

Development of an Android Application-Based Marketing Management Information System for FIK UNY Tennis Courts to Increase the Promotion



Danny Eka Wahyu Saputra¹, Sigit Nugroho², Wawan Sundawan Suherman³, Ahmad Nasrulloh⁴, Sulistiyono⁵

^{1,2,3,4,5}Yogyakarta State University, Jl. Colombo Yogyakarta No.1, Karang Malang, DI Yogyakarta, 55283, Indonesia

ABSTRACT: This research is development research with the 4 D approach model, namely: define, design, develop, and disseminate. Data collection techniques were obtained from observation, interviews, and questionnaires. The subjects of this study were users of FIK UNY tennis courts which included permanent users, Selabora coaches, Selabora students, parents of Selabora students, UNY Tennis UKM, incidental users, and tennis court management admins of FIK UNY. Research data analysis techniques were obtained from questionnaires that had been filled in by media experts, material experts, and tennis court users at FIK UNY.

The results of this study are an android-based FIK UNY tennis court marketing management application product. The feasibility level of this product is known through the material expert validation assessment with the Very Eligible category, while the results of the media expert validation assessment with the Eligible category. This product also went through a small-scale test, and a large-scale test, with the results of the two-scale tests in the Very Eligible category. The results of the validity test with a value of 0.875 and the reliability test were obtained with a Cronbach's Alpha value of 0.618, so it can be concluded that the instruments that have been compiled are declared valid and reliable. Based on the results of the effectiveness test, shows that the calculated g value is 0.5072,

KEYWORDS: development, information systems, marketing management

INTRODUCTION

In today's digital era, the use of technology or information systems is needed by companies, organizations, agencies, offices, and even Small and Medium Enterprises (SMEs) that find it easy to run the administration, including administration, service, marketing, and promotion. Incorporating marketing on social media as part of an overall business strategy can have great benefits for organizations (Dwivedi, Kapoor & Chen, 2015). The best strategy for business people is internet marketing because it is more profitable and effective in the new normal era, whether utilizing social media, applications, or websites by utilizing smartphone technology.

Many companies use technology to plan and implement business via smartphones (internet) which can make it easier for consumers to buy and sell products or services in all places (Tannady et. al, 2018). Consumers can get what they want without going to the nearest store and can find what they want without difficulty through internet services (applications or websites) via smartphones and get offers easily (Sharma and Bahl, 2019). Smartphones have become part of people's lives, making it easier, more efficient, and effective if marketing or promotional strategies are carried out digitally through applications or websites because people rely heavily on smartphones for their daily business activities.

Advances in information technology not only help people's lives get better every day but also support the global business. The use of information technology through information systems will not only improve the quality and timeliness of information produced by management, but with the right information technology, it can create information technology as one of the relevant factors helping businesses penetrate new markets to be innovative and produce new products and services. which helps the growth of businesses and companies. Management information systems are one of the most important achievements in the field of administrative work, which aims to provide reliable, accurate, relevant, and complete information to managers to improve organizational performance (Yaser et. al, 2014).

Development of an Android Application-Based Marketing Management Information System for FIK UNY Tennis Courts to Increase the Promotion

The use of technology or information systems by the marketing department of a company is very much needed after the Covid 19 pandemic in recent years. Today, sport is not just a game or a hobby, it is also an industry that has created many businesses in combination with other fields such as medical engineering, psychology, nutrition, information technology, tourism, marketing, etc. (Rahimi & Alidoust, 2019).

