

Design Recommendations to Enhance The Digital Transformation of Lalu Akhmad Farhan Licensed Cadastral Surveyor Bureau (KJSB)

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Keywords: digital transformation maturity, gap analysis, ICE model, land survey and mapping, MoSCoW technique

SUMMARY

Kantor Jasa Surveyor Berlisensi (KJSB) or Licensed Cadastral Surveyor Bureau of Lalu Akhmad Farhan is a survey and mapping company and also a partner of the Indonesia Ministry of Agrarian and Spatial Planning (ATR)/ National Land Agency (BPN). In 2020, the Indonesia Ministry of ATR/BPN issued a roadmap for 2020-2024 to manifest the idea of *Digital Melayani* (DILAN). Based on the roadmap, the Ministry of ATR/BPN will expand its service to electronic services in 2020-2021 by issuing an electronic land certificate. KJSB Lalu Akhmad Farhan, the provider of physical data for the land certificate, is impacted by that decision. KJSB Lalu Akhmad Farhan has to collect and process physical data using digital technology as part of the transformation. Not only driven by an external factor, but the company itself also needs to digitally transform its organization due to the complexity of project management practice.

Before making improvements, it is essential to know the current maturity level of the digital transformation of the company. In this study, the company's level of digital transformation is assessed using a questionnaire designed based on the Digital Transformation Maturity Index which consists of eight dimensions: strategic, leadership, market, operations, people and expertise, culture, governance, and technology that was operationalized by Rossmann (2018). Then, the median of the indicators for each question's answer is calculated. Indicators with low median values are used as the basis for problem formulation in the company. Next, the gap between the current and ideal conditions is analyzed. Based on the analysis, some recommendations are proposed and ranked by using the MoSCoW technique (must have, should have, could have, will not have this time) and the ICE model (impact, confidence, ease).

The digital transformation maturity assessment results showed that KJSB Lalu Akhmad Farhan needs improvement based on twelve indicators. The recommendations are: 1) registering the company to the Indonesian Cadastre Survey Expert Society (MASKI) service platform; 2) preparing the standard operating procedure (SOP) for evaluating digital strategies; 3) forming a digitization team; 4) designing a dashboard for controlling company activities; 5) utilizing project collaboration applications; 6) designing a digital library; and 7) designing continuous improvement mechanisms. The seven recommendations are summarized in the company digitalization roadmap for 2021-2022.

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1. INTRODUCTION

According to the regulation of the Minister of Agrarian and Spatial Planning (ATR)/ Head of the National Land Agency (BPN) of the Republic of Indonesia Number 33 of 2016, a Cadastral Surveyor is defined as a person who has expertise and skills in carrying out the land survey and mapping process in the context of land registration and is responsible for the survey and mapping data obtained. A cadastral surveyor with at least 1 (one) cadastral surveyor assistant may form a group called Licensed Cadastral Surveyor (SKB). Licensed Cadastral Surveyor is a partner of the Ministry of Agrarian and Spatial Planning (ATR)/ Head of the National Land Agency (BPN) of the Republic of Indonesia. Licensed Cadastral Surveyor may establish a business entity called Licensed Cadastral Surveyor Bureau (KJSB) which is the object of this study. Fig. 1 visualizes the KJSB formation. KJSB Lalu Akhmad Farhan is an individual entity that has been operating since 2017. The head office of KJSB Lalu Akhmad Farhan is located in Bekasi Regency, West Java, Indonesia.



Figure 1. KJSB formation

The development of people's lives has an effect on the increasing complexity of activities related to land (Sibuea, 2011). Land conflicts that occur in various regions in Indonesia are often caused by the lack of legal certainty over the land plot. This conflict does not only occur between families, but also between stakeholders such as businessmen and the government (Kominfo, 2018). Therefore, to avoid land conflicts, legal evidence of land ownership is needed in the form of land certificates (Kompas, 2020). However, the process of making land certificates which is considered slow has become a concern of the government (Kominfo, 2018). Therefore, the government through the Ministry of Agrarian and Spatial Planning

(ATR)/ Head of the National Land Agency (BPN) encourages the acceleration of land registration or community-owned land, according to the President of the Republic of Indonesia’s orders, through the Complete Systematic Land Registration Program (PTSL) which has been running since 2017. KJSB Lalu Akhmad Farhan as a partner of the Ministry of Agrarian and Spatial Planning (ATR)/ Head of the National Land Agency (BPN) actively participates in the program by providing land registration services to the general public spread across various regions in Indonesia.

In 2020, the Indonesia Ministry of ATR/BPN issued a roadmap for 2020-2024 to manifest the idea of *Digital Melayani* (DILAN). Based on the roadmap, the Ministry of ATR/BPN will expand its service to electronic services in 2020-2021 by issuing an electronic land certificate. KJSB Lalu Akhmad Farhan, the provider of physical data for the land certificate, is impacted by that decision. KJSB Lalu Akhmad Farhan has to collect and process physical data using digital technology as part of the transformation.

Technology is considered important in the context of project management due to greater challenges in today’s work environment, both for the purposes of collaboration, communication, and deployment of project management practices (Anantamula, 2008). Fig. 2 shows the fishbone diagram to determine the root causes of difficulties in project management experienced by KJSB Lalu Akhmad Farhan.

