymore until their real fall down in 2019. While their rivals keep doing their jobs in innovating, such as WhatsApp with its simplicity of registration and interface, or Telegram with their guarantee of security. On the other hand, BBM just keeps their old features become more obsolete for the younger generation, and still being proud of their exclusivity of PIN usage and limited channel.

As we know that in the marketing life cycle when a product already reached its maturity level, it will enter the decline gate (Shahmarichatghieh, Tolonen, & Haapasalo, 2015). Thus, it means that if a product wants longer existence in the market, it should prevent that decline level. If they do not anticipate that level, and just become sound asleep with their temporary glory, they will be gone just like BBM.

On the other hand, as BBM is software, it also has its own software development life cycle and should be aligned with the product life cycle. Both life cycles should support each other and should be studied by the board of directors carefully to keep their product at a mature level and not becoming another BBM descendant. While the product life cycle is related to the marketing strategy for the product (in this case BBM is a software product), the software development life cycle (SDLC) is related to information system design and analysis. However, those two should not leave one another in a big software project which is sold to the public as massive software.

Thus, this research tries to align both of life cycle and find out which step or level that should be anticipated by the board of director or project manager in software development. The result of this research will provide strong propositions for a project manager or board of directors from software developers to get ahead of their rivals. Since the competition in the software market is so tight and needs immediate action, there is no absolute domination upon their rival. The BBM sudden fall down case study serves as a reminder that all of it can suddenly happen in a short time.

Product Life Cycle

There are at least four stages of the product life cycle, which are: (1) introduction, (2) growth, (3) maturity, and (4) decline (Schildge, 2018) as shown in Figure 1. The first stage, introduction, is where a product is new in the market and tries to be introduced to the public (Anderson & Zeithaml, 1984). This stage is one of the hardest, while in a marketing strategy point of view, this will take a lot of resources to be spent, such as money, energy, and effort. The main purpose of this stage is to increase the purchase amount from the customer and commonly using advertising to achieve it.
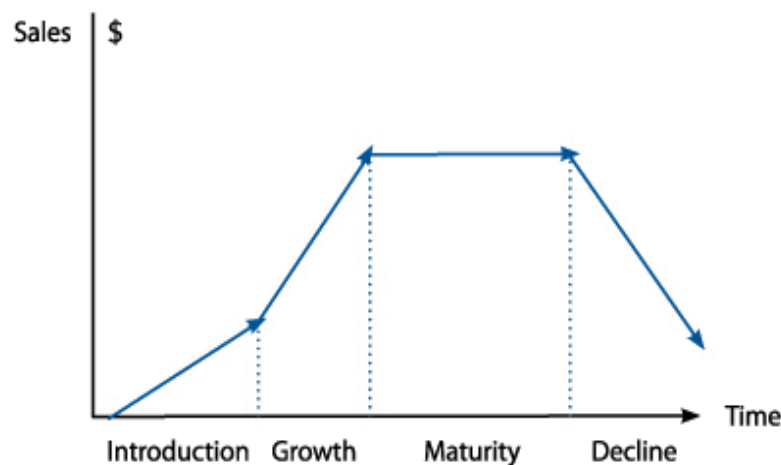

Figure 1. Product Life Cycle (Schildge, 2018)

The second stage is growth, while in this stage product performance should become a consideration. Competition usually becomes more intense and some new players with the common product entering the same market. In this stage, the product should be improved and also adding more variation. Because of this stage usually customer has already come to the product, however, many potential customers should be aware and attracted to the product (Shahmarichatghieh et al., 2015).

The third stage is maturity, or it can be said as cumulative sales penetration for the product (Day, 1981). Commonly, this stage becomes a profit-taking stage for the company and trying to get customer loyalty. On the other hand, product quality should be increased, and the company should increase its efficiency. While this stage becomes the peak for the product, a company should not be spoiled by its position, yet it must think about market expansion for the product.

The last stage is decline where the market is starting to be saturated and sales level become lower (Day, 1981; Schildge, 2018). This stage becomes a nightmare for some companies, while other company trying to set exit strategy and expanding their product into a newer variant. Some said that this stage should not happen if the maturity stage can be managed very well. Thus, the company should not surrender when this stage is coming to their product.