Today, sport is not just a game or a hobby, it is also an industry that has created many businesses in combination with other fields such as medical engineering, psychology, nutrition, information technology, tourism, marketing, and others. Sports marketing activities consist of people, activities, businesses, and organizations producing, facilitating, promoting, or organizing any product for the request of supporters. , to facilitate student activities and public interest in sports, UNY has one of the sports facilities to be proud of, namely the UNY FIK Tennis Court. Supported by the existence of complete and adequate facilities such as a prayer room or place of worship, toilets, changing rooms, canteen, integrated parking lot, as well as a large tribune on the outdoor court, and judging from the location of the FIK UNY tennis court which is very strategic because it is in the city center and located in campuses, schools, institutions and companies, there is a lot of potentials that can be improved in the management of tennis courts at FIK UNY to increase income generating. Service quality and customer satisfaction are very important concepts that must be understood if you are to remain competitive and thrive, in today's competitive environment providing high-quality services is the key to sustainable competitive advantage. FIK UNY tennis court management also provides several affordable rental packages for institutions, students, workers, or the general public by obtaining complete facilities and national standard courts. Even though the FIK UNY Tennis Court has national standard facilities, the management of member data and financial accounting still uses conventional methods, for example, the member database is still stored in Ms. Excel.

METHODS

This research uses the type of Research and Development (R&D) with the development of the 4 D Model (Define, Design, Develop, and Disseminate). The products developed are then tested for feasibility with validity and product trials to find out how far the promotion has increased after using marketing media/applications.

Product trials were carried out in 2 stages, namely small-scale trials and large-scale trials. Small-scale trials can be conducted on 4 or 5 respondents from outside the population. Furthermore, large-scale trials can be carried out on 15 to 50 respondents from the community/members/prospective users of FIK UNY's tennis court facilities. Data collection uses several methods, namely: (1) Observation, (2) Interview, (3) Questionnaire. The instrument used to collect data in testing the development of this product is to use a non-test instrument. Analysis was carried out by calculating the percentage of eligibility.

DISCUSSION

Results

1. Initial Product Development

a. Defining (Define)

In the initial product development, the defining stage is carried out to determine and define the needs in the media design process as well as gather various information related to the product to be developed. This stage is divided into several steps, namely the initial analysis stage. At this stage, the results of observations and analysis that have been carried out, the management of the FIK UNY tennis court has not maximized the internet/online network to promote facilities and services on the FIK UNY tennis court. In the concept analysis stage identification, detailing, and drafting of concepts are carried out to complement the parts of the media to be developed, then the concepts are arranged systematically and linked to other relevant concepts. At the analysis stage of marketing media objectives,

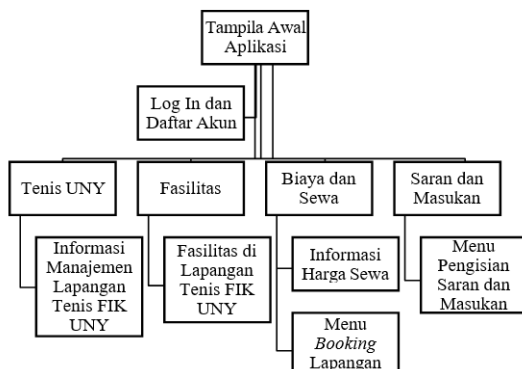


Figure 1. Marketing Media Concept for FIK UNY Tennis Court

Development of an Android Application-Based Marketing Management Information System for FIK UNY Tennis Courts to Increase the Promotion

b. Design (Design)

This design stage aims to design a marketing medium that can be used by the characteristics of users on the UNY FIK tennis court. The preparation of the test is carried out based on the analysis of the concept and the elaboration of the objectives of the application development. The development of the media in this study is the marketing media for FIK UNY tennis court management. The choice of format is expected to help users make it easier in the court rental process, make it easier for the general public to know the training programs and facilities offered, and as an effort to increase the promotion of FIK UNY tennis courts on social media/online. The initial design of the application that will be developed to help improve the promotion of the FIK UNY tennis court is the initial appearance design, facilities, rental rates, and contacts.

