**Jurnal Teknologi Informasi dan Pendidikan**
Volume 17, No. 1, March 2024
https://doi.org/10.24036/jtip.v17i1.746

P.ISSN: 2086 – 4981
E.ISSN: 2620 – 6390
tip.ppj.unp.ac.id

# The Chronology of Development Tracer Study System at Tanjungpura University

**Rikhsan Kurniatuhadi[1*✉], Ferry Hadary[1], Sulistyarini[2], Yunita Magrima Anzani[1], Yulyanti Fahruna[1], Morthezza Muthahhari[1]**

[1] Career Development Center, Tanjungpura University, Pontianak, Indonesia
[2] Institute for Learning Development and Quality Assurance, Tanjungpura University, Pontianak, Indonesia
**Corresponding Author: rikhsan.kurniatuhadi@fmipa.untan.ac.id*

**Article Information**

***Article history:***

*No. 746*
*Rec. July 22, 2023*
*Rev. January 31, 2024*
*Acc. February 01, 2024*
*Pub. February 09, 2024*
*Page. 218 – 228*

***Keywords:***

- *Exit Survey*
- *Alumni*
- *Career Development Center*

**ABSTRACT**

*The Tracer Study has been implemented at Tanjungpura University since 2011 and transitioned to an electronic or online system in 2015. The system and design of the online tracer study at Tanjungpura University underwent adjustments to accommodate internal and external factors from 2015 to 2022. The influencing factors included changes in the Dikti/Belmawa mandate, resources, and the development of tracer study instruments. These factors create several obstacles and challenges in developing an efficient Tracer Study system and design. The purpose of this discussion is to provide an overview of the development of the Tracer Study system and its design at Tanjungpura University, with the aim of creating a more efficient Tracer Study system. The research method involves identifying a system model developed between 2015 to 2022 using the Borg and Gall models. The search results indicate that there have been four system and design changes between 2015 to 2022. Furthermore, some systems and designs are less efficient in implementing the tracer study from 2015 to 2019 by using an online survey input system, which diminishes the essence and function of the tracer study. However, in 2020, alumni have been directed to fill in the online application directly.*

***How to Cite:***

Kurniatuhadi, R., et al. (2024). The Chronology of Development Tracer Study System at Tanjungpura University. Jurnal Teknologi Informasi Dan Pendidikan, 17(1), 218-228. https://doi.org/10.24036/jtip.v17i1.746

## 1. INTRODUCTION

Tracer study is a method and process employed by universities to collect, measure, and evaluate institutional performance using feedback from graduates [8]; [9]; [13]. This method is increasingly recognized and adopted worldwide [11]. Tracer studies aim to describe the learning process, technical skills, and interpersonal skills of graduates, as well as their career development after completing their university or college education [15]. Effective branding of alumni career development is also an advantage for the institution in enhancing its reputation and the quality of tracer studies, if managed appropriately [10]. Bridgestock stated that the higher the quality of education and curriculum at an educational institution, the greater the positive impact it will have on career development and graduate employability.

The year 2020 is an opportune time to implement the tracer study program. This program is mandated by the Minister of Education, Culture, Research, and Technology, requiring universities to conduct the tracer study annually as evidence of the Main Performance Indicators of Higher Education (IKU PT). The implementation of the Tracer Study is reinforced by regulations from the Ministry of Education and Culture. In addition to providing evidence for reporting the main performance indicators of higher education, it is also essential for the accreditation process of higher education and for national higher education rankings. However, the most crucial aspect of implementing tracer studies is to identify work programs that effectively enhance the quality of graduates' outcomes. Since 2011, Higher Education has implemented a Tracer Study, which is based at the Higher Education Career Center. Tracer studies have been conducted electronically or online at most universities in Indonesia [4]; [14]. Novaliendry and Hakim [17] stated that the utilization of web and information technology facilities can expedite and enhance the accuracy of tracer studies with the appropriate information system. It is evident that nearly all major universities have websites for completing tracer study questionnaires from 2013 to 2018. The Online Tracer Study is developed as an internet-based tool that caters to the Z-generation, who heavily rely on and integrate technology into their lives [16]. However, the challenge of achieving optimal filling remains a barrier to the implementation of online tracer studies, particularly in relation to completion rates.