This research merely focuses on the third stage, which becomes one of the entry points from BBM fall down the process. BBM which stayed in its peak performance in 2017 by defeating its main rival (Haryanto, 2017), Whatsapp, suddenly open its door into the decline stage. This phenomenon leaves a big question while similar case like BBM, such as Yahoo, also having their fall down in 2018 (Krishna, 2018), and it also passes their mature stage very early.

Software Development Life Cycle (SDLC), Waterfall Model

SDLC is descriptive or another prescriptive characterization where software development should be done in its development process. SDLC itself contains some different models, such as the waterfall model, spiral model, v-model, and iterative model (PK.Ragunath, S.Velmourougan , P. Davachelvan ,S.Kayalvizhi, 2010). However, since this research taking BBM fall down as the main lesson, so waterfall model is the chosen model in the discussion. Since that waterfall ended their model in the operation and maintenance stage, it is fitted with the phenomenon.

The waterfall model is introduced in early 1970 by Royce and then refined later by Boehm in 1976 (Davis, Bersoff, & Comer, 1988). As illustrated in Figure 2, it has seven stages; (1) system requirement, (2) software requirement, (3) pre-elementary design, (4) detailed design, (5) code and debug, (6) test and pre-operations, and the last stage is (7) operations and maintenance. All those stages encourage how each stage is interacting, which must be done sequentially.
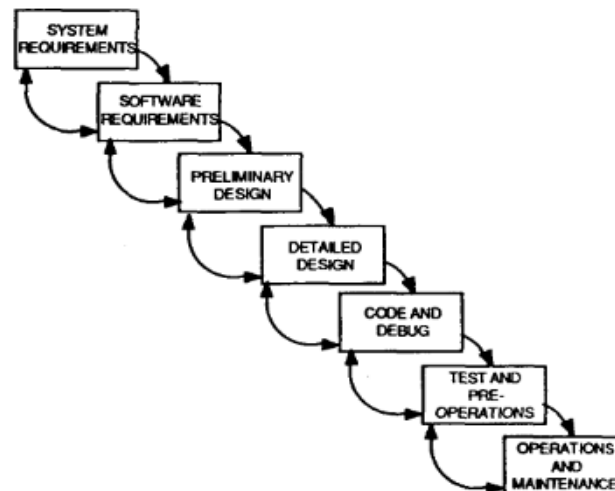

Figure 2. Waterfall Model (Davis et al., 1988)

For example, the test and pre-operations stage cannot be done until code and debug finish their job. Thus, the project manager really can track the progress record for each stage completely. It said that the waterfall model can reduce development and maintenance costs if all the stages are done completely and under control. However, this model having some weaknesses inside it, for instance, if there are changes in requirement while the stage is in code and debug, then the delay will be severely suffered for the project development.

On the other hand, this mode is commonly used, intentional or not, by most software developer companies in the world. It just because of its simplicity and its sequential process which easily followed by most of them. It also offered short term contract for most software developers, since that turnover personnel which commonly happen in a software company.

RESULT AND DISCUSSION

Based upon previous explanation, this research tries to align the stage from both life cycles which might have a strong connection in software fall down, and in this case is BBM fall down. From product life cycles, we can learn that two of the early stages are the most important stages and could become the hardest part to pass through. The

introduction stage and growth stage need a lot of resources from the company, such as money for advertising, early investment, educating customers, and how-to entry the market smoothly.

BBM had a difficult era in introducing its product, since that they must struggle for the shipment of their hardware, along with their software. Their product launching, for the compatible version, took time longer because of their exclusivity. BBM in its early launching merely ran under their own device, despite other devices, thus it made them so exclusive to their own users. This introduction stage, on contrary, took a successful hit and become famous among others the previous messenger.

In this introduction stage of the product life cycle, from an SDLC point of view (using the waterfall model), BBM was still in its code and debug stage. This is based upon their step in the future which pushes their software into other platforms, such as Android and iOS. Therefore, it should be still in their development process, because migrating to other platforms is not an easy part of software development. It would need a lot of redesign and adjustment inside it.