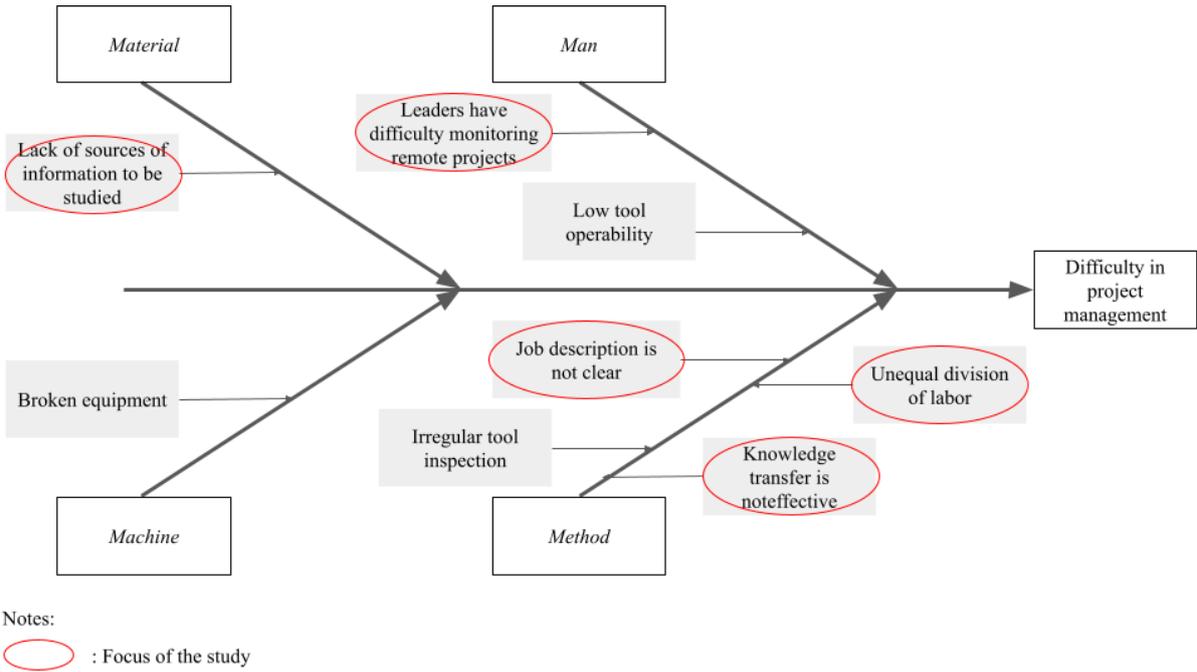


Figure 2. Fishbone diagram

Before proposing improvement recommendations for KJSB Lalu Akhmad Farhan, it is important to understand the current level of digital transformation of the company by using the maturity model. The digital maturity model explains how far the company has transformed digitally (Rossmann, 2016). The digital transformation model that is used in this study is the Digital Transformation Maturity Index by Rossmann (2018). By assessing the maturity of digital transformation, KJSB Lalu Akhmad Farhan may find problems related to digital transformation in the company. Thus, improvements can be designed to increase the maturity of digital transformation at KJSB Lalu Akhmad Farhan to a higher level.

2. OBJECTIVE

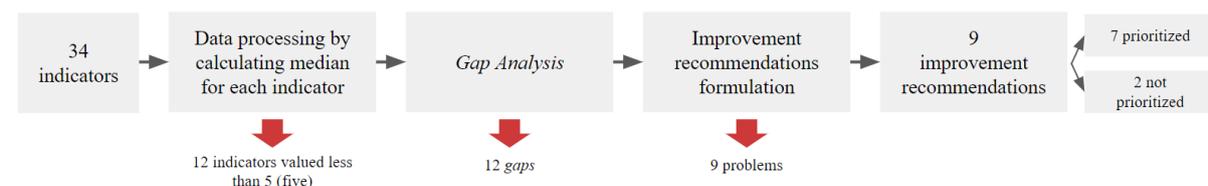
The main objective of this study is to design improvement recommendations based on the current maturity level of digital transformation for KJSB Lalu Akhmad Farhan. The main objective can be achieved through several supporting objectives, namely:

- 1) Assessing the digital transformation maturity of KJSB Lalu Akhmad Farhan.
- 2) Determining the gap between current and ideal conditions.
- 3) Designing improvement recommendations for KJSB Lalu Akhmad Farhan.

3. METHODOLOGY

In this study, there are seven stages of study which are described as follows.

- 1) Preliminary study
- 2) Literature study
- 3) Digital transformation maturity questionnaire design
- 4) Digital transformation maturity assessment
- 5) Designing digital transformation improvement recommendations
- 6) Analysis and discussions
- 7) Conclusion and suggestions



4. DATA PROCESSING AND ANALYSIS

4.1 Questionnaire Testing

4.1.1 Questionnaire Validity Test

Validity describes the extent to which a concept is measured accurately in a study (Heale & Twycross, 2015). The validity test carried out in this study are content and construct validity. Content validity explains whether the measurement instrument includes all the content that should be measured according to the existing variables (dimensions). Whereas construct validity represents the extent to which the study instrument (or tool) measures the desired construct or concept (Heale & Twycross, 2015). Content validity is estimated by conducting a rational analysis participated by the competent panel and expert judgment (Hendryadai, 2017). In this study, the validity of the content is checked by conducting interviews with the author's supervisor and leader of KJSB Lalu Akhmad Farhan sp that the sentence of each question is contextualized with the company conditions. After conducting a content validity test, a construct validity test is carried out by reviewing the significance (p-value). The hypothesis used in this study is as follows.

H0: The indicator is not significantly correlated with its own dimensions

H1: The indicator is significantly correlated with its own dimensions

If the p-value is less than 0.05 (95% confidence level), then an indicator is said to be valid because it has a significant correlation with its own dimensions. The data is processed by using Minitab 19 software. Based on the data processing result, all indicators (or statements in the questionnaire) have a p-value equal to 0.000. So, it can be concluded that all indicators are valid constructs.