2. Product Trial Results

Expert Validation The material for this research is Dr. Ahmad Nasrulloh, M.Or., and Dr. Abdul Alim, M.Or. with the following validation results:

Table 1. Material Expert Validation Test Results

Validators	Aspect	value that Obtained	Score Maximum	Percentage
Material Expert 1	Android application	48	50	96 %
Material Expert 2	Android application	47	50	94 %
Average				95 %

Judging from the overall results of the average expert validation assessment of the material, it can be concluded that the application development in this study obtained an assessment of 95% in the Very Eligible category. Media expert validation for this research is Dr. Sulistiyono, M.Pd., and Martono, M.Or. with the following validation results:

Table 2. Media Expert Validation Test Results

Validators	Aspect	value that Obtained	Score Maximum	Percentage
Media Expert 1	Android application	44	50	88 %
Media Expert 2	Android application	40	50	80 %
Average				84 %

Media expert 1 validation results on the aspect of the android application obtained 88% results in the Very Eligible category, then the material expert 2 validation results obtained 80% results in the Eligible category. Judging from the overall results of the average media expert validation assessment, it can be concluded that the application development in this study obtained an assessment of 84% in the Very Eligible category

A small-scale trial was conducted on 10 respondents, and the results of the overall average rating resulted in an assessment of 91.2% in the Very Eligible category for the development of this FIK UNY tennis court marketing application for media to support management promotion. The results of the overall average assessment of the 5 aspects in the FIK UNY tennis court marketing application obtained pre-test results of 83.44% in the Very Eligible category and post-test results obtained 91.84% in the Very Eligible category.

Table 3. Pre-test and post-test large-scale test results

No	Aspect	Pre Test Score	Percentage Pre Test (%)	Post Test Score	Percentage Posttest (%)
1	Application Features	615	19.65	681	19.77
2	Place	626	20.01	686	19,92
3	Price	415	13,26	462	13,41
4	Product	635	20,29	688	19.98
5	Promotion	838	26,78	927	26,92
Total Rating Score		3129	100	3444	100
Score Maximum	3750		83,44		91.84

Development of an Android Application-Based Marketing Management Information System for FIK UNY Tennis Courts to Increase the Promotion

3. Product Revision

After validating the android application by material experts and media experts as well as testing it on users (respondents), there are several suggestions and input obtained to improve the android application. Based on the results of the assessment of the android application by material experts 2, suggestions were given for better, more precise, and attractive attachments to make them look clearer and tidier. Based on the results of the evaluation of the android application by media experts 1, suggestions were given for adjusting the color and layout of the menu icon to be more consistent. Based on the results of the evaluation of the android application by media experts 2, suggestions were given for naming the application, adding a schedule for field users, displaying hourly rental prices and photos used for the application are the most recent photos,

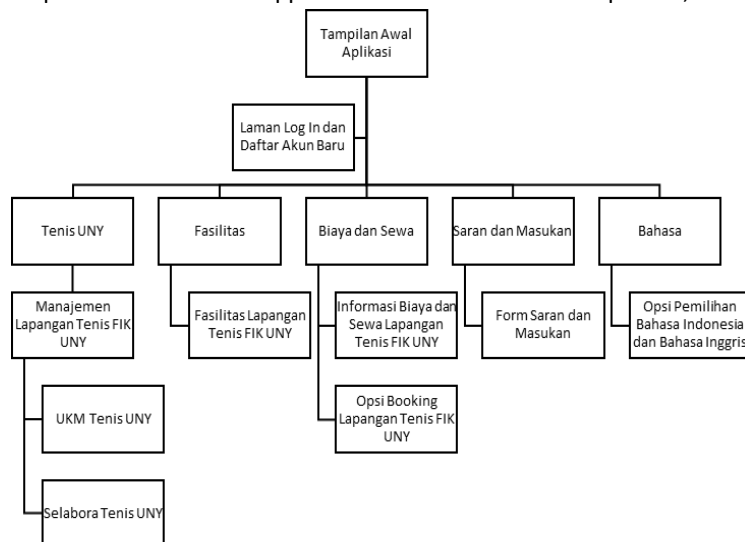


Figure 2. The Final Product Concept of UNY FIK Tennis Court Marketing Application

