



Improving health clinic services through the application of QR code-based digital technology

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ARTICLE INFO

Article history:

Received 21 January 2023

Accepted 1 April 2023

Published 10 June 2023

Keyword:

Public service

Excellent service

Qr codes

Technology application

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DOI: 10.30604/jika.v8i2.2014

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ABSTRACT

Public service is one of the benchmarks for evaluating the performance of a company or institution. The slow service process has a negative impact on the image of the government or company, in this case Public Health Services is no exception. This negative impact could have developed if not addressed immediately. Excellent, credible and efficient service is expected to be created within the Hasna Medika Group (Hospital & Heart Clinic Network). By applying information technology in the service process, this really needs to be done. One solution to the above problems is to optimize the function of technology to speed up the service process. The technology that can be used is the application of the Quick Response (QR) Code as a medium that can be used by the public to simplify and speed up access to any information on Health Services at the Hasna Medika Group (Hospital & Heart Clinic Network). The purpose of this research is to develop a service system for the Hasna Medika Group (Hospital & Heart Clinic Network) by utilizing Android-based QR Code technology that can help speed up the service process to the public. The target of this research is the availability of public services based on QR Code technology with the Android operating system. The application of the QR Code is useful for displaying information in a mobile manner via a smartphone device. The use of the application is not restricted by space and time, so that the optimization of excellent service in units in the Hasna Medika Group (Hospital & Heart Clinic Network) can be realized and become a positive image in society. The research method uses mix methods combining quantitative methods with qualitative methods consisting of secondary data collection and data analysis.

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INTRODUCTION

Excellent service or excellent service is an important part of providing satisfaction to customers. Excellent service (Service Excellent) is the best service in meeting the expectations and needs of customers. In other words, excellent service is a service that meets quality standards. Excellent service is the best service provided by the company to meet the expectations and needs of customers, both customers within the company and outside the company (Daryanto and Ismanto, 2014).

This excellent service can be achieved if one of them we can apply information technology. The service process is convoluted and takes a long time to reduce customer satisfaction. This can have a negative impact on the image of the government or company.

In the industrial era 4.0, the role of information technology in creating excellent service can be a solution to speed up the service process. Quick Response (QR) Code is a tool or application that can be accessed via a smartphone. The application can later run on the Android operating system. The resulting QR Code can store various participant

data in just 1 code and is used to verify participant data (Erma Susanti, et al, 2018).

The main function of the code can be easily read by code scanning devices, because it provides a fast response, so it is referred to as Quick Response (QR) (Widayati, 2017). This research on the application of the QR Code can provide convenience for the community because access to information is more effective and flexible for its users. QR Code is used as a solution to speed up the service process. By using this application, it is expected that services at the Hasna Medika Group (Network of Hospitals & Heart Clinics) can be improved. The purpose of this research is to provide excellent service to the community regarding administration and information needed by the community by implementing QR Code technology and in line with the development of the industrial revolution 4.0. Users only need to access the application and fill in data on complaints or problems encountered. After the related service section or unit will provide solutions or services to users through the application. Research methods, secondary data collection, data analysis, followed by compilation of digital data and development of web and mobile based service applications.

This research is expected to be able to provide solutions to public services that are integrated with information technology, so that excellent service for the community can be created. This research is urgent and urgent to be carried out so that services at the local Hasna Medika Group (Network of Hospitals & Heart Clinics) can run optimally using the applied information technology.

LITERATURE REVIEWS

Definition of Service Excellence

Service Excellence is: a. Repairing damaged or obsolete items; b. Providing pleasant services Excellent service (Service Excellent) can be understood as serving as serving more than expected, by paying attention to time, accuracy, security, convenience, quality, cost, process, and satisfaction (Judiardi, 2010). The excellent service function serves customers in a friendly, precise, and fast manner to meet and satisfy the community according to their needs (Mukarom, 2015). Based on the definition above, excellent service is more prioritized than the results of the quality of services provided. The service quality must be more than what is expected by the customer.

Understanding QR Codes

The idea of a QR Code was first put forward by the company Denso Wave in 1994 (Wave, 2018), which is a subsidiary of the Japanese car manufacturer Toyota. QR Code was originally designed to track parts in car manufacturing. The anatomical form of the QR Code (Figure 1) according to Ariadi (2011) consists of:

- Pattern Finder, to identify the location of the QR Code.
- Format Information, to provide information about error correction levels and mask patterns.
- Data, to store encoded data.
- Timing pattern, which is the pattern used to identify the central coordinates.
- QR Code in the form of a black and white module
- Alignment pattern, a pattern used to correct non-linear distortions or non-linear deviations.