The Tanjungpura University Career Development Center implements an annual work program mandated by the The Ministry of Education, Culture, Research, and Technology (Kemdikbudristek) to conduct the Tracer Study of alumni continuously. The Tracer Study at Tanjungpura University is implemented continuously, with dynamic system development in line with the direction of Belmawa Kemdikbudristek. The online system for conducting the Tracer Study of alumni from Tanjungpura University was implemented in 2015, using a questionnaire set by Belmawa Kemdikbudristek. As a result, the Tracer Study alumni instrument model has undergone several significant changes in

information system and design at Tanjungpura University [1]. This study and scientific article aim to describe the dynamics of the Tracer Study alumni model and the design system implemented by Tanjungpura University from 2015 to 2022. This research is valuable for illustrating and enhancing the Tracer Study design system at Tanjungpura University, making it more efficient for both graduates and institutions.

## 2. RESEARCH METHOD

The research method involved reviewing the chronology of the development Tracer Study system at Tanjungpura University. The revised Borg & Gall model and historical flowchart descriptively is utilized to reconstruct each stage of the process-based Tracer Study for alumni development, as well as for production system and design. This modification model was adapted from the research of Hapsari and Putra [6] by structuring it into stages, as illustrated in Figure 1. The description of the problems that arise is based on two types of data: primary and secondary. Primary data were obtained by collecting the system model and design of the Tracer Study alumni at Tanjungpura University for the last seven years. Meanwhile, secondary data were obtained from information provided by the system development team and literature references regarding policy changes to the Tracer Study from Belmawa Kemdikbudristek.

## 3. RESULTS AND DISCUSSION

The Ministry of Education, Culture, Research, and Technology (Kemdikbudristek) of the Republic of Indonesia requires universities to conduct tracer studies annually and report the results online through the pkts.belmawa.ristekdikti.go.id page, which was later changed to tracerstudy.kemdikbud.go.id. Reporting is conducted using instruments and questionnaires specified by the Ministry through this website. Based on the regulation of the Director-General of Learning and Student Affairs Number 471/B/SE/VII/2017 dated 26 July 2017 concerning the Implementation of Tracer Study in Higher Education, Tanjungpura University used the questionnaire provided by Directorate of Learning and Student Affairs (Belmawa Kemdikbudristek) and established an online system for conducting the Tracer Study. The first electronic system developed at Tanjungpura University was the traceralumni.untan.ac.id website, which was created with instrument development based on 75 questions set by Belmawa. However, in practice, the implementation of online tracer studies cannot be optimally performed. This is because many study program management units and career centers still rely on the written questionnaire method. According to a study conducted by [18] from 2014 to 2016, many universities were still conducting tracer studies manually. At Tanjungpura University, this has altered the essence and function of the original concept of electronic tracer study. The initial concept was designed for graduates to directly answer Tracer Study questions online (see Figure 1). However, the atmosphere


P.ISSN: 2086 – 4981
E.ISSN: 2620 – 6390
tip.ppj.unp.ac.id

and the flow of information were not optimal, which led to graduates being unwilling to complete the online survey. This situation caused surveyors who were initially only informed about online surveys to become manual surveyors.

