

GAMIFICATION: STRENGTHENING THE RELATIONSHIP BETWEEN THE GOVERNMENT AND THE CITIZENS

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ABSTRACT

The level of internet utilization in the field of public services in the form of complaint reports is still very low. Although the e-Government program has been carried out by the Jakarta Capital City Provincial Government since 2015 through Jakarta Smart City, by implementing Citizen Relationship Management (CiRM) through eight complaint channels, where citizens can participate in city development. But in the past three years the number of complaints has continued to decline. On the other hand, the use of social media in the field of governance is a major trend in e-government practices throughout the world, in an effort to support public information disclosure, efficiency, effectiveness, and accountability of governance. The gamification effect is believed to be able to overcome this problem, many studies have shown that the gamification effect has a major influence in activating individual motivation. We are using the Octalysis Gamification Framework to analyze Gamification in implementing CiRM. We obtained data from observations of the current system, interviews with related parties, and questionnaires to citizens of Jakarta as users of the complaint channel. The results of the analysis show the lack of use of game design elements in the CiRM complaint channel, additional gamification techniques is needed to increase citizens engagement and participation. The conclusion of our study is that Gamification is very instrumental in supporting the implementation of CiRM. So that hopes to strengthening the relationship between the Government and Citizens can be achieved.

Keywords : *Gamification, Social Media, Citizen Relationship Management, Octalysis Gamification Framework*

1. INTRODUCTION

In the past few years, there has been a substantial growth of electronic government projects (e-Government) that use information and communication technology (ICT) to assist the government in providing services and providing information online based on Presidential Instruction No. 3 of 2003 About E-Government Development Policies and Strategies. The development of information technology infrastructure is also increasingly massive, especially in the Jakarta Capital City Provincial Government. From the data of the Jakarta Capital City Potential Statistics Year 2018 [1] shows that 92% of the Subdistrict area in the DKI Jakarta Province has been reached by 4G / LTE signals.

Jakarta Capital City Provincial Government has implemented e-Government programs through Jakarta Smart City since 2015. Jakarta Smart City (JSC) implements Citizen Relationship Management through providing new spaces for people to participate in Jakarta's development through applications and website that can be accessed even through cellphones. Through several complaints channels provided by Jakarta Smart City as

administrator, the public can report problems that can be directly followed up by related officials and agencies. Various applications and websites in the complaints channel are mediators that are expected to increase interaction and communication between the community and the government.

In addition to managing applications that provide reporting services for the community, JSC also creates a forum for the government to manage all forms of community participation called Citizen Relation Management (CRM) Mobile. This application is made to respond quickly, concisely and accurately to citizen requests or questions regarding answers to questions and general information about policies, practices, and procedures. CRM Mobile is made for Agency and Subdistrict in the Jakarta Capital City Provincial Government to be able to coordinate and resolve citizen reports more easily.

The reduced level of complaints will greatly affect development, bureaucratic reform, and public services. In the last three years since the program was launched there has been a decrease in the number of complaints. The level of enthusiasm of citizens in reporting through this system is reduced every year. The number of complaints in 2016 was

518,236 reports while in 2017 there were 235,447 reports, the number of reports dropped by around 45%. In 2018 the number of complaints reports declined to 114,156 reports or around 48% of the number of complaints in 2017.

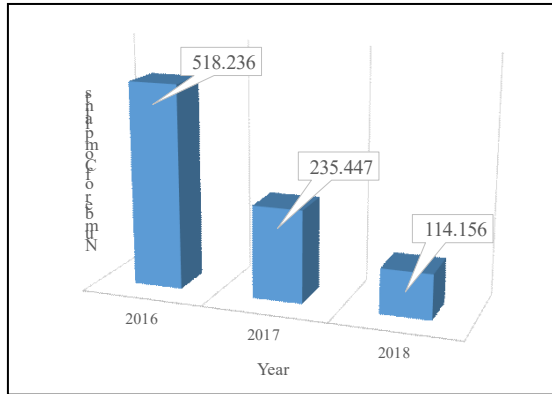


Figure 1: Decrease of Complaint Reports

In this regard, a new strategy needs to be done, in order to increase community participation in terms of the utilization of public services, especially in complaints reports. Solutions to problems in Jakarta must be more effective and efficient by utilizing integrated information and communication technology in all public sectors. Thus, it is expected that more things can be done for Jakarta with a lighter effort to improve living standards and the welfare of citizens and happy citizens.

In this decade Gamification has become a new way of thinking about building closer and intertwined relationships between government and citizens. Gamification has been used successfully to achieve improvements in many challenges. Gamification has been successfully implemented to increase citizen involvement and participation in Smart City. Among other things in research motivating change for sustainable urban mobility [2], increasing citizen awareness through Mobile Social Reporting [3], and potential gamification mechanisms to encourage changes in voluntary behavior [4].

Gamification is the addition of game elements and game techniques into the non game context [5] [6] which persuasively tries to influence user behavior by activating individual motivation through game design elements [7]. Whereas according to Chou, Gamification is the skill to reduce all elements that are fun and addictive in the game and apply them to real or productive activities [8].

In assessing the role of gamification in a system, a Framework is needed. Lots of gamification frameworks are available, but the Octalysis Framework is the most appropriate to be used to

assess the level of gamification in the Government system. In relation to Citizen Relationship Management, gamification is a design that most emphasizes human motivation in the process [9] in line with the principle of Citizen Relationship Management in strengthening government relations with citizens.

From the results of the gamification analysis on the implementation of Citizen Relationship Management, it is hoped that the design recommendations of the right gamification form will be generated and can increase people's motivation to play an active role with the government in realizing Jakarta as a modern city that is neatly arranged and consistent with regional spatial plans, building community culture urbanism that is tolerant while having an awareness in maintaining the city and building a clean and transparent government and oriented to public services.