4. Assessment Instrument Reliability Validation Test

According to Arikunto (2010), a validity test is carried out to find out whether the measuring instrument has accuracy in making measurements, or in other words whether the measuring instrument can measure what is to be measured. This validity as stated by Lawshe with CVR and Aiken becomes Aiken's V Index, these two indices are based on the results of the expert validator's assessment of n on an item regarding the extent to which the item represents the construct using a formula to calculate Aiken's validity coefficient with the following formula: $V = \sum S/[n(c-1)]$ To assess the validity of the test items assessed, the results of the V count should be compared with the value of the V table at the 5% level of significance scale. The reliability test that has been carried out shows the results of the Cronbach's Alpha value of 0.618,

5. Product Effectiveness Test Results

An increase in the value given by respondents indicates that the application used as a media to support the promotion of the FIK UNY tennis field is effective for use with a pre-test rating of 83.44% in the Very Eligible category and the post-test with an assessment of 91.84% in the Very Eligible category. It can be concluded that the development of this application is very feasible to be developed for use by the community.

6. Final Product Review

The final product in this study is an android-based application that aims to increase the promotion of tennis courts at FIK UNY. This application will make it easier for people to rent tennis courts.

Development of an Android Application-Based Marketing Management Information System for FIK UNY Tennis Courts to Increase the Promotion

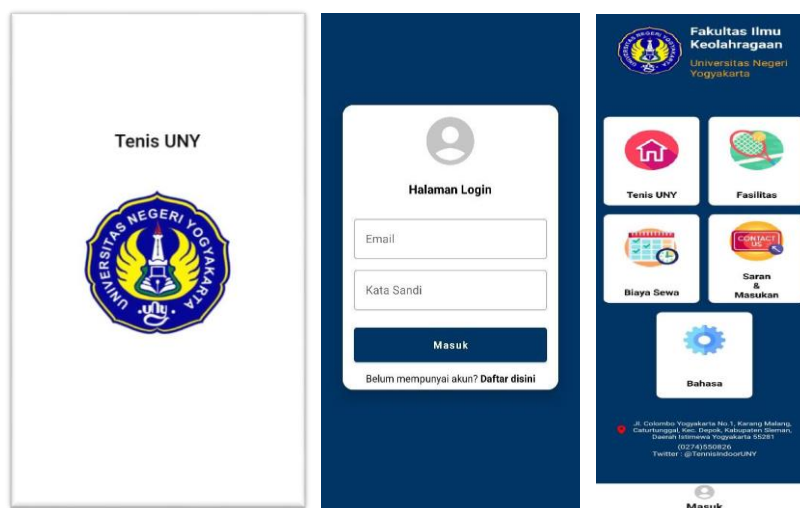


Figure 2. The appearance of the Final Product of the UNY FIK Tennis Court Marketing Application
Remarks: 1) Initial Page Display; 2) View of the login Page; 3) App Home Page Display.

DISCUSSION

This research was conducted to develop an android-based FIK UNY tennis court marketing management application as an information system marketing tennis court services. A marketing information system is a computerized system designed to provide an organized flow of information to enable and support an organization's marketing activities (Ghafoor, 2006). The strategic function of marketing is being emphasized more because Internet-based technologies have enabled a radically new approach to selling in which information technology for the first time touches customers and provides new ways to gather marketing information. In a knowledge-intensive economy, the ability to collect, analyze, and act on marketing information faster than the competition is a core competency from which competitive advantage flows. Marketing information systems provide the information technology backbone for the strategic operations of marketing organizations (Schmidt, 2017).

Marketing information systems serve collaborative, analytical, and operational needs. In a collaborative mode, marketing information systems allow managers to share information and work together virtually (Nurgraha, 2017). The application was developed based on collaborative needs in the form of information on training programs at FIK UNY tennis courts, facilities obtained by users, information on rental prices, and facilities for ordering courts through the application.