- Version information, is the version of the QR Code used.
- Quiet Zone, is an empty area on the outside of the QR Code that is used to make it easier to recognize QR by the CCD sensor.
- QR Code version, the version of the QR Code used.

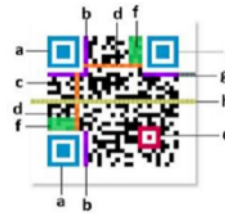


Figure 1. Anatomy of a QR Code

Ogedebe, et al (2012), stated that prototyping is a software development method, which is in the form of a physical working model of the system and functions as an initial version of the system. In this model there are several steps that are carried out: (1) Planning: the first step that must be taken to collect data; (2) Analysis: at this stage the user needs for the information system are obtained; (3) Design: designing and creating information systems according to data and user needs; (4) Implementation: testing and implementing information systems.

The final result of this research is to use a new system called the Pencil (Lab Assistant Assessment) which is currently still in the manufacturing process. In this system implementing attendance using qrcode, the attendance process that runs when using a Pencil only needs to create generate qrcode on a website pencil.raharja.ac.id then just scan the qrcode on the device that has been provided. With the existence of this new system, it is expected that lab assistant attendance will be effective (Aini, Rahardja, & Fatillah, 2018).

All procedures, completeness, management flow, time duration and costs are all listed and publicly published so that all residents know. With this openness it becomes clear that all the parameters of the licensing policy and at the same time are oriented to the citizens. Bureaucratic innovation in carrying out licensing in the past was very difficult because the system was bureaucratic, procedural and rigid but with citizen charters the bureaucracy was stimulated to innovate to facilitate licensing policies. Every innovation or detail of work makes it easier for residents with the side effect of increasing performance which will have positive implications for officials both in terms of welfare and career and vice versa will have negative implications in the form of punishment (Setiawan, Budiyo, Kurniawan, Mudjanarko, & Nasihien,

In this study, 2 reading room application modules have been produced, namely (1) RBAdmin is used by admin managers/librarians to enter book data, member data, book saving and loan transactions, monitoring the number of visitors, knowing the number of books entered, knowing suggestions from visitors, find out the books that are still borrowed and can print QR codes for membership cards and book master numbers while the (2nd) Catalog application is used by visitors to search books, take attendance with member cards, submit books and provide advice to the reading room manager (Agus Prihanto, 2014).

Based on previous research, it can be seen that in order to improve public services, an application or media can be created that is useful to speed up the service process. The state of the art of this research is to apply QR Code

technology as a tool to speed up the service process, both in the form of information and solutions to the problems encountered.

METHODS

The method used in this research is a research and development method. The development of hypercontent teaching materials uses the Hannafin and Peck models. Each stage in this research is carried out systematically according to the application of the development model used.

Research and development methods according to Borg and Gall (2007:589) are as follows: ...Research and development is an industry-based development model in which the findings of research are used to design new products and procedures, which then are systematically field-tested, evaluated, and refined until they meet specified criteria of effectiveness, quality, or similar standards... Research and development is a development model based on industrial models, where the results of this research are used to design procedures and new products are then systematically tested in the field, evaluated, and refined until they meet specified criteria such as effectiveness, quality, or meet standards. This study examines the effect of applying the QR Code on improving services to the community. The reason for choosing this method is to see how much influence the application of the QR Code has on improving services to the community.

In this research, the type of data is quantitative data. Quantitative data is in the form of measurement analysis results from public service satisfaction instruments. The quantitative data was obtained from the measurement results of the effectiveness test of the QR Code application product. In testing the effectiveness of the data obtained, namely data on service satisfaction to the community. This data is in the form of pre-test and post-test questionnaire scores.

Danim (2002: 121) suggests that in qualitative research data collection techniques can be carried out by means of 1) observation, 2) interviews, 3) documentation, and 4) equipment that can photograph the situation. Observation is an activity of observing the events that occur. The activities carried out during this observation are related to the implementation of learning using the results of the products developed. The interview activities in this study were carried out at the time of conducting a needs analysis. Interviews were conducted with teachers, students and other parties needed when developing and testing these teaching material products.

Documentation techniques are carried out to obtain supporting data from interviews and observations such as the curriculum used, user profiles and other documents related to learning activities in schools. The equipment that can take pictures of the situation referred to in this study is audio-visual equipment that can help to see the situation and provide a real picture, for example by taking pictures with a camera. These images can be used to see the learning atmosphere and other activities needed.