2. LITERATURE REVIEW

2.1 Citizen Relationship Management

Citizen Relationship Management is an effort that develops at all levels of government to respond quickly, concisely and accurately to citizen requests or questions for answers to questions and general information about policies, practices, and procedures [10]. Citizen Relationship Management (CiRM) is a collection of management methods and information technology used by the government to interact effectively with citizens [11]. CiRM evolves from commercial customer relationship management (CRM) technology, and is most commonly used by municipalities as a set of information technology tools and processes to answer citizen telephone questions, route email requests, provide information through websites, and process online transactions.

The goal is to foster closer, more effective and efficient working relationships, to better anticipate and meet customer/citizen needs and to develop a more detailed working understanding of what customers/citizens want, expect, and need from those who serve them. The fundamental objective of Citizen Relationship Management is to increase citizen participation through the use of Internet technology, or e-participation. The government uses CRM to connect more effectively with citizens, for transparency and accountability [12] and to analyze what services are valued and how citizens want them to increase, and further, how citizens imagine the future of their community.

CRM is dedicated to the conception, development, sustainable maintenance, and control of economically effective citizen orientation. It can be described as a technology-based relationship between the government and its citizens. The design

of this relationship must make it as easy as possible for citizens through various channels to participate in government affairs. The interest of CRM in interacting with customers is focused on citizen participation. With administrative transparency produced, citizen trust is increasing. Enabling citizens to participate and provide solutions to problems, this simplifies executive and legislative dialogue with citizens. Interaction and communication between parties also becomes more efficient and easier by increasing the speed of internal administration processes. The effect of this has a direct influence on the government's knowledge of its citizens.

2.2 Social Media

Social media is a general term for a series of web-based applications and services where users create and exchange homemade content [13]. Kaplan and Haenlein describe that social media can be categorized into six categories based on the level of social existence and self-presentation.

Social media removes the limitations of humans to socialize, limit space and time, with this social media it is possible for people to communicate with each other wherever they are different and whenever, no matter how far they are, and no matter day or night. Social media consists of users who produce content, exchange content and form social networks [13][14][15]. The essence of social media is users who form communities and are surrounded by content and activity.

Government employment of social media offers several key opportunities for the technology [16] :

- Democratic participation and engagement, using social media technologies to engage the public in government fostering participatory dialogue and providing a voice in discussions of policy development and implementation.
- Co-production, in which governments and the public jointly develop, design, and deliver government services to improve service quality, delivery, and responsiveness.
- Crowdsourcing solutions and innovations, seeking innovation through public knowledge and talent to develop innovative solutions to large- scale societal issues. To facilitate crowdsourcing, the government shares data and other inputs so that the public has a foundational base on which to innovate

2.3 Gamification

Gamification has several definitions, but the most common explanation is the addition of game elements and game techniques into the non-game context [5] [6] which persuasively tries to influence user behavior by activating individual motivation through game design elements [7]. The main purpose of gamification is to support the overall value creation of users by providing a pleasant experience [17].

The gamification is a method that refers to the process of introducing, changing and operating a service system and the interaction between humans and computers that draws inspiration from game mechanics that make business processes more enjoyable by incorporating elements of the game. This method offers an opportunity for all government resources to have better involvement, create more interactive, useful, attentive and feedback government officials faster than the government's desired achievement.

2.4 Previous Research

Research conducted by Crowley [3] concerning Gamification of Citizen Sensing through Mobile Social Reporting. Outlined a mobile social reporting framework that utilises the social web and social gaming to create an enjoyable, sticky experience for the users. By embedding game elements within the framework, it allows the possible measurement of the gain in user engagement through gamification.

Research conducted by Yfantis [18] about Exploring Gamification in the Public Sector Through The Conceptual Model Octalysis. The purpose of this study is to explore the use of gamification in the public sector and specifically the adoption of game elements for further use on existing public platforms. Octalysis is used to evaluate game elements by detecting the performance of each element in the existing form from a government website. The value of this research lies in the fact that the public sector is an underestimated research area for the implementation of gamification, so hopefully this work will spark research interest in the community of public policy makers and information technology scientists. Suggestions for further research in this area are improvements to the Octalysis framework to meet the needs of different usage contexts

The gamification framework is an abstraction design that implements the gamification design (generally, regardless of context, for example, government, education, marketing, health sciences, etc.). Research conducted by Mora [19] explains the

various frameworks that have been used to build a game. Octalysis Framework Gamification is most appropriate to be applied in government in relation to smart city because gamification is from the point of view of Chou, gamification is the design that most emphasizes human motivation in the process. This approach is very appropriate to be implemented in government, because the direct relationship between government and citizens, citizens are the main focus of the government.

3. METHODOLOGY

This paper studies the role of the use of content gamification in several social media used by the Jakarta Capital City Provincial Government through the Jakarta Smart City Management Unit in supporting the implementation of Citizen Relationship Management, and identifying whether the CRM implementation process is running well and to know where CRM processes need to be considered. can make improvements and improvements so that the implementation of Citizen Relationship Management can be carried out effectively and efficiently in fostering more harmonious relations between the government and citizens.

Primary data is obtained through questionnaires and interviews with respondents using in-depth interviews with several selected informants who can provide accurate information. In addition, primary data will also be obtained through direct observation throughout the conduct of the research.

Secondary data is data that was previously available at the Jakarta Smart City Work Unit as a work unit that coordinates the implementation of CiRM in DKI Jakarta Province. Data that can be obtained such as monthly and annual reports, regulations and policies regarding the implementation of Citizen Relationship Management, technology and information systems used and other related resources at the research location. Secondary data is also obtained from journals, books that can be accessed in print or via the internet

3.1 Method of collecting data

Data collection is done through observation by making direct observations of the gamification system in the CiRM by researching and receiving the required data. Interviews by preparing questions and conducting a question and answer process with related sources and literature studies by finding information in literary sources such as journals,

books and others that discuss research on gamification.

Questionnaires were given to Jakarta residents as users of the complaints channel. The population of the city of Jakarta reaches 10,374,235 people, with this population, the sample size to be used must be determined. Sampling size calculation using Slovin's Formula. In this study the expected bias is 10%. So that in accordance with the calculation of the Slovin formula the number of correspondents obtained is 100 people. The questionnaire was distributed using the google form distributed in 44 sub-districts in Jakarta.