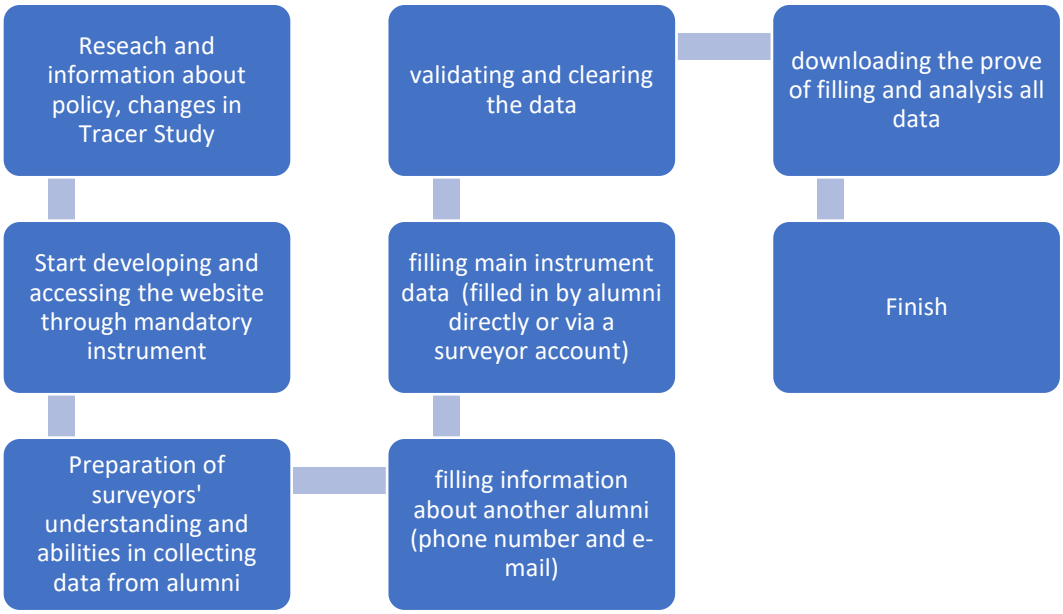


**Figure 1.** The reconstruction process for implementing the Tracer Study by Tanjungpura University graduates was conducted through the tracerstudyalumni.untan.ac.id website based on the Borg–Gall model.

The process of preparation, implementation, and data analysis relates to the initial information on the implementation of the Tracer Study, preparation of instruments, and support systems for the implementation of activities. Changes in the instruments and the atmosphere of understanding of respondents can change the system pattern in the flow diagram according to ideal conditions. Tanjungpura University's Tracer Study system from 2015 to 2022 depends on changes in respondents' understanding and willingness to complete the Tracer Study as well as changes to more personalized question instruments, resulting in changes to support systems, such as the surveyor input page.

The development involves creating an online input system for surveyors (Figure 3 C). The data collected manually must be entered into the Tracer Study system (see Figure 2; left and Table 1 [2015-2019]). As a result, a surveyor input design was created. The initial design indicated that alumni could directly submit their responses online. However, since most alumni preferred to submit their responses in writing, the system model was developed with a surveyors input website in 2016. Although it is a hybrid system, it can still

be accepted based on the assertion in [3] that the data collection process is less efficient or takes longer than the original design. The Tanjungpura University Career Center has been implementing this model until 2019. However, the Tracer study method conducted at UNTAN is still web-based and online, in contrast to XYZ University and Universitas Jenderal Ahmad Yani [2]; [12].