4.1.2 Questionnaire Reliability Test

According to Heale & Twycross (2015), reliability is related to measurement consistency. The reliability test of each dimension in the questionnaire is carried out by calculating Cronbach's Alpha coefficient using Minitab 19 software. The Cronbach's Alpha coefficient value has a range from 0 (zero) to 1 (one). Dimensions are considered reliable if the value of Cronbach's Alpha is more than 0.6 (Malhotra & Birks, 2007). Table 1 shows the reliability test for each dimension.

Table 1. Reliability test result

Dimension	Cronbach's Alpha
<i>Strategic</i>	0.817
<i>Leadership</i>	0.632
<i>Market</i>	0.727

Dimension	Cronbach's Alpha
<i>Operational</i>	0.862
<i>Culture</i>	0.659
<i>People and Expertise</i>	0.873
<i>Governance</i>	0.866
<i>Technology</i>	0.834

Cronbach's Alpha coefficient value for all dimensions is more than 0.6 so it can be said that the questionnaire is reliable. Based on the three tests results, the questionnaire is valid content, valid constructs, and reliable. Therefore, there is no need to revise and distribute the questionnaire again.

4.2 Questionnaire Data Processing

4.2.1 Respondent Identity Data Processing

Table 2 shows the proportion of respondents' positions. Management consists of a leader, a financial manager, an operational manager, and coordinators. Management consists of 6 people because the field coordinator did not participate in this survey. The staff group which includes cadastral surveyors, cadastral surveyor assistants, surveyors, drafters, and administrative staff is 24 people. Thus, based on the result of data processing, it can be seen that the respondents are dominated by drafters (11 people), while the administrative staff (1 person) is the position with the least number.

Table 2. Distribution of respondents' position

Position	Number of people
Management	6
Cadastral surveyor	3
Cadastral surveyor assistant	9
Drafter	11

Administrative staff	1
Total	30

4.2.2 Digital Transformation Maturity Data Processing

Medians are determined for each indicator on the questionnaire. The medians are grouped into three groups, namely the median from the overall data of respondents, the median from the management group, and the median from the staff group. The median that will be used as the basis for determining improvement is only the median that comes from the management group. The management group is chosen with the consideration that these values represent the true and most rational value compared to other groups proven by the absence of indicators that have reached the value of 6 (having reached the highest level of maturity). Then, the indicators with a median value of less than 5 will be used as the basis for determining improvement recommendations. The value of 5 is chosen after a discussion between the researcher and the leader of KJSB Lalu Akhmad Farhan by considering the data pattern and also cost and time limitations. Based on the 34 indicators, there are 12 indicators valued less than (or around 35% of total indicators). The indicators that will be selected as based for determining improvement recommendations are S5, L2, P4, O1, PE1, C1, C4, G1, G2, G3, T2, and T3.

4.3 Improvement Recommendations Formulation

After the indicators that will be the basis for the improvement recommendations are determined, the next step is to determine the improvement recommendations themselves and their priority.

4.3.1 Gap Analysis

At this step, the researcher identified the gap between the actual and ideal conditions based on the indicators valued at less than 5. The description of the current and ideal condition of the company is obtained from interviews with the leader of KJSB Lalu Akhmad Farhan. Based on the 12 identified gaps, 9 problems are generated. Then, based on the 9 problems, some alternative improvement recommendations are proposed for each problem. Finally, the author chose only one solution for each problem. Table 3 shows an example of gap analysis.

Table 3. Example of gap analysis

Indicator code	Indicator	Current conditions	Ideal condition	The gap between current and ideal condition
L2	The digital strategy is only implemented at the departmental level (e.g.:	The digital strategy (in this case, the use of data and technology) is	KJSB Lalu Akhmad Farhan implements digital strategies throughout the company by utilizing	The digital strategy has not been implemented in all

Indicator code	Indicator	Current conditions	Ideal condition	The gap between current and ideal condition
	operations, finance, and marketing).	only implemented in the operational and finance department.	data sourced from cross departments and using technology to monitor their daily activities in every department.	departments in the company.
P4	KJSB Lalu Akhmad Farhan created large sales volume through digital channels (e.g. websites, social media, and e-mail).	KJSB Lalu Akhmad Farhan creates a relatively large sales volume from the government tender platform, meanwhile, the private companies as other target market are still reached using traditional methods (e.g. mouth-to-mouth).	KJSB Lalu Akhmad Farhan maximizes sales volume through digital channels by utilizing a platform that can reach private companies as a target market.	KJSB Lalu Akhmad Farhan has not utilized a platform that can reach private companies as a target market.
T2	KJSB Lalu Akhmad Farhan utilizes various tools for digital modeling, automation, and controlling the flow of business activities.	KJSB Lalu Akhmad Farhan has utilized various tools for digital modelling and automation (e.g. GPS, UAV, CAD software). However, the company has not utilized tools to control the flow	KJSB Lalu Akhmad Farhan utilized various tools for digital modeling, automation, and controlling the flow of business activities.	There is no tool utilized to control the flow of business activities.

Indicator code	Indicator	Current conditions	Ideal condition	The gap between current and ideal condition
		of business activities.		

Then, after analyzing the gap between current and ideal conditions, the researcher identifies the actual issues then formulate improvement recommendations. Table 4 shows the example of improvement recommendations formulation process.