In developing a comprehensive framework for a marketing information system, other areas must be considered. These sections are database, customer, marketing research activity, market segmentation, and marketing dashboard (Kingdom et al., 2018). Based on the development of the framework, the validation is from material experts and media experts.

At the validation stage by material experts, an average percentage of 95% was obtained in the Very Eligible category, while the media expert test results obtained an average percentage of 84% in the Very Eligible category. The results of the material and media expert tests that have been carried out show that the Android-based FIK UNY tennis court marketing management application developed is stated to be Very Feasible to be developed and used as a support for FIK UNY tennis court promotion media so that it can attract consumers and potential customers quickly (Park et al., 2018; Ritz et al., 2019).

There are suggestions and inputs during the validation stage of material experts and media experts, for example selecting more updated facility attachments, information on rental prices for hourly field usage, naming applications, setting attachments to be consistent between landscape and portrait on the facilities menu, color adjustments and the layout of the menu icon is also more consistent, the selection of attachments and fonts is adjusted to the layout of the application and with the latest attachments according to the conditions of the tennis court. After revising the results of the validation of material experts and media experts, trials were then carried out on a small and large scale.

In small-scale and large-scale trials, respondents assessed 5 aspects of the application regarding the usefulness of the application in promoting the UNY FIK tennis court. The five aspects are Application Features, Place, Price, Product, and Promotion. A small-scale trial was conducted on 10 respondents, and the results of the overall average rating resulted in an assessment of 91.2% in the Very Eligible category for the development of this FIK UNY tennis court marketing application for media to support management promotion.

The results of the trials that were carried out on 50 respondents obtained different results during the pre-test and post-test, namely that there was an increase in the number of values given by the respondents. An increase in the value given by respondents

Development of an Android Application-Based Marketing Management Information System for FIK UNY Tennis Courts to Increase the Promotion

indicates that the application used as a media to support the promotion of the FIK UNY tennis field is effective for use with a pre-test rating of 83.44% in the Very Eligible category and the post-test with an assessment of 91.84% in the Very Eligible category. It can be concluded that the development of this application is very feasible to be developed and used by the community. The participation of users in application development is the basis for this pre-test and post-test. This is following other studies, (Ratnasingam et al., 2021).

Research conducted by Machado et al. (2020) showed a positive relationship between product presentation including the marketing mix and promotion on application use, as well as a positive influence between product presentation, promotion, and use of applications on customer purchase intentions. In line with the research above, this study obtained the percentage of eligibility for media promotion from 83.44% to 91.84%.

When testing the validity, the V score was obtained with the lowest value range of 0.875 and the highest was 1 greater than the V table score using 4 expert judgments with 5 alternative scales at a significance level of 5% of 0.80. The calculated V value is 0.875 to $1 \geq$ the V table value is 0.80 and it can be stated that the research instrument compiled is valid.

Cronbach's Alpha Reliability Test with SPSS on the assessment of 10 assessors of the instrument developed showed a Cronbach's Alpha value of 0.618, so it can be concluded that the questionnaire that has been compiled is declared reliable or consistent with the results of Cronbach's Alpha $0.618 \geq 0.60$. Furthermore, based on the results of the effectiveness test, showed that the calculated g value obtained a result of 0.5072, compared to the g table value, indicating that the level of effectiveness of using the FIK UNY tennis court marketing application to increase promotion obtained results in the Medium category with indicators $0.7 > 0.5072 > 0.3$.

CONCLUSIONS

Media development in this study resulted in a product in the form of a Marketing Management application for FIK UNY tennis courts which aims to increase the promotion of FIK UNY tennis courts. Based on the results of the effectiveness test, showed that the calculated g value obtained a result of 0.5072, compared to the g table value, indicating that the level of effectiveness of using the UNY FIK tennis court marketing application to increase promotion obtained results in the Medium category with indicators $0.7 > 0.5072 > 0.3$. FIK UNY tennis court management can apply it in a sustainable manner and with improvements to the UNY Tennis Marketing Management application to be used as an operational means of leasing and promotion.