3.2 Data Analysis Method

The current Citizen Relationship Management system is analyzed by using the Octalysis Gamification Framework to see how the conditions are and find facts about the findings in the field. So that it knows the weaknesses and strengths of the system that is running. From these findings can determine what must be done to develop the system. Identify system findings, namely researching and reviewing system requirements needed.

Octalysis framework is a conceptual model of the gamification framework introduced by Yu-kai Chou [9]. Octalysis framework is a gamification framework that was introduced by Yu-kai Chou in 2013. Octalysis can be used as a tool in applying gamification and analyzing gamified products or services and is a gamification model that has been used by Chou to test gamification elements from several important social networks and games.

Basically, Octalysis uses a Design that Focuses on Humans (as opposed to designs that focus on functions to get things done quickly). Octalysis is a gamification framework designed as an octagon with 8 core drives on each side. Each core drive represents a gamification element that is being interpreted by Chou. In each core, there are a number of strategies or game elements that match each game. For example, points, badges, leaderboards, awards, and progress bars are closely related to the core drive of achievement. Applying these features is assumed to increase extrinsic motivation. This is only one approach to involve users in using applications based on perception; the more they use the application, the more rewards and points they will get.

4.3 Complaint Channel

The complaints channel is used by the citizens of Jakarta Province to convey their aspirations, complaints, suggestions, and input on government services.

Complaints from the public are followed up by the User directly and indirectly. For public complaints that are followed up directly is a public complaint accompanied by a coordinate point feature (geo-tagging) that is followed up by being received directly by each district to then be resolved / handled in accordance with their duties, functions and territory. For public complaints that are followed up indirectly, it is a public complaint that is not accompanied by a geo-tagging feature that is followed up by being received directly by the official complaint channel to be resolved and / or forwarded to SKPD/UKPD and / or BUMD in accordance with the assignment. and their respective functions

The official complaint channel provided by the Jakarta Capital City Provincial Government for its citizens is in accordance with the Appeal of Regional Secretary Number 2 of 2018 concerning the Official Canal of Public Complaints of 8 (eight) channels, including the following:

4.3.1 Facebook (Pemprov DKI Jakarta)

The Facebook address of the Jakarta Capital Provincial Government is <https://www.facebook.com/DKIJakarta/> if citizens want to submit a complaint can send messages via Facebook message or give comments in one of the posts on the Facebook page of the Jakarta Capital Provincial Government.

Overall, Facebook has a little gamification. The most visible is a system of gathering information such as quizzes used throughout the home page. Facebook users, which are very numerous, should be able to be used by the Government to increase community involvement in complaints reports.

4.3.2 Twitter (@DKIJakarta)

Twitter @DKI Jakarta has been used since July 2010. Through this social media, the Jakarta Capital Provincial Government provides the latest update information about the program and information to residents of Jakarta Capital Province.

Twitter has its own advantages compared to other social media including simple, fast update and open.

Similar to Facebook, Twitter's social media channels can be applied to information collection systems such as quizzes.

4.3.3 Qlue

Qlue is an application that is integrated with Jakarta Smart City in a social media form that invites public participation to report complaints and care about the surrounding environment.

Qlue was launched in 2014. Qlue is one of the partner applications of the Jakarta SmartCity which serves to facilitate community participation in building awareness along with issues around the environment, through the support of mobile technology. This web-based application and mobile phone can be used by residents of Jakarta to report complaints or complaints in real time to environmental conditions such as garbage problems, flooding, congestion, damaged roads, fires and others. This application based on the Android and IOS operating system, can be downloaded for free on the Play store or Apple store.

Some gamification features that already exist in the Qlue Application such as Ranking, Gems, Exp, Avatar, Environment, Level, Favorites, Report & Review. With this application, Jakarta residents can report complaints about environmental conditions such as garbage, floods, congestion, damaged roads, fires, and others. In addition, each report can be monitored on its progress to ensure all complaints submitted are followed up. Some of the gamification techniques contained in the Qlue application include:

1. Ranking

Ranking is a rank based on the total points earned. The ranking is divided into 3 (three) parts, namely Public, Government, and Private. Public Ranking is the sequence of points earned by Qlue users based on their follow-up reports. Government Ranking is divided into 5 (five) types, namely Ranking of District, Municipality, Service Ranking, and Staff Ranking. This ranking is a sequence of points acquisition from each related institution based on the follow-up done. Private Ranking is a ranking based on incoming reports related to private companies.

The ranking calculation scheme is based on points obtained from the results of the follow-up (TL) conducted. There are various aspects that affect these points, such as the type of report that is TL, TL time, the weight of TL category, and so on.

2. Gems

Gems are used to buy Qlue's unique avatars in the Avatar Shop. How to get gems is to invite friends and through posts. Gems can be obtained if the user submits a report in Qlue and also if the report is followed up. Each avatar provided in the shop also has special skills that can add to the acquisition of Gems when posting.

3. Exp

Exp is related to the level of the user. Every time a user posts a report, he will get 1 Exp. Every Exp

that is collected will increase the user's level. The higher the level, the more benefits and benefits you can get (example: buy a special avatar).

4. Avatar

Avatars are icons that are representative of user profiles. There are many unique avatar options that can be used to interact with other users. Avatars are divided into 2 (two), namely public avatars (can be used for general users) and staff avatars (specifically for Government Officials and need to be verified first).

To be able to collect the avatars, how to buy at the avatar shop using Gems. Each avatar has its own uniqueness in terms of abilities and privileges. Qlue always releases the latest avatars every time.

5. Environment

When you first log in to Qlue, the user will be asked to choose the environment they are in to be able to see what is happening in that environment. By joining a specific environment, users can see posts of fellow citizens, report problems around, and review the most recent and most popular public places in the environment.

6. Level

The level indicates the level that has been reached in Qlue. There are 6 (six) levels in Qlue, from the lowest level Newbie, Citizen, Elder, Council, Town Leader, Ambassador. To be able to go up to each level, it is necessary to collect as much Exp as possible by submitting reports (and followed up) and posting in the environment. The higher the level, the more privileges you have, such as the increasing choice of unique avatars you can have in an avatar shop.