Table 4. Example of improvement recommendations formulation

Code	Gap	Issue	Improvement recommendations alternatives	Selected improvement recommendation
L2	The digital strategy has not been implemented in all departments in the company.	The digital strategy (the use of data and technology) has not been implemented for controlling	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">How to utilize data and technology to control business activities across departments</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Develop a dashboard that shows the company's performance</div> <div style="border: 1px solid black; padding: 5px;">Designing a mechanism for reporting the company's performance from all business activities with the help of Ms. Excel</div> </div>	Develop a dashboard that shows the company's performance
T2	KJSB Lalu Akhmad Farhan utilizes various tools for digital modeling, automation, and controlling the flow of business activities.	business activities across departments.		

4.3.2 Prioritization with MoSCoW Technique

After determining improvement recommendations, the next step is to prioritize it using MoSCoW technique (must have, should have, could have, will not have this time). The

purpose of using this technique is to eliminate improvement recommendations that will not be made within the next two years. Table 5 shows the result of prioritization using the MoSCoW technique.

Table 5. Improvement recommendations prioritize using MoSCoW technique

Improvement recommendations	Category
Develop SOP for digital strategy evaluation mechanism	<i>Must-have</i>
Develop a dashboard that shows the company's performance	<i>Must-have</i>
Register on the KJSB association platform (MASKI)	<i>Must-have</i>
Form a digitalization team with adequate numbers and budget	<i>Must-have</i>
Utilize application for collaboration as well as information dissemination	<i>Must-have</i>
Design continuous improvement mechanism	<i>Should-have</i>
Develop a digital library that stores instructions for the use of various digital technologies in the form of documents	<i>Should-have</i>

4.3.3 Prioritization with ICE Model

Improvements recommendations that have been categorized using the MoSCoW technique are then sorted by three factors: impact, confidence, and ease. The values given for the impact, confidence, and ease factors are each in the range of 1 to 10. The higher the score assigned to each factor, the higher impact, confidence, or ease of implementation of the improvement recommendations. Thus, the higher the total score (multiplication of those three factors), the higher order of priority. Table 6 shows the prioritized improvement recommendations using ICE Model.

Table 6. Improvement recommendations prioritize using ICE Model

Number	Sollution	Category	I	C	E	Score
1	Register on the KJSB association platform (MASKI)	<i>Must-have</i>	8	9	10	720
2	Develop SOP for digital strategy evaluation mechanism	<i>Must-have</i>	10	8	7	560
3	Form a digitalization team with adequate numbers and budget	<i>Must-have</i>	8	8	6	384
4	Develop a dashboard that shows the company's performance	<i>Must-have</i>	8	6	6	288
5	Utilize application for collaboration as well as information dissemination	<i>Must-have</i>	8	6	5	240
6	Develop a digital library that stores instructions for the use of various digital technologies in the form of documents	<i>Should-have</i>	8	7	7	392
7	Design continuous improvement mechanism	<i>Should-have</i>	7	7	5	245

5. IMPROVEMENT RECOMMENDATIONS

Improvement recommendations are presented in the form of a project charter. Here are the projects:

- 1) Project 1: Register on the KJSB association platform (MASKI)
- 2) Project 2: Develop SOP for digital strategy evaluation mechanism
- 3) Project 3: Form a digitalization team with adequate numbers and budget
- 4) Project 4: Develop a dashboard that shows the company's performance
- 5) Project 5: Utilize application for collaboration as well as information dissemination
- 6) Project 6: Develop a digital library that stores instructions for the use of various digital technologies in the form of documents
- 7) Project 7: Design a continuous improvement mechanism

The projects are visualized on Fig. 3 Digitalization Roadmap of KJSB Lalu Akhmad Farhan.

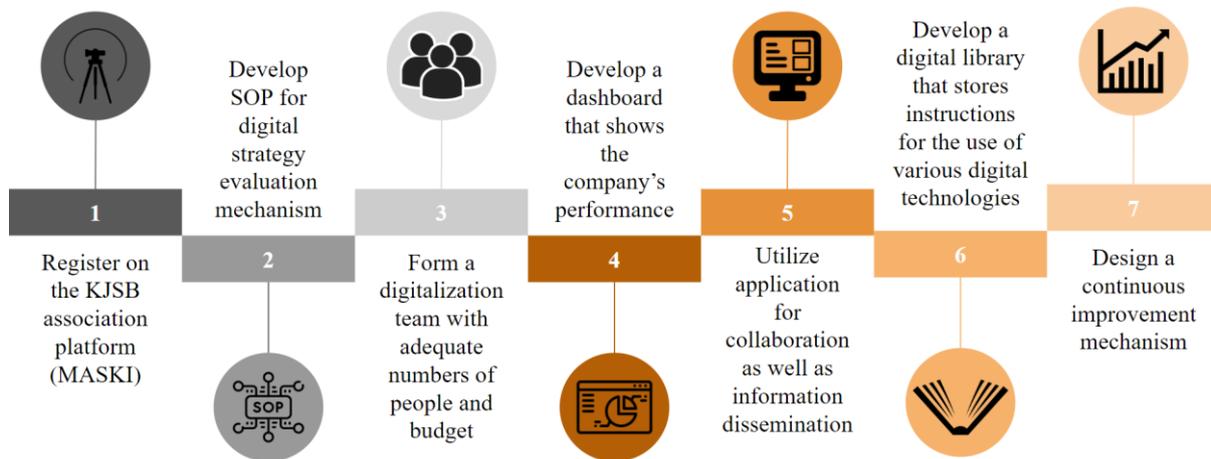


Figure 3. Digitalization Roadmap of KJSB Lalu Akhmad Farhan

6. CONCLUSION AND SUGGESTION

6.1 Conclusion

The following are the conclusions of this study:

- a. Maturity of digital transformation at KJSB Lalu Akhmad Farhan assessed with Digital Transformation Maturity Index operationalized by Rossmann (2018) which consists of eight dimensions, namely strategic, leadership, market/ product, operational, people and expertise, culture, governance, and technology resulted in 34 indicators. Based on data collected, every indicator is valued at more than 5 except indicators S5, L2, P4, O1, PE1, C1, C4, G1, G2, G3, T2, and T3. Those twelve indicators are used as the basis to determine improvement recommendations.
- b. Based on the gap analysis, there are 12 gaps which are then reduced to nine problems.
- c. Improvement recommendations to increase the maturity of digital transformation of KJSB Lalu Akhmad Farhan are as follows.
 - 1) Project 1: Register on the KJSB association platform (MASKI)
 - 2) Project 2: Develop SOP for digital strategy evaluation mechanism
 - 3) Project 3: Form a digitalization team with adequate numbers and budget
 - 4) Project 4: Develop a dashboard that shows the company's performance
 - 5) Project 5: Utilize application for collaboration as well as information dissemination
 - 6) Project 6: Develop a digital library that stores instructions for the use of various digital technologies in the form of documents
 - 7) Project 7: Design a continuous improvement mechanism

6.2 Suggestion

The following are suggestions for further research.

- a. Conduct research to determine business process indicators that are in accordance with the actual conditions of the company to be listed on the developed dashboard to increase the effectiveness of the dashboard.
- b. According to Lenox et. al. (2021), digital transformation starts from customer needs. Therefore, for the next research, the researcher recommends involving the customer aspect in proposing improvement recommendations, including creating an interaction map between the company and customers through service blueprints.

7. REFERENCES

- Aguilar-Saven, R. S. (2004). Business Process Modelling: Review and Framework. *International Journal of Production Economics*, 129-149.
- Anantamula, V. S. (2008). The Role of Technology in the Project Manager Performance Model. *Project Management Journal*, Vol. 39, No. 1, 34-48, doi: 10.1002/pmj.
- Anonim. (2008, November 20). *Storage Density & Kryder's Law*. Retrieved from NETWORK Computing: <https://www.networkcomputing.com/careers-and-certifications/storage-density-kryders-law> (accessed on 28 July 2021)
- Anonim. (2018, September 17). *Mengurus Sertifikat Tanah*. Retrieved from INDONESIA.GO.ID: <https://indonesia.go.id/layanan/kependudukan/sosial/mengurus-sertifikat-tanah> (accessed on 1 August 2021)
- Anonim. (2019, September 17). *Panduan Pendaftaran Tanah Sesuai PP 24 Tahun 1997*. Retrieved from Rumah.com: <https://www.rumah.com/panduan-properti/panduan-pendaftaran-tanah-sesuai-pp-24-tahun-1997-18305> (accessed on 1 August 2021)
- Anonim. (2020, Juli 2). *Why Is Change Important in an Organization?* Retrieved from Chron.: <https://smallbusiness.chron.com/change-important-organization-728.html> (accessed on 24 August 2021)
- Anonim(a). (2021). *Collaborative Applications*. Retrieved from ROI4CIO: <https://roi4cio.com/en/categories/category/collaborative-applications/> (accessed on 24 August 2021)
- Anonim(b). (2021). *Digital Modeling*. Retrieved from Direct Dimensions: http://www.dirdim.com/serv_digitalmodeling.htm (accessed on 24 August 2021)

- Anonim(c). (2021). *Evaluation: What Is It And Why Do It?* Retrieved from Meera: <https://meera.snre.umich.edu/evaluation-what-it-and-why-do-it> (accessed on 21 September 2021)
- Anonim(d). (2021). *Mengenal Manfaat dan Cara Pembuatan SOP yang Baik*. Retrieved from Jurnal Entrepreneur: <https://www.jurnal.id/id/blog/2017-mengenal-manfaat-cara-pembuatan-dan-contoh-sop/> (accessed on 21 September 2021)
- Anonim(e). (2021). *SOP Perusahaan: Manfaat, Fungsi, Cara Membuat & Contohnya!* Retrieved from Jurnal Entrepreneur: <https://www.jurnal.id/id/blog/sop-perusahaan/> (accessed on 21 September 2021)
- Anonim(f). (2021). *What is Co-creation? A Definition, Some Background and How It's Done*. Retrieved from <https://fronteer.com/what-is-co-creation/> (accessed on 24 Agustus 2021)
- Arnansyah, T. F. (2020). *Perancangan Usulan Perbaikan Agility Berdasarkan Penilaian Maturitas Agility Organisasi dan Proses Bisnis pada PT Nodeflux Teknologi Indonesia*. Bandung: Institut Teknologi Bandung.
- Azhari, P., Faraby, N., Rossmann, A., Steimel, B., & Wichmann, K. S. (2014). *Digital Transformation Report 2014*. Koln: Neuland GmbH & Co. KG.
- Bloomberg, J. (2018, April 29). *Digitization, Digitalization, And Digital Transformation: Confuse Them At Your Peril*. Retrieved from Forbes: <https://www.forbes.com/sites/jasonbloomberg/2018/04/29/digitization-digitalization-and-digital-transformation-confuse-them-at-your-peril/?sh=70afb762f2c7> (accessed on 24 August 2021)
- C.Lucas Jr., H., & MeinGoh, J. (2009). Disruptive Technology: How Kodak Missed the Digital Photography Revolution. *The Journal of Strategic Information Systems Vol. 18 Issue 1*, 46-55, doi:10.1016/j.jsis.2009.01.002.
- Christensen, C. M., & Overdorf, M. (2000). Meeting the Challenge of Disruptive Change. *Harvard Business Review* 78(2), 66-76.
- Chyung, S. Y., Roberts, K., Swanson, I., & Hankinson, A. (2017). Evidence-Based Survey Design: The Use of a Midpoint on the Likert Scale. *Performance Improvement*, 56(10), 15-23.
- Colli, M., Berger, U., Bockholt, M., Madsen, O., Møller, C., & Wæhrens, B. V. (2019). A Maturity Assessment Approach for Conceiving Context-Specific Roadmaps in The Industry 4.0 Era. *Annual Reviews in Control Vol. 48* , 165-177.
- Costa, L. S., Pereira, L., & Akkari, A. (2018). A Proposed Framework to Identify Digital Transformation Maturity in Small Industries. *4th Workshop on Innovative Engineering For Fluid Power* (pp. 30-33). Sao Paulo: ABIMAQ.