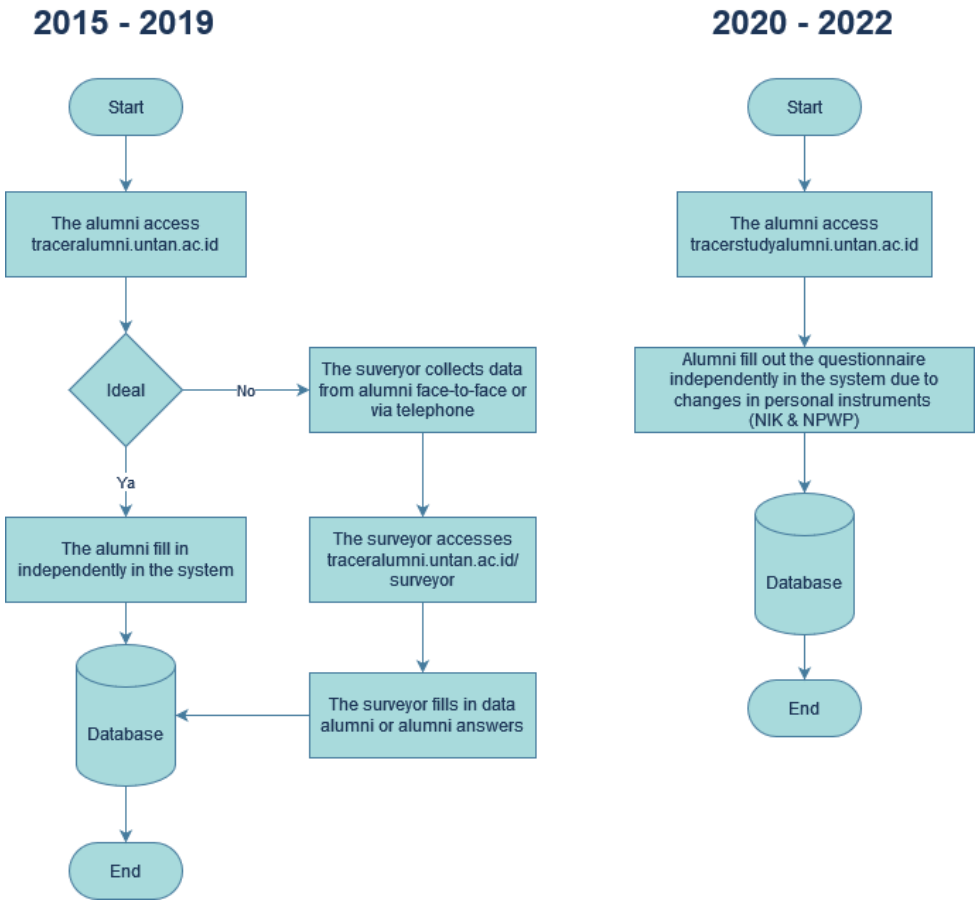


**Figure 2**. Chronology and differences in the Tracer Study System at Tanjungpura University.

The left image shows the implementation flow diagram from 2015 to 2019, where the implementation of filling in the Tracer Study online was not optimal; therefore, the paper questionnaires were still filled in by surveyors. The consequence of this activity was to build a filling system for surveyors via the surveyor page (left). Changes to confidential instruments (NIK and NPWP), which are mandates from the Ministry of Education and Culture, were then changed to the Tracer Study filling model that must be carried out by graduates themselves, which has led to the elimination of the online input system by surveyors from 2020 until now (right).


P.ISSN: 2086 – 4981
E.ISSN: 2620 – 6390
tip.ppj.unp.ac.id

**Table 1.** Problem mapping of development Tracer Study at Tanjungpura University

| Year interval | Problems identification | Consequence | Followed up/ action required |
|---|---|---|---|
| 2015-2019 | 1. The atmosphere and understanding of Tracer Study among graduates is not yet ideal so that the implementation of Tracer Study is not optimal | The response rate is low so the data base in the online system is also small | Using surveyor services to collect data |
| | 2. Implementation of tracer studies offline (paper-based) by surveyors directly even though online instruments are available | Must develop a surveyor input system based on paper survey data which is less efficient | Surveyor input page available |
| 2019-2020 | 1. Changes to several questionnaire instruments from Belmawa Kemdikbudristek | The incompatibility of the old online instrument with the new one means that some data cannot be input by the surveyor | Change of page from traceralumni.untan.ac.id to tracerstudy.untan.ac.id |
| 2021-2022 | 1. Fill in personal data such as the population identification number (NIK) and NPWP | Direct filling by graduates to maintain and increase response; The surveyor's work only directs graduates to fill in the page provided so that the surveyor no longer makes input. | System changes are easier when logging in without creating a password and make the system more eye-catching and the system model is adaptive on the cellphone screen; The input system by surveyors does not apply so this system is eliminated |
| | 2. Changes to the questionnaire instrument returned from Belmawa Kemdikbudristek | The difference in the structure of the questionnaire is simpler | Page changes from tracerstudy.untan.ac.id to tracerstudyalumni.untan.ac.id with a new system and host |

The year 2021 marks the return to the original concept of alumni filling out the Tracer Study directly online through the Tracer Study website. The incident occurred due to a significant change in the questionnaire, which involved personal questions. This requires alumni to fill out the questionnaire instrument independently without any intervention from surveyors. This also means that the surveyor's function is no longer as input data but only directing it to fill in a predetermined system (Figure 2, right; Table 1, 2021-2022).