This stage also becomes the test and pre-operations stage in the waterfall model. Because when BBM launch their application into other platforms, there are massive beta version and many repairments for their bugs. However, all those stages were successfully passed and made BBM step into the next stage.

However, when BBM finally succeeded in its move to other platforms, it became a big step and finally a big success. In 2014, BBM can hit almost 100 million users worldwide and create big revenue for them (Technology Times, 2014). This news made BBM in the mature stage of the product life cycle. This mature stage of BBM should create a profit taking opportunity for the company. This is done by selling their majority share to the new owner (Emtek group) in 2016 (Pramisti, 2016).

On the other hand, this mature stage of the product life cycle also needs increment in the customer loyalty program by maintaining and increasing the quality. Customer loyalty should be obtained by inventing more useful features, and aggressively thinking for future development. The mature stage in the product life cycle should become alert for a company that many competitors would try to enter the market with similar products to be substituted, or become competitive turbulence (Day, 1981). If this happened, market growth will become slower which means that a competitive battle in market share is starting. While this battle is temporarily won by BBM, it seems they are at ease for a while enjoying their winning over their rival. BBM for a while winning over their biggest rival, WhatsApp, in their biggest market country, Indonesia (Haryanto, 2017).
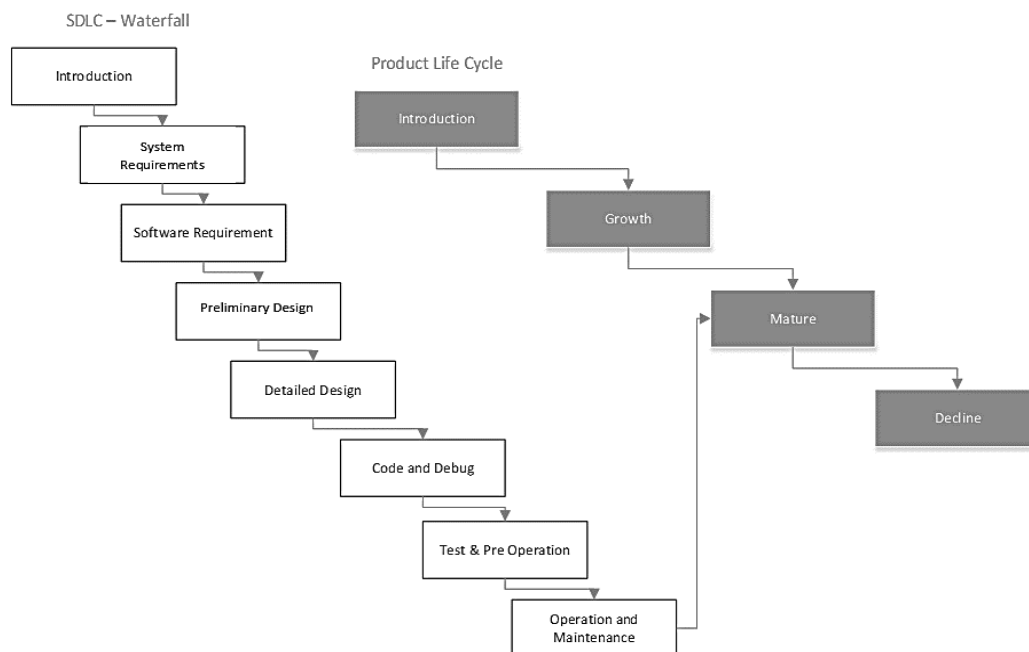

Figure 3. Alignment Between PLC and SDLC

The mature stage in the product life cycle should be aligned with the operation and maintenance stage in the waterfall model in BBM fall down case. Because, since BBM reach its peak performance, they seem to slow down in launching new features for their users. While their rival has become more aggressive in launching their new features, BBM starting to lose their active users gradually and starting their fall epic tale. While suddenly WhatsApp took its position from the number one messenger application in the world with its new features, BBM still becomes obsolete with its late anticipation (Maulida, 2017).

