

# IJITGEB

*by* Soetam Rizky Wicaksono

---

**Submission date:** 10-Mar-2020 06:58AM (UTC-0500)

**Submission ID:** 1272917713

**File name:** document.pdf (249.21K)

**Word count:** 3786

**Character count:** 20641

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

Soetam Rizky Wicaksono  
soetam.rizky@machung.ac.id  
Universitas Ma Chung, Malang, Indonesia

Rudy Setiawan  
rudy.setiawan@machung.ac.id  
Universitas Ma Chung, Malang, Indonesia

### Abstract

Blackberry Messenger (BBM) has already announced their shutdown in May 31st, 2019. Their massive growth in 2014, BBM slowly decreased the number of users due to their competitor's growth, such as WhatsApp and Telegram. In marketing life cycle, when a product already reaches their maturity level, they will enter decline gate, which means that if a product wants longer existence in the market, they should prevent that decline level, or they will be gone just like BBM. While product life cycle is related to marketing strategy (in this case BBM is a software product), 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 mature stage should be aligned with test and operation stage. It also stated that there are some suggestions on avoiding decline stage, such as implementing change management, take customers' suggestion and critics seriously for future development and execute strategy into action immediately. Thus, it can delay or even avoid software product entering decline stage just like lesson learned from BBM fall down.

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

## INTRODUCTION

BBM (*Blackberry Messenger*) has already announced their shutdown in May 31<sup>st</sup> 2019 and will be replacing by their descendant *BBMe* (Fauzan, 2019). This shutdown becoming such disappointment for them, especially after their glory time in 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 their user due to their competitor's growth, such as WhatsApp and Telegram. Some said that after BBM was being developed by Emtek Group at 2016 (S.A & Syahrul, 2016), it seem 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 afterall. BBM still doing their homework to prevent their downfall and is still competing in the market. They still innovate using BBM money (and later it is 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 their 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 youngster, and still being proud with their exclusivity of PIN usage and limited channel.

As we know that in marketing life cycle, when a product already reached their maturity level, they will enter the decline gate (Shahmarichatghieh, Tolonen, & Haapasalo, 2015). Thus, it means that if a product wants longer existence in the market, they 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 a software, it also has its own software development life cycle, and should be aligned with product life cycle. Both of life cycles should support each other and should be studied by the board of directors carefully to keep their product in mature level and not becoming another BBM descendant. While product life cycle is related to marketing strategy for the product (in this case BBM is a software product), 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 board of director or project manager in software development. The result of this research will provide strong propositions for project manager or board of director from software developer to get ahead of their rivals. Since the competition in 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 short time.

### Product Life Cycle

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

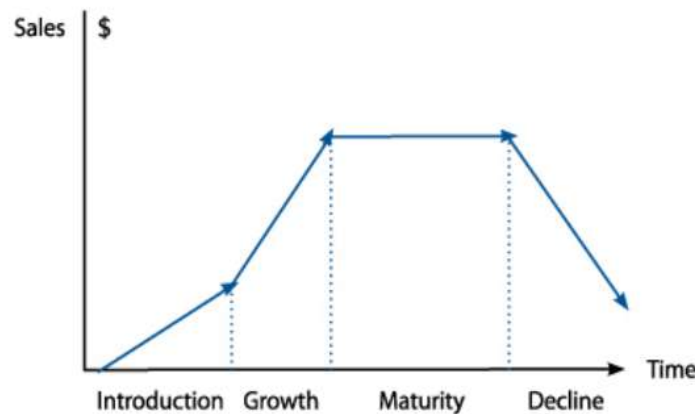


Figure 1. Product Life Cycle (Schildge, 2018)

Second stage is growth, while in this stage product performance should become consideration. Competition usually become more intense and some new players with the common product entering the same market. In this stage, 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).

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

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

This research merely focuses in third stage, which become one of the entry points from BBM fall down process. BBM which stayed in their peak performance in 2017 by defeating their main rival (Haryanto, 2017), Whatsapp, suddenly open its door into decline stage. This phenomenon leave a big question while similar case like

BBM, such as Yahoo, also having their fall down in 2018 (Krishna, 2018), and it also pass their mature stage very early.

### 8 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 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 main lesson, so waterfall model is the chosen model in discussion. Since that waterfall ended their model in operation and maintenance stage, it fits with the phenomenon.