The website design was also updated to be more appealing, but there were no changes made to the login mechanism for accessing the questionnaire page. The modifications to the questionnaire led to the overhaul of the old website system because it was deemed challenging to align with the new questionnaire. Therefore, the website www.tracerstudy.untan.ac.id has been renamed to www.tracerstudyalumni.untan.ac.id (Figure 3 B). The development of an information system is intended to address the problems of the previous system, either as a whole or specific issues. The old system needed to be developed due to various problems that arose and required fixing. In addition, there is a need for development to capitalize on the opportunity to enhance services, as technology is advancing rapidly and numerous competitors are striving to improve the system.

**Jurnal Teknologi Informasi dan Pendidikan**
Volume 17, No. 1, March 2024
https://doi.org/10.24036/jtip.v17i1.746

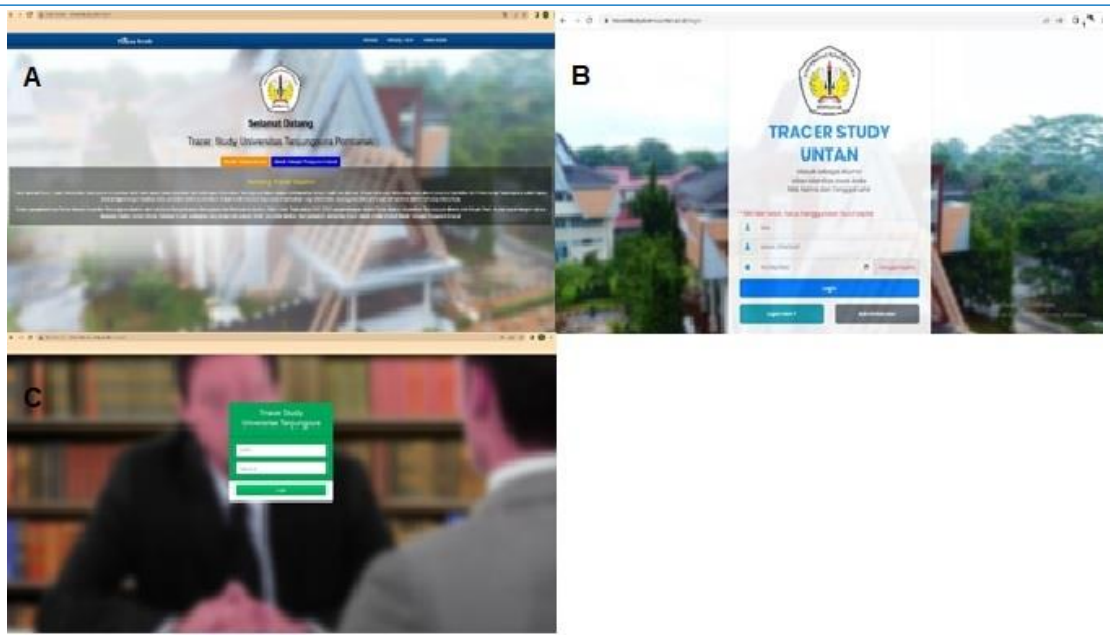


**Figure 3.** The website interface used for Tracer Study activities at Tanjungpura University.

The display includes the 2015-2020 tracer study website featuring the 2015 and 2019 tracer study questionnaires (A and C); the surveyor login website for manually inputting data or entering it in writing into the tracer study system (middle); and the 2021-2022 tracer study website for the 2021 questionnaire, which no longer requires surveyors for data input in system (B).