7. Favorite

Users can add specific reports to your Favorites gallery to keep abreast of developments from the report.

8. Check in & Review

This feature is to help inform fellow users about a place such as a restaurant, café, hotel, and so on. Users can submit reports in the form of positive reviews (appreciation) and negative (complaints) that are shown specifically to the company / business

4.3.4 Email (dki@jakarta.go.id)

Email dki@jakarta.go.id is an official electronic letter from the Jakarta Capital Provincial Government. Residents can submit complaints or complaints via the email.

This complaint channel does not have gamification element, because it is only a one-way communication from citizens.

4.3.5 Citizen's hall (www.jakarta.go.id)

Citizens' Hall is a sub menu of the official website of the Jakarta Capital Provincial Government. Citizens' Hall can be used to submit suggestions, complaints, or complaints.

Before entering the complaint channel to make a complaint report, residents are required to create an account first at the Citizens' Hall.

There is no gamification content in this complaint channel, residents who have entered the complaint will only get the complaint registration complaint number. Communication is also done in one direction.

4.3.6 LAPOR 1708

Online People's Aspiration and Complaint Service (LAPOR) is an accessible and integrated social media based complaints and complaints facility with 81 Ministries / Institutions, 5 Regional Governments, and 44 State Owned Enterprises in Indonesia. LAPOR! developed by the Office of the President's Staff in order to increase public participation in the supervision of programs and government performance in the implementation of development and public services.

The general public can send reports to *LAPOR!* through various media including sites <https://www.lapor.go.id/>, SMS 1708, Instagram @lapor1708, Facebook LAPOR, and also a mobile application. The report is then verified first by the LAPOR administrator! for clarity and completeness, and then forwarded to the relevant ministries / agencies / relevant regional governments no later than 3 working days after reporting is done.

For residents of Jakarta Capital Province who report through this channel, they can refer to the Government of Jakarta Capital Provincial. Furthermore, the report will be processed by the admin to be processed through the Jakarta Capital Provincial Government CRM application, and the report can be monitored on the page <http://pengaduanwarga.jakarta.go.id>.

4.3.7 SMS (08111272206)

Through short messages, residents can submit complaints and complaints about the problems faced related to public services. The fee charged for the report is the normal SMS rate.

This complaint channel does not have gamification element too, because it is only a one-way communication from citizens.

4.3.8 Open house sub-district

The Open House sub-district is regulated in the Instruction of the Governor of DKI Jakarta Province Number 135 of 2017 concerning the Implementation of Receiving Public Complaints at the District Level. Every Saturday at 08.00 until 11.00 District Offices throughout DKI Jakarta organize and provide public services in the form of public

complaints. Citizens are welcome to submit their complaints according to their domicile of residence. There is no application of the gamification element in the subdistrict open house complaint method

4.4 Existing Condition

The implementation of the Citizen Relationship Management by the Provincial Government of DKI Jakarta carried out through the CRM Mobile application has not been changed since it was first launched in 2015. The flow of the public complaints process is carried out through several channels of complaints both using geotagging (Qlue) and non-geotagging. For reports that enter through Qlue, the implementation of the follow-up can be done directly through the CRM Mobile application, whereas for complaints reports through the non-geotagging complaints channel, the follow-up process through complaint officers who input into the CRM complaint input is then forwarded to the relevant agencies, to the district / Bureau / Agency. Figure 3.6 shows the flow of the process of following up on the complaint report.



Figure 4: The flow of the Follow-up Process of Citizens Complaints

The condition of the Jakarta City community is increasingly developing and the change of leadership of the Governor, many points must be adjusted to current conditions. The Jakarta Smart City Management Unit as the person in charge of the implementation of Citizen Relationship Management realizes the importance of doing an improvisation so that its implementation remains in line with the Vision and Mission of the Province of DKI Jakarta.

Most complaints reports are submitted through the Qlue application, from data obtained from Jakarta Smart City, almost 80% of the complaints were submitted through the Qlue application. In the last three years the number of complaints coming through the several channels provided has decreased. The number of complaints in 2016 was 518,236 reports while in 2017 it was 235,452 reports, the number of reports fell by around 45%. In

2018 the number of complaints reports decreased to 114,156 reports or around 48% of the number of complaints reports in 2017.

The number of residents reporting also has declined in the past three years. With the number of reporters as many as 110,468 people is the highest number of reporters in 2016, then in 2017 the number of reporters decreased to only 27,437 people or 34% worth from 2016. For 2018 the number of reporters became 17,987 people, down about 48% from in 2017.

Table 1: Number of Complaints and Reporters in CRM Mobile

Year	Number of Reports	Number of Reporters
2016	518.236	110.468
2017	235.452	37.437
2018	114.156	17.987

The follow-up time for the completion of the complaint report was also a major problem. The report completion time is calculated from the time the report is entered in the district CRM account until it is finished by the district.

5. ANALISYS

5.1 Citizen Relationship Management Analysis

To find out the performance of the implementation of the CiRM, measurements were made on the complaint channel using a questionnaire method to the citizens of Jakarta with a sample of 100 people. The questions contained in the questionnaire based on 8 (eight) Core Drives in the Octalysis Framework.

For the measurement scale the Likert scale is used with the choice of answers and the score for each answer is as follows:

Table 2: Measures for Questionnaire Answers

Answer Choice	Value	
	Positif	Negatif
Strongly agree	5	1
Agree	4	2
Neutral	3	3
Agree Less	2	4
Strongly Disagree	1	5

The rank of all respondents' answers from each statement is very low, low, medium, high, and very high with the following calculation:

- The lowest score is obtained if all respondents answered 'Strongly Disagree', then the lowest score is $100 \times 1 = 100$
- The highest score is obtained if all respondents answered 'Strongly Agree', then the highest score is $100 \times 5 = 500$

The difference between the lowest score and the highest score is 400. With the answer rank of 5, the range rank is obtained by dividing the difference between the lowest score and the highest score by the number of answer ranks, which is 80 so:

- Total score of 100 - 180 has a rank of 'very low'.
- Total score of 180 - 260 has a rank of 'low'.
- Total score of 260 - 340 has a rank of 'medium'.
- Total score of 340 - 420 has a rank of 'high'.
- Total score of 420 - 500 has a rank of 'very high'.