Waterfall model is introduced 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 last stage is (7) operations and maintenance. All those stages encourage how each stage are interact, which must be done sequentially.

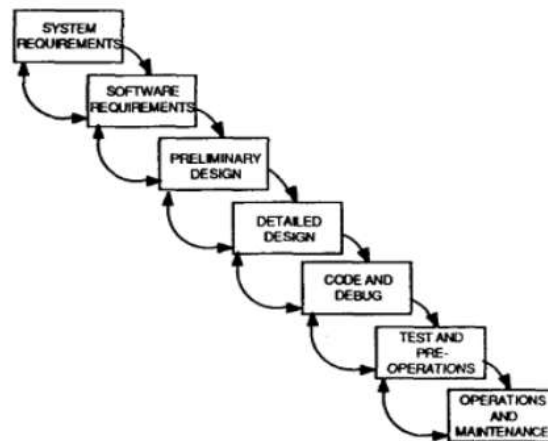


Figure 2. Waterfall Model (Davis et al., 1988)

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

On the other hand, this mode 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 software company.

## RESULT AND DISCUSSION

Based upon previous explanation, this research tries to align the stage from both life cycles which might have strong connection in software fall down, and in this case is BBM fall down. From product life cycles, we can learn that two of early stages are the most important stages and could become the hardest part to pass through. Introduction stage and growth stage need a lot of resources from company, such as money for advertising, early investment, educating customers and how-to entry the market smoothly.

BBM which had 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 of other device, thus it made

them so exclusive to their own users. This introduction stage, on contrary, took successful hit and become famous among others previous messenger.

In this introduction stage of product life cycle, in SDLC point of view (using waterfall model), BBM was still in their code and debug stage. This is based upon their step in the future which push 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 easy part in software development. It would need a lot of redesign and adjustment inside it.

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

However, when BBM finally succeeded 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 mature stage of product life cycle. This mature stage of BBM should create profit taking opportunity for company. This is done by selling their majority share into new owner (Emtek group) in 2016 (Pramisti, 2016).

On the other hand, this mature stage of product life cycle also needs increment in 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. Mature stage in product life cycle should become alert for 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 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).

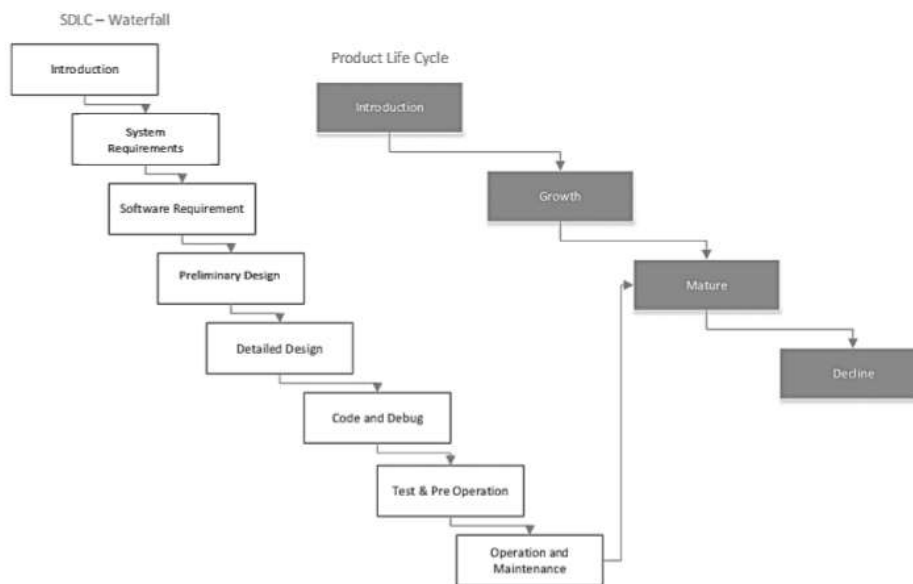


Figure 3. Alignment Between PLC and SDLC

Mature stage in product life cycle should be align with operation and maintenance stage in 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 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 number one messenger application in the world with their new features, BBM still become obsolete with their late anticipation (Maulida, 2017).