**Figure 4.** The initial page design of the 2015-2019 UNTAN tracer study website (left, yellow box)

Shows the amount of data entered by surveyors (a). The initial page design of the UNTAN tracer study website for 2020-2022 no longer offers the data entered by surveyors (b). The changes in the system and information design of the Tracer Study at Tanjungpura University are similar to those at the National Veterans University Jakarta [7]. The old system is difficult to repair and upgrade, so the focus is on creating a new model and design


P.ISSN: 2086 – 4981
E.ISSN: 2620 – 6390
tip.ppj.unp.ac.id

(Figure 4). In the case at Tanjungpura University, the information technology team concluded, using the PIECES model (Performance, Information, Economic, Control, Efficiency, Service), that improving systems developed by outside developers was more complicated due to minimal access. The number and model of questionnaires, which were significantly different from the previous system, also contributed to the decision to replace the system and enhance the website's appearance. However, the online process for filling out the Tracer Study at Tanjungpura University differs from the system at Semarang State University (UNNES) [19] and the Indonesian Adventist University or Universitas Advent Indonesia (UNAI) [21], which provides graduates with Tracer Study access codes via email. Access to the questionnaire on the Tanjungpura University Tracer Study website does not require graduates to receive a private pin or code beforehand (Figure 4). To complete the form, graduates only need to provide their name, student number, and date of birth to verify their information in the Tanjungpura University graduate database system. The response rate decreases when they have to check the pins or access private information.

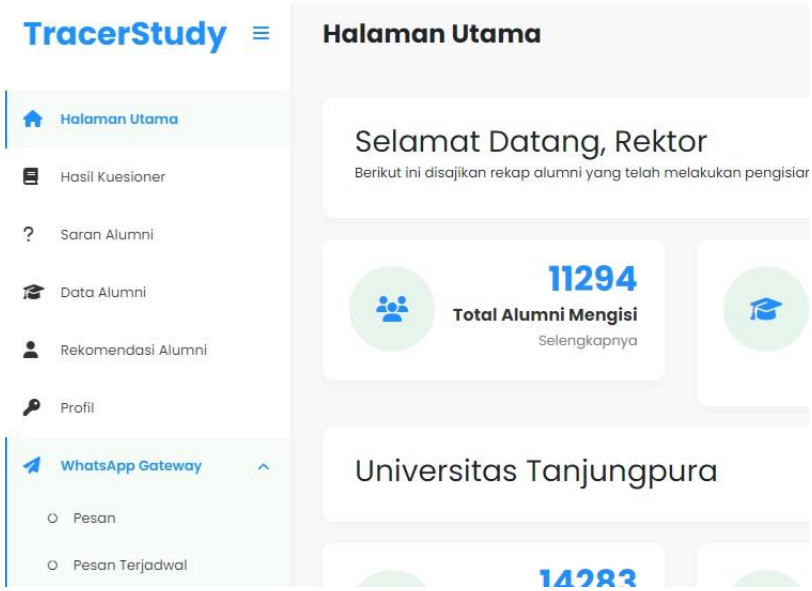


**Figure 5.** WhatsApp Gateway, an additional system integrated into the Tanjungpura University Tracer Study website.

This system aims to facilitate communication between administrators and graduates during the process of updating Tracer Study data. The Tracer Study team at Tanjungpura University's Information and Technology Development offers the WhatsApp Gateway option to facilitate the regular provision of information to graduates (Figure 5). It makes it easier for the Tracer Study team to communicate with graduates in order to update or improve data online. This system shares similarities with the system developed by the Indonesian University of Education (UPI) [20]. However, the distinction lies in the

communication model employed. The Tracer Study system, developed at the Indonesian University of Education, utilizes SMS Gateway Technology. Despite this, the process of sending information remains the same, and the administrator needs to compose a message to be sent and select a list of graduates' mobile numbers to send messages via WhatsApp.

The development of the Tracer Study system and its design at the University of Tanjungpura has a flexible concept. This concept is outlined in the guidebook for implementing the Tracer Study at the University of Tanjungpura, which was approved by the Chancellor of UNTAN. The term "it" refers to the revisions or changes to questionnaires as instructed by the Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia. Therefore, coordination between the Tracer Study Team and the Information Technology Development Team is still necessary to monitor the progress of the Tracer Study in the future.