The following are the results of the questionnaire that was conducted on 100 samples of Jakarta residents:

Core Drive 1: Epic Meaning & Calling

Table 3: Results of Questions about Core Drive 1

Option Answer	Answer	Value	Total
Strongly Agree	24	5	120
Agree	58	4	232
Neutral	15	3	45
Agree Less	3	2	6
Strongly Disagree	0	1	0
Count			403

Question:

“The complaints channel is a means of the moral responsibility of the citizens of Jakarta to participate in development”.

The total score for statement 1 is 403, which shows the level of complaints channel as a means of moral responsibility for the citizens of Jakarta to participate in development is **High**.

Core Drive 2: Development And Accomplishment

Question:

“Complaints channel has an internal drive that shows the progress of citizens in reporting complaints”

Table 4: Results of Questions about Core Drive 2

Option Answer	Answer	Value	Total
Strongly Agree	1	5	5
Agree	12	4	48
Neutral	20	3	60
Agree Less	56	2	112
Strongly Disagree	11	1	11
Count			236

The total score for statement 2 is 236, which indicates the level of internal encouragement in the complaints channel that shows the progress of citizens in making complaints reports is **Low**.

Core Drive 3: Empowerment Of Creativity And Feedback

Question:

“Complaints channels give citizens freedom to submit complaints reports through various channels”

Table 5: Results of Questions about Core Drive 3

Option Answer	Answer	Value	Total
Strongly Agree	36	5	180
Agree	43	4	172
Neutral	16	3	48
Agree Less	5	2	10
Strongly Disagree	0	1	0
Count			410

The total score for statement 3 is 410, which shows the level of freedom of citizens in submitting complaints through the Complaint Channel is **High**.

Table 6: Results of Questions about Core Drive 4

Option Answer	Answer	Value	Total
Strongly Agree	11	5	55
Agree	19	4	76
Neutral	26	3	78
Agree Less	37	2	74
Strongly Disagree	7	1	7
Count			290

Core Drive 4: Ownership Andosession

Question:

“Residents feel they have and are responsible for the Complaint Report submitted in the Complaint Channel”

The total score for statement 4 is 290, which shows the level of ownership and responsibility of citizens for the complaint report submitted in the Complaint Channel is **Medium**.

Core Drive 5: Social Influence And Relatedness

Question:

“Residents who report complaints have social influence and attachment to the Complaints Channel”

Table 7: Results of Questions about Core Drive 5

Option Answer	Answer	Value	Total
Strongly Agree	0	5	0
Agree	17	4	68
Neutral	10	3	30
Agree Less	54	2	108
Strongly Disagree	19	1	19
Count			225

The total score for statement 5 is 225, which shows the level of social influence and engagement of citizens reporting complaints in the Complaints Channel is **Low**.

Core Drive 6: Scarcity and Impatience

Question:

“Complaints channels provide time limits to residents in reporting complaints”

Table 8: Results of Questions about Core Drive 6

Option Answer	Answer	Value	Total
Strongly Agree	0	1	0
Agree	11	2	22
Neutral	12	3	36
Agree Less	24	4	96
Strongly Disagree	53	5	265
Count			419

The total score for statement 6 is 419, which shows the level of Citizens' desire to not be limited by time in reporting complaints on the complaints channel is **High**. From the results of the above measurements, to find out the level of gamification in the CiRM system that is already running. The following are conclusions from the results of the questionnaire measurements shown in the following table:

Core Drive 7: Unpredictability And Curiosity

Question:

“Complaints channels provide uncertainty in following up on Citizen complaints reports”

Table 9: Results of Questions about Core Drive 7

Option Answer	Answer	Value	Total
Strongly Agree	7	5	35
Agree	15	4	60
Neutral	19	3	57
Agree Less	46	2	92
Strongly Disagree	13	1	13
Count			257

The total score for statement 7 is 257, which shows the level of confidence of the citizens that the report will be followed up by the Government is **Low**.

Core Drive 8: Loss And Avoidance

Question:

“Residents feel that their complaint report is not heeded if they do not report through the Complaints Channel”

Table 10: Results of Questions about Core Drive 8

Option Answer	Answer	Value	Total
Strongly Agree	36	5	180
Agree	25	4	100
Neutral	21	3	63
Agree Less	12	2	24
Strongly Disagree	6	1	6
Count			373

Table 11: Conclusions on the Complaints Canal Questionnaire Results

Core Drive Octalysis		Result
1	Epic Meaning & Calling	High
2	Development And Accomplishment	Low
3	Empowerment Of Creativity And Feedback	High
4	Ownership And Possession	Medium
5	Social Influence And Relatedness	Low
6	Scarcity And Impatience	High
7	Unpredictability And Curiosity	Low
8	Loss And Avoidance Refers	High

The total score for statement 8 is 373, which shows the level of disregard for citizens' complaints reports if not reported through the Complaints Canal is **High**.

5.2 Analysis of CiRM in Octalysis

After knowing the results of the questionnaire from the Complaints Channel, then to assess overall gamification in the Complaints channel needs to be displayed in the Octalysis Score to produce the Octalysis Framework Graph. Each Core Drive has a maximum value of 10 and a minimum value of 0.

Score scores obtained in the questionnaire are then converted into Octalysis Graph values.