- Costa, L. S., Pereira, L., & Akkari, A. (2018). A Proposed Framework to Identify Digital Transformation Maturity in Small Industries. *the 4th Workshop on Innovative Engineering For Fluid Power* (pp. 30-33). Saulo Paulo: ABIMAQ.
- Crosbie, V. (2014). *Butter's Law Acting on Media*. Retrieved from Digital Deliverance: <https://www.digitaldeliverance.com/the-rise/butters-law/>
- Dannouni, A. (2021). *Exponential Evolution of Technology*. Retrieved from Coursera: <https://www.coursera.org/learn/bcg-uva-darden-digital-transformation/lecture/a7T8h/exponential-evolution-of-technology> (accessed on 23 August 2021)
- Dörner, K., & Edelman, D. (2015, Juli 1). *What 'Digital' Really Means*. Retrieved from McKinsey & Company: <https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/what-digital-really-means> (accessed on 26 July 2021)
- Dumas, M., Rosa, M. L., Mendling, J., & Reijers, H. A. (2013). *Fundamentals of Business Process Management*. Heidelberg: Springer.
- Dwinda, A. (2020, November 22). *5 Jenis Rekrutmen untuk Maksimalkan Proses Hiring Kandidat*. Retrieved from Glints: <https://employers.glints.id/resources/5-jenis-rekrutmen-untuk-maksimalkan-proses-hiring-kandidat/> (accessed on 21 September 2022)
- Ehrlich, O., Fanderl, H., & Habrich, C. (2017, Mei 3). *Mastering The Digital Advantage in Transforming Customer Experience*. Retrieved from McKinsey & Company: <https://www.mckinsey.com/business-functions/operations/our-insights/mastering-the-digital-advantage-in-transforming-customer-experience> (accessed on 23 August 2021)
- Estrada, A. (2019). *Perancangan Perbaikan Layanan Medis Dengan Pendekatan Business Process Improvement di Klinik Utama Bumi Medika Ganesha*. Bandung: Institut Teknologi Bandung.
- Fitzgerald, M., Kruschwitz, N., Bonnet, D., & Welch, M. (2013). *Embracing Digital Technology: A MIT Sloan Management Review*.
- Garland, R. (1991). The mid-point on a rating scale: Is it desirable? *Marketing Bulletin*, 66-70.
- Gilad, I. (2021). *Essential Product Frameworks That Any Product Manager Should Master*. Retrieved from Itamar Gilad: itamargilad.com (accessed on 26 July 2021)
- Gill, M., & VanBoskirk, S. (2016). *The Digital Maturity Model 4.0 - Benchmarks: Digital Business Transformation Playbook*. Forrester.
- Gupta, M. S. (2020, Maret 24). *What is Digitization, Digitalization, and Digital Transformation?* Retrieved from ARC Advisory Group: <https://www.arcweb.com/blog/what-digitization-digitalization-digital-transformation> (accessed on 24 August 2021)

- Hardiyanto, Y. (2020, December 17). *Menghitung Net Profit Margin (NPM) dan Manfaatnya Bagi Investor*. Retrieved from Big Alpha: <https://bigalpha.id/news/menghitung-net-profit-margin-npm-dan-manfaatnya-bagi-investor>
- Hariyanti, E., Werdiningsih, I., & Surendro, K. (2011). Model Pengembangan Dashboard Untuk Monitoring dan Evaluasi Kinerja Perguruan Tinggi. *Jurnal Ilmiah Teknologi Informasi Vol. 9 No. 1*, 13-20.
- Harrington, H. J. (1991). *Business Process Improvement: The Breakthrough Strategy for Total Quality, Productivity, and Competitiveness*. San Jose: McGraw-Hill, Inc.
- Heale, R., & Twycross, A. (2015). Validity and Reliability in Quantitative Studies. *Evid Based Nurse*, 66-67, doi: 10.1136/eb-2015-102129.
- Hendryadi. (2017). Validitas Isi: Tahap Awal Pengembangan Kuesioner. *Jurnal Riset Manajemen dan Bisnis (JRMB) Fakultas Ekonomi UNIAT Vol. 2 No. 2*, 169 - 178.
- Hidayat, A. (2017, Desember 16). *Cara Hitung Rumus Slovin Besar Sampel*. Retrieved from Statistikian: <https://www.statistikian.com/2017/12/hitung-rumus-slovin-sampel.html> (accessed on 31 July 2021)
- Ind, N. (2013). The Meanings of Co-Creation. *European Business Review* 25 (1).
- Intel. (n.d.). *Hukum Moore Selama Lebih dari 50 Tahun*. Retrieved from Intel: <https://www.intel.co.id/content/www/id/id/silicon-innovations/moores-law-technology.html> (accessed on 21 September 2021)
- Jaishi, M., Kafle, K., Subedi, R., Khanal, A., Poudel, A., & Poudel, R. (2018). Developing Tools for Measuring Perception on Climate Change and its Impact on Insect-Pests of Major Staple Food Crops. *Journal of the Institute of Agriculture and Animal Science* 35, 29-38.
- Kelas Pintar. (2020, Agustus 17). *Apa yang Dimaksud Teknologi Digital?* Retrieved from Kelas Pintar: <https://www.kelaspintar.id/blog/edutech/apa-yang-dimaksud-teknologi-digital-6587/> (accessed on 24 August 2021)
- Kementerian ATR/ BPN. (2016). *Peraturan Menteri Agraria dan Tata Ruang/ Kepala Badan Pertanahan Nasional Republik Indonesia Nomor 33 Tahun 2016 Tentang Surveyor Kadaster Berlisensi*. Retrieved from BPHN: <http://www.bphn.go.id/data/documents/16pmatr033.pdf> (accessed on 1 August 2021)
- Kementerian ATR/ BPN. (2016). *Peraturan Menteri Agraria dan Tata Ruang/ Kepala Badan Pertanahan Nasional Republik Indonesia Nomor 35 Tahun 2016 Tentang Percepatan Pelaksanaan Pendaftaran Tanah Sistematis Lengkap*. Retrieved from BPHN: <http://www.bphn.go.id/data/documents/16pmatr035.pdf> (accessed on 1 August 2021)
- Kementerian ATR/ BPN. (2020, Oktober 7). *Kementerian ATR/BPN Kejar Realisasi PTSL Tahun 2020*. Retrieved from Kementerian ATR/ BPN:

<https://www.atrbpn.go.id/?menu=baca&kd=Wwvd4EyrQoM5HHyT7ztD/baWtcwSfg80Gz6e00mbBP3iRnJIKe04VKucKyKuGTA> (accessed on 23 July 2021)

- Kementerian ATR/ BPN. (2021, Maret 23). *Dengar Pendapat dengan DPR RI, Kementerian ATR/BPN: Transformasi Digital Dilaksanakan dengan Saksama*. Retrieved from Kementerian ATR/ BPN: <https://www.atrbpn.go.id/?menu=baca&kd=PRh4Yr8CKZxXR6qVeJeWfrkaltuq5ARzWxEgkKRNic8Ox1BK1RAsDaM+R0GgJikw> (accessed on 23 July 2021)
- Kenny. (2020). *Penilaian Kesiapan Migrasi Layanan PT. Satu Persen Edukasi Menuju Aplikasi Mobile*. Bandung: Institut Teknologi Bandung.
- Kho, B. (2018, April 18). *Pengertian Rekrutmen (Recruitment) dan Sumber-sumber Rekrutmen*. Retrieved from Ilmu Manajemen Industri: <https://ilmumanajemenindustri.com/pengertian-rekrutmen-recruitment-metode-sumber-rekrutmen/> (accessed on 24 August 2021)
- KJSKB Lalu Akhmad Farhan. (2020, October 6). *Profil KJSKB Lalu Akhmad Farhan*. Retrieved from KJSKB Lalu Akhmad Farhan: kjskblaf.com
- KOMINFO. (2018, April 4). *Program PTSL Pastikan Penyelesaian Sertifikasi Lahan Akan Sesuai Target*. Retrieved from KOMINFO: https://kominfo.go.id/content/detail/12924/program-ptsl-pastikan-penyelesaian-sertifikasi-lahan-akan-sesuai-target/0/artikel_gpr (accessed on 23 July 2021)
- Libarikian, A. (2019). *Digital Transformation Strategy: McKinsey Leap and Business Building - CxOTalk*. (M. Krigsman, Interviewer)
- M. A. (n.d.). *Kepala Badan Pertanahan Nasional*. Retrieved from Badan Pembinaan Hukum Nasional: <http://www.bphn.go.id/data/documents/16pmatr033.pdf> (accessed on 21 September 2021)
- M. Q, .. P. (1987). *Qualitative Research Evaluation Methods*. California: Sage Publishers.
- Malhotra, N. K., & Birks, D. F. (2007). *Marketing Research: An Applied Approach*. Harlow: Prentice Hall Inc.
- Malik, S. (2005). *Enterprise Dashboards - Design and Best Practices for IT*. John Wiley & Sons, Inc. .
- Malik, S. (2005). *Enterprise Dashboards: Design and Best Practices for IT*. John Wiley & Sons, Inc.
- Marković, M. R. (2008). Managing the organizational change and culture in the age of globalization. *Journal of Business Economics and Management*, 3-11.
- Matell, M. S., & Jacoby, J. (1972). Is There An Optimal Number of Alternatives for Likert-scale Items? Effects of Testing Time and Scale Properties. *Journal of Applied Psychology*, 56(6), 506-509, doi: 10.1037/h0033601.