Thus, it means that mature stage which can be aligned with test and operation stage in 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 market. Main reason of this alignment is because when it comes to the peak of market share, commonly software product become stagnant and not Especially when it comes to its mature stage, there should be alignment of life cycle, between product life cycle and SDLC, therefore, prevention act can be done before its too late. Alignment brief explanation can be seen using Figure 3.

As mentioned previously that mature stage can be aligned with 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 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 of “keep fighting” spirit should be stayed upon their employee, especially in R&D department who take biggest responsibility for company future. It is also strictly ordered to marketing department that they must keep follow the trend in their marketing channel and distribution. Thus, customer can keep the pace with the product awareness and hardly affected by competitor product.

For example, Facebook which keep their improvement from time to time and keep their 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 product or improving their ads.

While BBM seem 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 seem that BBM feel their own success and ignoring their rival based upon their revenue in early 2017 (Statista, 2019). Thus, they just got spoiled and slip into decline stage.

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

Sample for second suggestion is coming from Microsoft. One of the biggest software company who never stop changing their product interface and design, for example is Microsoft Office and Windows. Even though they are both leader in their market share, they keep improving and asking for critics by doing continuous survey to their customers.

BBM itself in this second suggestion has already taking many complains 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 address book, while BBM still doing their exclusive PIN for communicate among others. Despite of their main reason in keeping security, Telegram and WhatsApp has already introduce secret and encrypted chat. Therefore, BBM finally can hold themselves on the peak position and slip into decline stage.

Last suggestion is defining most company habit when they feel at the top of market share and clearly define themselves in maturity stage. Many strategies and talk show being held while they rarely act from their own 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) mostly talked improvement that they have made and what kind of future product they will make. This kind of speech will ensure their customer to 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 product life cycle and SDLC, using waterfall model, in mature stage which aligned in test and operation stage. Both stages are very crucial and important to be watched by board of director, not just by software developer or R&D department. Because of those stages includes some roles from other department such as marketing and public relation, thus it need 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 entering mature stage. This is of the main reason why mature stage should be aligned with test and operation stage. Because of those stages cannot be separated and supporting each other.

Hard lesson learned from BBM fall is very tragic, there is no long-time alert and warning for the company in entering 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 mature stage.