As for converting questionnaire score and Octalysis chart scale values are as follows:

- The lowest score of the questionnaire is 100
- The highest score of the questionnaire is 500

The difference between the highest score and the lowest score of the questionnaire is 400. The total value of the scale in the Octalysis Graph is 10, then the value of the scale is obtained by dividing the difference in the lowest score and the highest score by the total value of the scale, which is equal to 40 so that:

- Total score of 100 - 140 has a scale of 1
- Total score of 140 - 180 has a scale of 2
- Total score of 180 - 220 has a scale of 3
- Total score of 220 - 260 has a scale of 4
- Total score of 260 - 300 has a scale of 5
- Total score of 300 - 340 has a scale of 6
- Total score of 340 - 380 has a scale of 7
- Total score of 380 - 420 has a scale of 8
- Total score of 420 - 460 has a scale of 9
- Total score of 460 - 500 has a scale of 10

Table 12: CiRM Octalysis Score

Core Drive Octalysis	Score Kuesioner	Scale Octalysis	Score Octalysis
Meaning	403	8	64
Accomplishment	236	4	16
Empowerment	410	8	64
Ownership	290	5	25
Social Influence	225	4	16
Scarcity	419	8	64
Unpredictability	257	4	16
Avoidance	373	7	49
Total Octalysis Score			314

While the Octalysis score is the square of the Octalysis scale value. The total Octalysis score is the overall value of the system being analyzed. Here is a table calculating the conversion value of the questionnaire score with the Octalysis scale and the Octalysis score.

The assessment based on the Octalysis chart is that the Complaints Channels in CiRM have Good Motivation, but there are some core drives that need to be further improved. The following is an analysis and explanation of each core drive from the Gameplay octalysis Framework

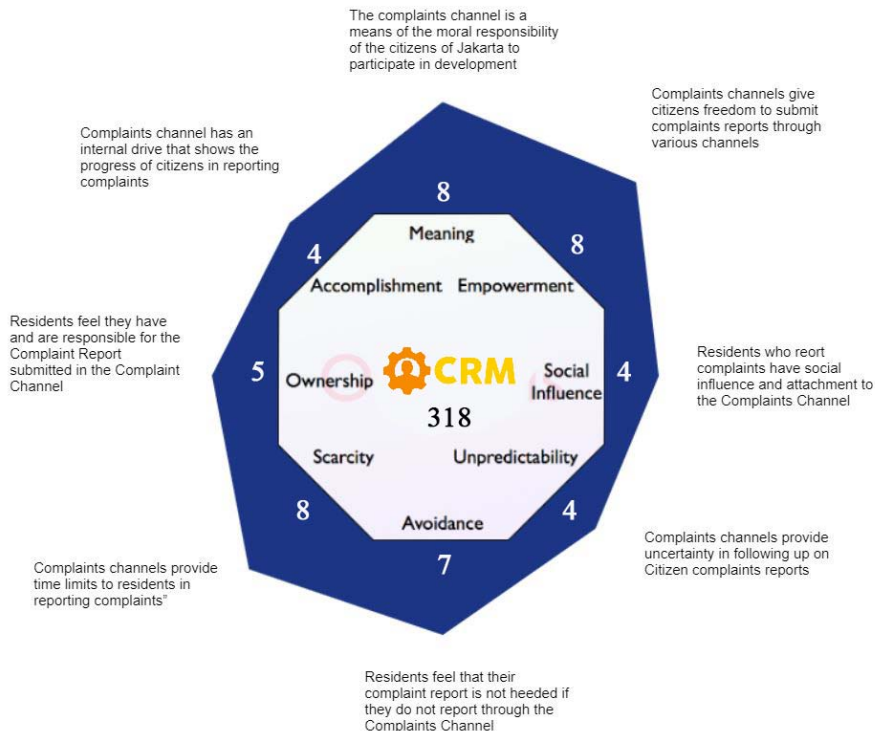


Figure 5: Octalysis graph of the DKI Jakarta Provincial Government's CiRM

Core Drive 1: Epic Meaning and Calling

The implementation of CiRM through several complaint channels that are available indirectly has provided education to the community on the importance of citizen participation in participating in developing the City of Jakarta. This represents Core Drive 1 in Octalysis, a feeling of wanting to participate in development, and a call to action greater for the development of the City of Jakarta. Therefore the octalysis score for this core drive gets a high score of 8.

Core Drive 2: Development and Accomplishment

In its implementation the CiRM does not give awards to residents who have provided input or complaint reports, whether of economic value or not. Only in the Qlue application, users and reporters can see the report points for each complaint.

Core Drive 3: Empowerment Of Creativity And Feedback

With a variety of complaint channels provided by the DKI Jakarta Provincial Government, residents feel easy and free to report complaints. Either through channels that use social media or by coming directly to district in accordance with the residence domicile.

Core Drive 4: Ownership Andossession

The implementation of the follow-up to complaints that are included in the non-Geotagging Complaints Channel requires further information from the reporter, both the location of the problem occurred and the problem, usually this problem is personal in nature. For reports that are geotagging follow-up complaints can be directly carried out. Citizens are more likely to just want to report, without following the complaints report follow-up process.

Core Drive 5: Social Influence And Relatedness

The implementation of the CiRM through several complaint channels did not have a social impact on the complainant. Residents who report complaints are even more likely not to reveal their identities. This may be related to security and life safety issues. There is an opinion in the community if citizens make a complaint report, it will even be difficult later when dealing with the Government.

Core Drive 6: Scarcity and Impatience

Reports on complaints can be made by citizens through social media complaints channels at any time. For complaints channels that go through the openhouse both sub-district and district can only be done at a certain time.

Core Drive 7: Unpredictability and Curiosity

Follow up handling for complaints reports in the Complaints Channels that require further handling usually takes time. Citizens' wishes are that the Government provides certainty in the time limit and certainty the problem can be solved. In the Qlue application there are red, yellow and green indicators that identify the complaints follow-up process. Whereas for other complaints channels, every complaint report that comes in is only given a report registration number.

Core Drive 8: Loss and Avoidance Refers

Complaints channels are the main means of communication between citizens and the Government. Through the complaints channel the residents participated in the process of building the City of Jakarta for the better

5.3 GAP Analysis of CiRM

GAP analysis is obtained by comparing expected targets with actual conditions. The target rank is obtained from interviews with the Head of the Jakarta Smart City Implementing Unit with consideration of the scale of the Octalysis Graph Framework. While the actual rank is based on the results of the questionnaire score.