Thus, it means that the mature stage which can be aligned with the test and operation stage in the waterfall model is one of the most important things in both of product life cycle and SDLC. However, this aligned stage focus on how to avoid software product fall down in the market. The main reason for this alignment is because when it comes to the peak of market share, commonly software product becomes stagnant and not Especially when it comes to its mature stage, there should be an alignment of the life cycle, between product life cycle and SDLC, therefore, prevention can be done before its too late. Alignment brief explanation can be seen using Figure 3.

As mentioned previously the mature stage can be aligned with the test and operation stage, some suggestions to avoid that conditions based upon literature review are: (1) implementing change management, including distribution channel changing, market strategy changing, and price schema changing (Product Life Cycle, 2006), (2) maintain product information for design reuse and meet new user requirement (Gecevska, Chiabert, Anisic, Lombard, & Cus, 2010), and (3) transforming strategy into a real project (Jaione & Nekane, 2016).

While first suggestion should be done using internal policy management which must emphasize their employees not to be spoiled by its success in the market. The need for a "keep fighting" spirit should be stayed upon their employee, especially in the R&D department who take the biggest responsibility for the company future. It is also strictly ordered to the marketing department that they must keep following the trend in their marketing channel and distribution. Thus, customers can keep pace with the product awareness and hardly be affected by competitor products.

For example, Facebook keeps its improvement from time to time and keeps its ads flowing. Even though Facebook is on their top performance and beating most of their rivals, they never stop trying to fight for their future development. On the other hand, they also keep put new features inside them, such as payment, integrating with other products, or improving their ads.

While BBM seems too late in implementing their improvement, such as their compatibility in desktop PC and web platform, their main rival, WhatsApp far ahead beyond their features. It seems that BBM feels their success and ignoring their rival based upon their revenue in early 2017 (Statista, 2019). Thus, they just got spoiled and slip into the decline stage.

The second suggestion should be done by keep taking input from customers' responses. All the responses, including critics, suggestions, or even insults from the customer must be taken and noted seriously for future development and to meet new user requirements. Even small detail of design changes can save software products from entering the decline stage.

The sample for the second suggestion is coming from Microsoft. One of the biggest software companies that never stop changing their product interface and design, for example, is Microsoft Office and Windows. Even though they are both leaders in their market share, they keep improving and asking for critics by doing a continuous survey from their customers.

BBM itself in this second suggestion has already taken many complaints while their product is not as simple as their rival in adding friends. For example, their closest rivals, WhatsApp and Telegram, can easily add friends from the address book, while BBM still doing their exclusive PIN for communication among others. Despite their main reason for keeping security, Telegram and WhatsApp have already introduce secret and encrypted chat. Therefore, BBM finally can hold itself in the peak position and slip into the decline stage.

The last suggestion is to define most company habits when they feel at the top of market share and clearly define themselves in the maturity stage. Many strategies and talk show being held while they rarely act from their speech. Customers need real changes and improvement, not just discourse from company leaders in some talk shows. While Mark Zuckerberg or Bill Gates (in the past) most talked about improvement that they have made and what kind of future product they will make. This kind of speech will ensure their customer keep using their product and ignoring any other rivals for substituting the product.

CONCLUSION

While this research merely focuses on literature review and phenomena which happened in BBM slip from mature stage to decline stage, it also includes some suggestions in avoiding such phenomenon. The alignment of the product life cycle and SDLC, using the waterfall model, in a mature stage which aligned in test and operation stage. Both stages are very crucial and important to be watched by the board of directors, not just by the software developer or R&D department. Because of those stages includes some roles from other departments such as marketing and public relation, thus it needs policy from top management to integrate all the action properly.

On the other hand, customers' critics, suggestions, and insults must be taken properly and become great ammunition in developing future features. There is no pause in developing new features while the product has already entered the mature stage. This is the main reason why the mature stage should be aligned with the test and operation stage. Because those stages cannot be separated and supporting each other.

The hard lesson learned from BBM fall is very tragic, there is no long-time alert and warning for the company in entering the decline stage. While this phenomenon also happened by other software products such as Yahoo Messenger, Path, and legendary Friendster, the remaining software products should be aware. At least, doing some suggestions in this paper can slightly delaying their existence in the mature stage.

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