RESULTS AND DISCUSSION

Hasna Medika Group (Hospital & Heart Clinic Network) as a partner in this study contributed to the trial phase of

using digital-based service products. Partners also provide computer equipment and internet access as well as human resources to facilitate the implementation of this research. This research provides solutions to public services that are integrated with information technology, so that excellent service for the community can be created. This research is urgent and urgent to be carried out so that services at the local Hasna Medika Group (Network of Hospitals & Heart Clinics) can run optimally using the applied information technology.

The main function of the code can be easily read by code scanning devices, because it provides a fast response, so it is referred to as Quick Response (QR) (Widayati, 2017). This research on the application of the QR Code can provide convenience for the community because access to information is more effective and flexible for its users. QR Code is used as a solution to speed up the service process. By using this application, it is expected that services at the Hasna Medika Group (Network of Hospitals & Heart Clinics) can be improved.

The purpose of this research is to provide excellent service to the community regarding administration and information needed by the community by implementing QR Code technology and in line with the development of the industrial revolution 4.0. Users only need to access the application and fill in data on complaints or problems encountered. After the related service section or unit will provide solutions or services to users through the application. Research methods, secondary data collection, data analysis, followed by compiling digital data and making web-based service applications.

The results of this study are (1) knowing the public service process using the QR Code in creating excellent service in the QR Code at the Public Service Unit of the Cirebon Regency Government; (2) knowing the inhibiting factors for optimizing public services using the QR Code in creating excellent service in the QR Code at the Public Service Unit of the Cirebon Regency Government; and (3) knowing the role of public services using the QR Code in creating excellent service in the Public Service Unit of the Cirebon Regency Government.

Research and development is a development model based on industrial models, where the results of this research are used to design new procedures and products, then are tested in the field systematically, evaluated, and refined until they meet specified criteria such as effectiveness, quality, or meet standards. This study examines the effect of applying the QR Code on improving public services. The reason for choosing this method is to see how much influence the application of the QR Code has on improving services to the community.

In the design of this health service application there is a homepage menu, articles, registration, e-policy, live chat, and health facilities. The public can access this application to get information regarding hospital facilities, doctor's schedules, and what is more interesting is that through this application the public can consult directly via live chat with the doctor they contact. In addition, doctors at this hospital can contribute to providing knowledge to the general public by writing articles through this application.

From the results of this health service application trial it can increase the convenience for patients to be able to get health services. Contribute time for both doctors and patients to be more efficient. Apart from this, this application can also cut health costs that must be incurred as well as a sustainable investment.

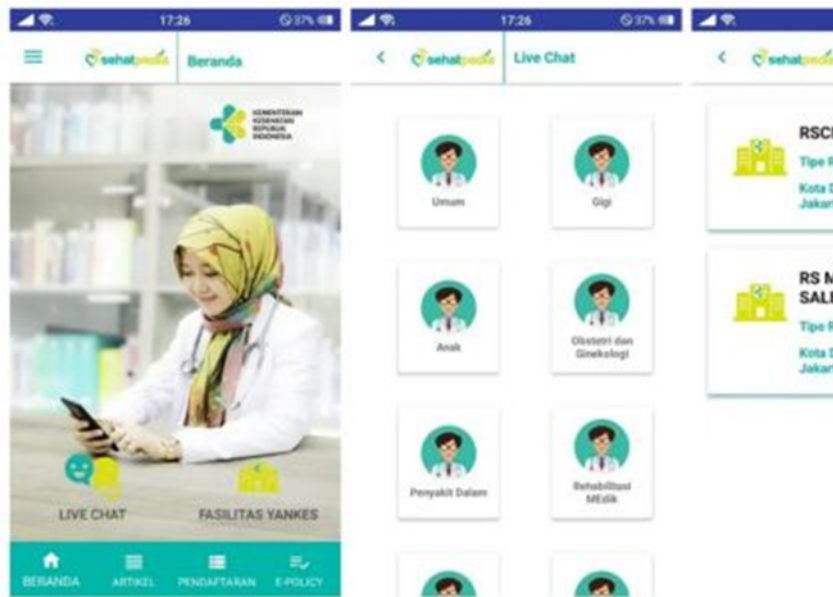


Figure 1. Initial Appearance of the Application

CONCLUSION

The process of public services using the QR Code in creating excellent service using QR Code technology at the Hasna Medika Group (Network of Hospitals & Heart Clinics) is going well. The inhibiting factors for optimizing public services can be resolved by applying QR Code technology. The role of public services using the QR Code in creating excellent service is very effective and efficient.

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