The following table presents the results of the gap analysis:

Table 13: GAP Analysis of CiRM Complaints Channels

Core Drive Octalysis	Skala Kuesioner		Skala Octalysis	
	Target	Actual	Target	Actual
Meaning	High	High	8	8
Accomplishment	High	Low	8	4
Empowerment	High	High	8	8
Ownership	High	Medium	8	5
Social Influence	High	Low	8	4
Scarcity	High	High	8	8
Unpredictability	High	Low	8	4
Avoidance	High	High	8	7

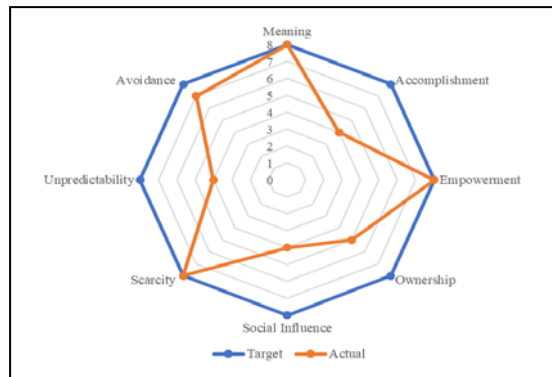


Figure 6: GAP Analysis of CiRM Complaints Channels

5.4 GAP Evaluation of CiRM

After knowing the GAP between the desired conditions and the actual needs to be evaluated what is the cause of the GAP. The following are possible causes that occur from the perspective of Framework Octalysis.

1. Epic Meaning and Calling

Target Statement: High

The complaints channel is a means of the moral responsibility of the citizens of Jakarta to participate in development

Actual Evaluation: High

Education and guidance to residents has been carried out appropriately in accordance with Governor Regulation Number 128 of 2017 which is carried out in stages, but there is a need for ongoing guidance so that the implementation of CiRM can be maximized

2. Development And Accomplishment

Target Statement: High

Complaints channel has an internal drive that shows the progress of citizens in reporting complaints

Actual Evaluation: Low

The CiRM complaint report method through the complaint channel in social media and open house does not show the number of complaint reports that have been submitted

3. Empowerment Of Creativity And Feedback

Target Statement: High

Complaints channels give citizens freedom to submit complaints reports through various channels

Actual Evaluation: High

The large number of complaint channels that are opened gives citizens the opportunity to freely choose the desired complaint channel in accordance with their wishes

4. Ownership And Possession

Target Statement: High

Residents feel they have and are responsible for the Complaint Report submitted in the Complaint Channel

Actual Evaluation: Medium

Reports that are personal complaints are usually more guarded by the owner. However, for complaints reports that are for the public, citizens are more likely not to give out their personal identities so they do not have a sense of responsibility for reports that have been submitted

5. Social Influence And Relatedness

Target Statement: High

Residents who report complaints have social influence and attachment to the Complaints Channel

Actual Evaluation: Low

The CiRM complaints channel does not have a feature to show complaints reports to others with a view to seeking support or just as a notification

6. Scarcity And Impatience

Target Statement: High

Complaints channels provide time limits to residents in reporting complaints

Actual Evaluation: High

There are no time limits to submit reports on social media complaints, whereas if there is a certain time for open houses for residents to come to the sub-district / district Office

7. Unpredictability and Curiosity

Target Statement: High

Complaints channels provide uncertainty in following up on Citizen complaints reports

Actual Evaluation: Low

There is not yet a 100% guarantee that every complaint report problem will be resolved and acted upon by the Government

8. Loss And Avoidance Refers

Target Statement: High

Residents feel that their complaint report is not heeded if they do not report through the Complaints Channel

Actual Evaluation: High

The CiRM complaint channel is the main means of communication between citizens and the government

6. RECOMMENDATIONS

Based on the results of GAP evaluations that have been carried out on CiRM at the Provincial Government of DKI Jakarta, the recommendations for the form of gamification that can be carried out include:

1. The Provincial Government of DKI Jakarta must make its own complaint application

The development of the complaints channel application is very much needed, considering that the main complaint channel used by residents to submit complaints reports is still the Qlue application. While the Qlue application itself is an application developed by the private sector, collaboration with the DKI Provincial

Government is only related to data availability and publication facilities. From the results of interviews with Jakarta Smart City employees, sometimes at certain times the data sharing connection of complaint reports between Qlue and CRM Mobile is out of sync. For example, there are 10 reports in Qlue, but the CRM Mobile application only displays 9 reports. By making a new complaint application it is expected that the data connection will be more accurate so that the follow-up of the complaint report can be carried out quickly, precisely, and accurately.

2. Give reward points on complaints reports

By providing reward points that are of economic value as did the City of Cascais Government in Portugal who developed City Point Cascais. Points can be generated from various activities that are environmental, social, social, transportation, and others. Where these points can be used as entrance tickets to museums, book purchases, tax deductions or other levies.

Citycascais Point is a prize program that encourages good citizenship practices, using the application to provide opportunities to earn points and with them getting products and services. When users carry out predetermined activities in the field of environment, citizenship, social responsibility, mobility, and others. User gets points. By collecting points, users will have different vouchers that can be redeemed for prizes offered by local partner networks.

Based on the gamification and recognition of citizens, the application encourages participants to take an active role in transforming the community into a better place to live. With one City Point at a time, participants increase their involvement in a sustainable city.

Led by the city government and with low investment, local partnerships can promote common goals for social good, while promoting its services and products. Cascais City Points also paves the way for basic pricing, activities / profiles, city service prices.

3. Empowering citizens' creativity and backlash

From the ongoing CiRM analysis shows that for core drive 3 regarding the empowerment of creativity and feedback the level of gamification is still low, this can be increased by providing a motivation to the citizens so that they can express their creativity. For example, giving green to those areas that are free from complaints such as garbage, scribbles, or wild banners.