## 4. CONCLUSION

This study concludes that the Tracer Study system at Tanjungpura University was developed following the stages of system development chronology, taking into account various external and internal conditions. The UNTAN Study Tracer system was developed to collect data directly from alumni via the website. However, the environment for the tracer study was suboptimal from 2015 to 2019, leading to changes in the system design. This involved implementing a surveyor input system to store manual data online. In 2020-2022, the system design was reverted to its original state, where surveyors were not required to complete online questionnaires. This change was related to the update of the instruments by Belmawa in 2020, which required the inclusion of personal identification numbers (NIK) and tax identification numbers (NPWP). Changes to the content of the instrument or tracer study questionnaire by Belmawa may still occur and cannot be avoided in the future. However, software development must be more flexible, and the process of alumni inputting their data into the system must be consistently implemented. The Tracer Study Information System is expected to be developed in line with the principles of prioritizing graduate comfort when filling out questionnaires. It should also consider convenience, security, and flexibility, even when presented in the form of a website.

## ACKNOWLEDGEMENT

The authors would like to express their gratitude to the Tanjungpura University Learning Development and Quality Assurance Institute for providing financial support for this research activity. We would also like to express our gratitude to Edwin Pradana, Novese Tantri, and Egi Pangestu for their valuable contributions to the discussion on the Tracer Study system at Tanjungpura University.


P.ISSN: 2086 – 4981
E.ISSN: 2620 – 6390
tip.ppj.unp.ac.id

## REFERENCES

[1] M. Saleh dan N. Safriadi, "Tracer study alumni of the Faculty of Engineering, University of Tanjungpura with a Web-based information system", *Jurnal EKHA*, Vol. 04, No. 1, 2012, DOI: http://dx.doi.org/10.26418/elkha.v4i1.353

[2] R.B. Oktavian, T. Hendro, dan A.I Hadiana, "Development of a tracer study information system for alumni at the Informatics Study Program, Universitas Jenderal Ahmad Yani", *Informatics and Digital Expert*, Vol. 2, No. 1, Juli. 2020, pp. 14-18, E-ISSN (Online) 2715-0453.

[3] H.S. Soegoto, R. Wahdiniwaty, L. Warlina, dan A. Heryandi, "E-tracer study implementation of Indonesia Computer University alumni," *Journal of Educational Research and Review*, Vol. 6, No. 2, May. 2018, pp. 38-46, ISSN: 2384-7301.

[4] A. Rizaldi dan Mukhtar, "Perancangan E-tracer study berbasis sistem cerdas," *Jurnal SISFOKOM*, Vol. 9, No. 1, Februari. 2020, DOI : 10.32736/sisfokom.v9.i1.631.

[5] R. Bridgstock, M. Grant-Iramu, and A.McAlpine, "Integrating career development learning into the curriculum: Collaboration with the careers service for employability", *Journal of Teaching and Learning for Graduate Employability*, Vol. *10*, No. 1, 2019, https://doi.org/10.21153/jtlge2019vol10no1art785.

[6] A.M.S. Hapsari and C.B.A. Putra," System design of tracer study in higher education", *Jurnal Teknologi Informasi dan Pendidikan*, Vol. 15, No. 1, Maret. 2022, pp. 50-56, DOI: 10.24036/tip.v15i1.

[7] D.A. Pangastuty dan I.W.W. Pranyada, " Development of the Tracer Study information system at the Veterans National Development University, Jakarta, Senamika, Agustus. 2020, pp. 383-394, ISBN 978-623-93343-1-4.

[8] F. Marisa, D.U. Efendi, and I.D. Mumpuni, "Tracer Study System Portal-Based Social Network To Optimize Data Collection on Higher Education Graduates," in Proc. 2 nd International Conferences on Information Technology and Business (ICITB) || October 15th , 2016, pp. 19-24.