RECOMMENDATIONS

The results of this study can provide several suggestions for FIK UNY tennis court management, including the following:

1. FIK UNY tennis court management can apply it sustainably and with improvements to the UNY Tennis Marketing Management application to be used as an operational means of leasing and promotion.
2. Users can make it easier to choose a court rental through the application and can get the latest information about the FIK UNY tennis court.
3. Researchers can always update existing features and adapt them to developments in tennis court management at FIK UNY.
4. For further researchers, this research can be used as a reference or literature review.

REFERENCES

- 1) Arikunto, Suharsimi. 2010. Research Procedures A Practice Approach. Jakarta: Rineka Cipta.
- 2) Dwivedi, YK, Kapoor, KK, & Chen, H. 2015. Social media marketing and advertising. *The Marketing Review*, 15(3), 289-309.
- 3) Ghafoor, A. (2006). Impact of Management Information System on the Performance of the Organization (Profitability, Innovation, and Growth). *Journal of Poverty, Investment and Development*, 21.
- 4) Kingdom, U., Bridge, G., Bridge, G., Bridge, G., & Bridge, G. (2018). Comprehensive Framework For Marketing Information System: A Systematic Perspective. *International Journal of Economics, Commerce and Management*, VI(1), 15–30.
- 5) Nurgraha, J. (2017). The Role Of Agricultural Extension Agent And Analysis Of Business Model Canvas In Improving the Smallholder Tea Industry Of Farmers Group In Margamulya Village And Cisondari Village, Pasir Jambu Sub-District, Bandung Regency. *Journal of Applied Management*, 15(4).
- 6) Park, E., Rishika, R., Janakiraman, R., Houston, M. ., & Yoo, B. (2018). Social dollars in online communities: the effect of the product, user, and network characteristics. *Journal of Marketing*, 82(1), 93–114.
- 7) Rahimi, A., & Alidoust Ghahfarokhi, E. 2019. Identify the effect of entrepreneurial marketing on creating and improving the performance of small and medium sports enterprises. *New Trends in Sport Management*, 6(23), 23- 31.

Development of an Android Application-Based Marketing Management Information System for FIK UNY Tennis Courts to Increase the Promotion

- 8) Ratnasingam, J., Jegathesan, N., Latib, HA, Ioras, F., Mariapan, M., & Liat, LC (2021). Digital Marketing during the COVID-19 Pandemic: A Case Study of its Adoption by Furniture Manufacturers in Malaysia. In *BioResources* (Vol. 16, Issue 2, pp. 3304–3317). <https://doi.org/10.15376/biores.16.2.3304-3317>
- 9) Ritz, W., Wolf, M., & McQuitty, S. (2019). Digital marketing adoption and success for small businesses: The application of the do-it-yourself and technology acceptance models. *Journal of Research in Interactive Marketing*.
- 10) Sharma, A., & Bahl, S. 2019. Online Shoppers Inclination towards a Shopping Website: A Study on Virtual Shopping Experience. *International Journal on Emerging Technologies*, 10(3), 231–237.
- 11) Schmidt, CB (2017). The strategic function of marketing is emphasized because of Internet-based technology. *STRATEGIC MANAGEMENT*, 22(3), 19–28.
- 12) Tannady, H., Nurprihatin, F., & Hartono, H. 2018. Service Quality Analysis of Two of The Largest Retail Chains With Minimart Concept in Indonesia. *Business: Theory and Practice*, 19, 177-185



There is an Open Access article, distributed under the term of the Creative Commons Attribution – Non Commercial 4.0 International (CC BY-NC 4.0) (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits remixing, adapting and building upon the work for non-commercial use, provided the original work is properly cited.