4. Increase the Government's contribution through social media

The use of social media as a means of implementing CiRM can be further increased. Communication between the Government and citizens through social media should be more flexible and relaxed so that the relationship between the Government and citizens can be more closely and intertwined. Social media is not only used to convey information, but can also be used to improve communication by using several gamification techniques.

5. Guarantee the follow-up to the completion of the complaint report

Providing progress information on the follow-up to the completion of the complaint report by using a number of gamification techniques is an appropriate step to further give citizens a sense of trust. Gamification techniques that can be used such as progress bars, notifications, Achievement Symbols.

The progress bar gamification technique can be demonstrated to see the extent to which the complaints report process is followed up, from the report submission stage to the completion stage.

6. Carry out interactive CiRM socialization

The implementation of the socialization was carried out through a campaign to use the complaint channel more interactively, in contrast to socialization in general. Gamification techniques can be used to help streamline and make them effective. Some gamification techniques that can be used include Group Quest, Friending, Social Treasure, Water Cooler.

As was done by the Mayor of Vancouver City in Canada, holding a bicycle tour together to simply provide information and explanation to residents about the new bicycle paths on the streets of the protocol.

7. Cooperating with Other City Governments

By collaborating and benchmarking with other big cities around the world that have implemented CiRM, it is hoped that they will be able to provide new ideas. So that CiRM can be implemented more optimally.

8. Provides wifi access for reporting complaints

Rethinking why people participate is very important, to rebuild the existing community engagement program. By thinking logically rationally that participation will increase if the benefits of participation outweigh the costs of participation. Reducing the cost of citizen participation for example by providing free wifi access in all public service areas, protocol roads, and areas that are most visited by citizens.

Providing ease of communication will encourage citizens to report complaints

7. CONCLUSION

From the results of the research that we have done, it shows that the level of enthusiasm of citizens in reporting through media channels in citizen relationship management has indeed declined in the last three years. The addition of game elements in several social media used as a reporting medium needs to be followed up further, because it is proven to increase motivation and improve relations between the government and citizens. Citizens of Jakarta need to fit new and fresh so that they are more inclined to participate in the development of the city of Jakarta. Giving rewards and harmonious relationships can create mutual benefits. Jakarta society has unique characteristics.

Gamification can work well, if applied seriously. Because actually people really need refreshment, something new that continues to grow.

It is hoped that the DKI Jakarta provincial government program in citizen relationship management to improve community participation and build good governance through a collaborative approach with the community can work well. This is done solely to realize an effective and efficient and clean government figure and serve in order to realize the performance of professional State Apparatus towards clean and good governance

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ANNEXURE I

QUESTIONNAIRE

The Role of Gamification in Supporting the Implementation of Citizen Relationship Management in the Provincial Government of the Special Capital Region of Jakarta

 This questionnaire was created as material for analysis of the implementation of Citizen Relationship Management in the Provincial Government of the Special Capital Region of Jakarta
 =====

Part I. Respondent Data

Name:

Domicile address :

- a. Jakarta
- b. Outside Jakarta

Age :

- a. <20 years
- b. 20-30 years
- c. 30 - 40 years
- d. 40-50 years
- e. > 50 years

Gender :

- a. Man
- b. Woman

Last education :

- a. No school
- b. SD / equivalent
- c. Middle School / equivalent
- d. SMA / equivalent
- e. Diploma
- f. Bachelor

Occupation:

- a. Civil servants
- b. Private employees
- c. entrepreneur
- d. Student / Student
- e. Does not work
- f. Other, please specify ...

Part II Implementation of Citizen Relationship Management

How to Answer:

Put an (X) in the column choices provided that indicate the level the suitability that is most relevant to you.

SD	D	N	A	VA
			X	

Information:

- SD : Strongly Disagree
- D : Disagree
- N : Neutral
- A : Agree
- VA : Very agree

1. Epic Meaning & Calling

The complaints channel is a means of the moral responsibility of the citizens of Jakarta to participate in development

SD	D	N	A	VA

Reason:

2. Development And Accomplishment

Complaints canal has an internal drive that shows the progress of citizens in reporting complaints

SD	D	N	A	VA

Reason:

3. Empowerment Of Creativity And Feedback

Complaints channels give citizens freedom to submit complaints reports through various channels

SD	D	N	A	VA

Reason:

4. Ownership Andossession

Residents feel they have and are responsible for the Complaint Report submitted in the Complaint Channel



SD	D	N	A	VA

Reason:

5. Social Influence And Relatedness

Residents who report complaints have social influence and attachment to the Complaints Channel

SD	D	N	A	VA

Reason:

6. Scarcity And Impatience

Complaints channels provide time limits to residents in reporting complaints

SD	D	N	A	VA

Reason:

7. Unpredictability And Curiosity

Complaints channels provide uncertainty in following up on Citizen complaints reports

SD	D	N	A	VA

Reason:

8. Loss And Avoidance Refers

Residents feel that their complaint report is not heeded if they do not report through the Complaints Channel

SD	D	N	A	VA

Reason :

ANNEXURE II

LIST OF QUESTIONS AND ANSWER TO INTERVIEW

List of Questions and Answers Interview with Mr. Setiaji, as Head of the Jakarta Smart City

Implementing Unit in the Special Capital Province of Jakarta

The results of the interview are related to the expected target of implementing Citizen Relationship Management:

1. Question:

The complaints channel is a means of the moral responsibility of the citizens of Jakarta to participate in development

Answer: High

2. Question:

Complaints canal has an internal drive that shows the progress of citizens in reporting complaints

Answer: High

3. Question:

Complaints channels give citizens freedom to submit complaints reports through various channels

Answer: High

4. Question:

Residents feel they have and are responsible for the Complaint Report submitted in the Complaint Channel

Answer: High

5. Questions:

Residents who report complaints have social influence and attachment to the Complaints Channel

Answer: High

6. Question:

Complaints channels provide time limits to residents in reporting complaints

Answer: High

7. Question:

Complaints channels provide uncertainty in following up on Citizen complaints reports

Answer: High

8. Question:

Residents feel that their complaint report is not heeded if they do not report through the Complaints Channel

Answer: High