[9] H.J. Brits, "Conducting a Graduate Tracer Study at a University of Technology: a Quest to Enhance the Learning Experience," in Proc. 9 th Balkan Region Conference on Engineering and Business Education and 12th International Conference on Engineering and Business Education, 2019, pp. 10-18, DOI: 10.2478/cplbu-2020-0002.

[10] S. Andari, A.C. Setyawan, Windasari, and A. Rifqi, "Educational Management Graduates: A Tracer Study from Universitas Negeri Surabaya, Indonesia, *IJORER: International Journal of Recent Educational Research*, vol. 2, no.6, pp.671-681, Nov. 2021, DOI: https://doi.org/10.46245/ijorer.v2i6.169.

[11] E.O. Badiru and M. Wahome, "Conducting Graduate Tracer Studies for Quality Assurance in East African Universities: A Focus on Graduate Students Voices on Quality Culture, *Journal of Education and Practice*, vol. 7, no.6, 2016, pp. 174-181.

[12] M. Arifin and S. Muzid, "Tracer study analysis at XYZ University," *Jurnal DISPROTEK*, vol. 9, no. 2, pp. 69-73, 2018.

[13] Y. Nugraheni, Susilawati, Sudrajat, and A. Apriliandi, "Tracer Study Analysis of Vocational Education in Politeknik Negeri Bandung With Exit Cohort as an Approach," in Proc. Advances in Social Science, *Education and Humanities Research*, vol. 298, 2018, pp. 110-115.

[14] K. Bariyyah, "Unikama Tracer Study: An Effort To Get Graduates`Feedback Towards Superior Universitiy", in Proc. Indonesia Career Center Network Summit IV, Okt. 2019, pp.147-155.
[15] M.T.B. Kalaw, "Tracer study of Bachelor of Science in Mathematics," *Int. J. Eval. & Res. Educ.*, vol. 8, no. 3, Sept. 2019, pp. 537 – 548, DOI: 10.11591/ijere.v8i3.17343.
[16] E. Mardison, "The Opportunityto Acces Better Information Technology," *Jurnal Teknologi Informasi dan Pendidikan*, vol. 14, no. 1, March. 2021, pp. 33 - 39. https://doi.org/10.24036/tip.v14i1.
[17] D. Novaliendry and N.U. Hakim, " Development of A Tracer Study Information System in Senior High School with DevOps Method Using Python Application and Django Framework," *Jurnal Teknologi Informasi dan Pendidikan*, vol. 15, no. 1, March. 2022, pp. 96 - 104. https://doi.org/10.24036/tip.v15i1.
[18] R. Chandra, Renny, dan S. Ruhama, " Pengembangan Sistem E-Tracer Study pada Perguruan Tinggi," Konferensi Nasional Sistem Informasi 2014, STMIK Dipanegara Makassar 27 Pebruari – 1 Maret 2014, pp. 394 - 398.
[19] N.R. Dewi, P. Listiaji, M. Taufiq, E.N. Savitri, A. Yanitama, and A.P. Herianti, "Development of Tracer Study System for Graduates of The Integrated Science Department , Universitas Negeri Semarang, *J. Phys.: Conf. Ser*. 1918 042010, 2021, doi:10.1088/1742-6596/1918/4/042010
[20] F.C. Permana, A.H.Hernawan, F.H. Firmansyah, and I.P. Sari, "Developing a Tracer Study Information System Based on SMS Gateway to Support Career Development Program in UPI, Cibiru Campus, Advances in Social Science, Education and Humanities Research, vol. 401, pp. 252-256, 2020.
[21] G.G. Thomas and E. Wagiu, "Graduate Tracer Study Design System Using Web-Based GPS (Case Study Universitas Advent Indonesia", in *Proc. Abstract Proceedings International Scholars Conference*, Oct. 2019, pp. 1826-1841, https://doi.org/10.35974/isc.v7i1.2006.


P.ISSN: 2086 – 4981
E.ISSN: 2620 – 6390
tip.ppj.unp.ac.id