## REFERENCES

- Anderson, C. R., & Zeithaml, C. P. (1984). Stage of the Product Life Cycle, Business Strategy, and Business Performance. *The Academy of Management Journal*, 27(1), 5–24.
- Davis, A. M., Bersoff, E. H., & Comer, E. R. (1988). A strategy for comparing alternative software development life cycle models. *IEEE TRANSACTIONS ON SOFTWARE ENGINEERING*, 14(October), 456–463. <https://doi.org/10.1109/9781118156674.ch6>
- Day, G. S. (1981). The Life Product Cycle : Analysis and Applications Issues. *Journal of Marketing*, 45(4), 60–67.
- Fauzan, H. A. (2019). BBM Gulung Tikar, Blackberry Hadirkan BBMe Sebagai Pengganti. Retrieved from <https://tirto.id/bbm-gulung-tikar-blackberry-hadirkan-bbme-sebagai-pengganti-dmJr>
- Gecevska, V., Chiabert, P., Anisic, Z., Lombard, F., & Cus, F. (2010). Product lifecycle management through innovative and competitive business environment. *Journal of Industrial Engineering and Management*, 3(2), 323–336. <https://doi.org/10.3926/jiem.2010.v3n2>
- Haryanto, A. T. (2017). Rajai 109 Negara, WhatsApp Takluk dari BBM di Indonesia. Retrieved from <https://inet.detik.com/cyberlife/d-3439085/rajai-109-negara-whatsapp-takluk-dari-bbm-di-indonesia>
- Iskandar, D. (2017). Ajak Teman Pakai BBM, Bisa Dapat Hadiah Total Rp1 Miliar. Retrieved April 19, 2019, from <https://www.tabloidpulsa.co.id/news/32525-ajak-teman-pakai-bbm-bisa-dapat-hadiah-total-rp1-miliar>
- Jaione, & Nekane. (2016). Three Stage Maturity Model in SME ' s towards Industry 4.0. *Journal of Industrial Engineering and Management*, 9(5), 1119–1128. <https://doi.org/10.3926/jiem.2016.9.5>
- Jawa Pos. (2018). Dana Tebar Voucher Kaget Senilai Rp 17 M ke Pengguna BBM. Retrieved April 19, 2019, from <https://www.jpnn.com/news/dana-tebar-voucher-kaget-senilai-rp-17-m-ke-pengguna-bbm>
- Krishna, S. (2018). Yahoo Messenger will shut down on July 17th. Retrieved April 27, 2019, from <https://www.engadget.com/2018/06/08/yahoo-messenger-discontinued-july-17th/>
- Maulida, L. (2017). Duh! Kalah Saing dari Facebook Cs, Pengguna Aktif BBM Makin Menyusut. Retrieved April 19, 2019, from <https://techno.okezone.com/read/2017/09/06/207/1770375/duh-kalah-saing-dari-facebook-cs-pengguna-aktif-bbm-makin-menyusut>
- PK.Ragunath, S.Velmourougan , P. Davachelvan ,S.Kayalvizhi, R. R. (2010). Evolving A New Model (SDLC Model-2010) For Software Development Life Cycle (SDLC). *International Journal of Computer Science and Network Security*, 10(1), 55–65. <https://doi.org/10.1007/s12530-013-9095-4>
- Pramisti, N. Q. (2016). Agresivitas Emtek di Ranah Digital. Retrieved April 27, 2019, from <https://tirto.id/agresivitas-emtek-di-ranah-digital-bods>
- Product Life Cycle. (2006). Product Life Cycle Stages of Product Life Cycle. Retrieved May 21, 2019, from <http://productlifecyclestages.com/product-life-cycle-stages/maturity/>
- S.A, Y., & Syahrul, Y. (2016). Emtek Kembangkan BBM Messenger, Gandeng Alipay untuk E-Money Artikel ini telah tayang di Katadata.co.id dengan judul "Emtek Kembangkan BBM Messenger, Gandeng Alipay untuk E-Money" , <https://katadata.co.id/berita/2017/09/13/emtek-kembangkan-bbm-messenger-g>. Retrieved April 27, 2019, from <https://katadata.co.id/berita/2017/09/13/emtek-kembangkan-bbm-messenger-gandeng-alipay-untuk-e-money>
- Schildge, G. (2018). Product Life Cycle Analysis. Retrieved April 22, 2019, from <http://kfkknowledgebank.kaplan.co.uk/KFKB/Wiki Pages/Product Lifecycle analysis.aspx>
- Shahmarichatghieh, M., Tolonen, A., & Haapasalo, H. (2015). Product Life Cycle, Technology Life Cycle and Market Life Cycle; Similarities, Differences and Applications. In *Management, Knowledge and Learning Joint International Conference 2015* (pp. 1143–1151).



- Statista. (2019). *BlackBerry's revenue from 2008 to 2019 (in million U.S. dollars)\*, by business segment*. Retrieved from <https://www.statista.com/statistics/266241/revenue-of-rim-by-business-segment/>
- Steyn, G. (2017). Take a look at the new features released on WhatsApp in 2017. Retrieved April 27, 2019, from <https://www.iol.co.za/business-report/take-a-look-at-the-new-features-released-on-whatsapp-in-2017-11829226>
- Technology Times. (2014). BBM Hits 91 Million Monthly Active Users. Retrieved April 27, 2019, from <https://technologytimes.ng/bbm-hits-91-million-monthly-active-users/>



## ORIGINALITY REPORT

---

3%

SIMILARITY INDEX

2%

INTERNET SOURCES

1%

PUBLICATIONS

2%

STUDENT PAPERS

---

## PRIMARY SOURCES

---

1

Submitted to Massey University

Student Paper

1%

2

oppapers.com

Internet Source

1%

3

citeseerx.ist.psu.edu

Internet Source

<1%

4

Submitted to University of Leeds

Student Paper

<1%

5

Submitted to Leeds Beckett University

Student Paper

<1%

6

Tilottama G. Chowdhury, Sreedhar  
Madhavaram, S. Ratneshwar, Rhett Standifer.

"The appropriateness of different modes of  
strategy from a product-market perspective",  
Journal of Strategic Marketing, 2014

Publication

<1%

7

www.testingmantra.com

Internet Source

<1%

---

Submitted to Manchester Metropolitan

---

Exclude quotes      Off

Exclude matches      Off

Exclude bibliography      On