- McKinsey & Co. (2021, Oktober 29). *Unlocking Success in Digital Transformations*. Retrieved from McKinsey & Company: <https://www.mckinsey.com/business-functions/organization/our-insights/unlocking-success-in-digital-transformations> (accessed on 24 August 2021)
- Morgan, B. (2017, Oktober 31). *The State Of Customer Experience Study 2017*. Retrieved from Forbes: <https://www.forbes.com/sites/blakemorgan/2017/10/31/the-state-of-customer-experience-study-2017/?sh=67e475842ae4> (accessed on 24 August 2021)
- Muhammad, A. (2020). *Perancangan Perbaikan Proses Bisnis Inbound dan Outbound pada Divisi Fulfillment PT Tokopedia*. Bandung: Institut Teknologi Bandung.
- Nadler, J. T., Weston, R., & Voyles, E. C. (2015). Stuck In The Middle: The Use and Interpretation of Mid-Points in Items on Questionnaires. *The Journal of General Psychology*, 71-89, doi:10.1080/00221309.2014.994590.
- Nieto-Rodriguez, A. (2016, Desember 13). *How to Prioritize Your Company's Projects*. Retrieved from Harvard Business Review: <https://hbr.org/2016/12/how-to-prioritize-your-companys-projects> (accessed on 31 July 2021)
- Noor, Z. A. (2020). *Model Penerimaan Teknologi Aplikasi Si Bandar Pada Tahap Pre-Use*. Bandung: Institut Teknologi Bandung.
- Nugraha, D. (2020, October 1). *Pengertian Cash Ratio dan Cara Praktis Untuk Kalkulasinya Untuk Bisnis Anda*. Retrieved from Paper: <https://www.paper.id/blog/finansial-umkm/pengertian-cash-ratio/> (accessed on 21 September 2021)
- Ong, C. F. (2021). *Digitize the Core Part 1*. Retrieved from Coursera: <https://www.coursera.org/learn/bcg-uva-darden-digital-transformation/lecture/AJlL5/digitize-the-core-part-i> (accessed on 22 August 2021)
- O'Reilly, C. (1989). Corporations, Culture, and Commitment: Motivation and Social Control in Organizations. *California Management Review Vol: 31 Issue: 4*, 9-25, doi: 10.2307/41166580.
- Overby, S. (2019, Desember 9). *Digital Transformation Dream Teams: 8 People You Need*. Retrieved from The Enterprises Project: <https://enterpriseproject.com/article/2019/12/digital-transformation-teams-8-key-roles>
- Patton, M. Q. (1987). *Qualitative Research Evaluation Methods*. California: Sage Publishers.
- Rahmah, N. (2021). *Value Chain: Pengertian, Tujuan, Jenis, dan Contoh Metodenya*. Retrieved from Pengadaan: <https://www.pengadaanbarang.co.id/2020/11/analisis-value-chain.html> (accessed on 24 August 2021)
- Reis, J., Amorim, M., Melão, N., & Matos, P. (2018). Digital Transformation: A Literature Review and Guidelines for Future Research. *World Conference on Information Systems*

- and Yechologies* (pp. 411-421). Cham: Springer, doi: 10.1007/978-3-319-77703-041. Retrieved from https://www.researchgate.net/publication/323994364_Digital_Transformation_A_Literature_Review_and_Guidelines_for_Future_Research
- Rossmann, A. (2016). *Digitale Reifegradmodelle: Theoretische Grundlagen und Praktische Anwendung*. Saarbrücken: IMC Information multimedia communication AG.
- Rossmann, A. (2018). Digital Maturity: Conceptualization and Measurement Model. *Thirty Ninth International Conference on Information Systems* (pp. 1-9). San Fransisco: Association for Information System (AIS).
- Saunders, M., Lewis, P., & Thornhill, A. (2016). *Research Methods for Business Students 7th Edition*. Harlow: Pearson.
- Sherif, K., & Menon, N. (2004). Managing Technology and Administration Innovations: Four Case Studies on Software Reuse. *Journal of the Association for Information Systems* 5(7), 247-281, doi:10.17705/1jais.00053.
- Sibuea, H. Y. (2011). Arti Penting Pendaftaran Tanah Untuk Pertama Kali. *Jurnal Negara Hukum*, doi: 10.22212/jnh.v2i2.218.
- Stamelos, I. G., & Sfetsos, P. (2007). *Agile Software Development Quality Assurance*. London: Idea Group Inc.
- Stolterman, E., & Fors, A. C. (2004). Information Technology and the Good Life. In K. B., T. D.P., W. D., W.-H. A.T., & D. J.I., *Information Systems Research* (pp. 687-692, doi: 10.1007/1-4020-8095-6_45). Boston: IFIP International Federation for Information Processing.
- Suhaiela, B., & Alexander, H. B. (2020, Agustus 10). *Penting, Dua Alasan Mengapa Tanah Perlu Disertifikatkan*. Retrieved from Kompas.com: <https://properti.kompas.com/read/2020/08/10/155407421/penting-dua-alasan-mengapa-tanah-perlu-disertifikatkan#:~:text=Pertama%2C%20agar%20tanah%20masyarakat%20memiliki,mengurangi%20konflik%20pertanahan%20yang%20terjadi.&text> (accessed on 23 July 2021)
- Sullivan, G. M., & Anthony R. Artino, J. (2013). Analyzing and Interpreting Data From Likert-Type Scales. *Journal of Graduate Medical Education* 5(4), 541-542, doi: 10.4300/JGME-5-4-18.
- The Mind Tools Team. (2021). *Porter's Value Chain - Understanding How Value Is Created Within Organizations*. Retrieved from MindTools: https://www.mindtools.com/pages/article/newSTR_66.htm (accessed on 24 August 2021)

- Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N., & Haenlein, M. (2021). Digital transformation: A Multidisciplinary Reflection and Research Agenda. *Journal of Business Research*, 889-901, doi: 10.1016/j.jbusres.2019.09.022.
- Walter, C. (2005, Agustus 1). *Kryder's Law*. Retrieved from Scientific American: <https://www.scientificamerican.com/article/kryders-law/> (accessed on 23 July 2021)
- Westerman, G., Bonnet, D., & McAfee, A. (2014). *Leading Digital: Turning Technology Into Business*. Retrieved from Harvard Business Review Press.
- Westerman, G., Calm ejane, C., Bonnet, D., Ferraris, P., & McAfee, A. (2011). *Digital Transformation*. MIT Center for Digital Business and Capgemini Consulting.

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