

## The Effects of Lean and Agile Management on Work Effectiveness and Efficiency: A Case Study of Administration Public Service Department in Sumedang, Indonesia

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**Abstract:** *The purpose of this study is to determine whether there is an effect between lean and agile management towards work effectiveness and work efficiency and their impact on service performance. This study uses a quantitative method with the number of respondents as many as 50 employees. To obtain the data, the structural approach to Equation Model (SEM) is used. The results show that lean and agile management had a significant positive effect on service performance, work effectiveness, and work efficiency at the Sumedang Civil Service Department.*

**Keywords:** *lean and agile management, work efficiency, service performance, work effectiveness*

### Introduction

Public services are all activities in the context of fulfilling basic needs in accordance with the basic rights of every citizen and resident of an item, service and or administrative service provided by service providers related to the public interest (Janet Vinzant Denhardt, 2016). Public service providers are institutions and public service officers, both Regional Governments and Regional Owned Enterprises that provide public services. Public Service Recipients are individuals or groups of people and or legal entities that have rights and obligations to a public service (Janenova & Kim, 2016).

The function of public services can be seen in terms of quantity and quality. In terms of quantity, it can be done by

increasing the number of people who can be served, and increasing service time, while the quality side can be done by reducing service errors, speed of service, and ease of service (Batley & Mcloughlin, 2015). This function must continue to be improved so that the rights of the people (community) can be fulfilled.

Public services are the most visible measure of government performance. The public can directly assess the government's performance according to the quality of public services received, because the quality of public services is felt by people from all walks of life, where success in building public service performance in a professional, effective, efficient, and accountable manner will raise the positive image of the Sumedang

Population and Civil Registration Department (Dispendukcapil) in the eyes of its citizens (Agostino & Arnaboldi, 2017).

From the description above, it is clear that the government apparatus is needed to fulfill public services in order to ensure the smoothness and integration of tasks in the implementation, the functions of government administration in a reliable, professional, efficient, and effective state administration system; where the scope of public services provided by the government apparatus includes serving, nurturing, cultivating initiatives, and the active role of the community in development. Therefore, the needs can be effective and efficient in the service performance of the Sumedang Population and Civil Registration Department (Dispendukcapil) service.

Employee work effectiveness is the beginning of organizational success because individual's effectiveness will result in group level effectiveness. The effectiveness of this group moves in an organization that has a common goal or can be said to be the level of organizational effectiveness (DeNisi & Smith, 2014). The effectiveness of employee performance may not be far from performance management to achieve success in organizations or individuals.

Efficiency is an effort to achieve maximum performance by using the available possibilities (materials, machines, and humans) in the shortest possible time, in real conditions (as long as the situation can change) in real situation or condition (as long as the condition can change) without disturbing the balance between the factors of purpose, tools, effort, and time (Ortiz-Catalan et al., 2014).

In order to achieve an effective and efficient level of service, it is necessary to have good organizational management (Hamsinah et al., 2019). This requires good organizational management, one of which is lean and agile management. Lean management is a concept to do more and more with less and less human effort, less equipment, less time, less space, to fulfill what consumers want which aims to improve the quality, safety, and efficiency of a service process. Agile is a project management process that divides a project into smaller tasks and stages. This segregation of jobs allows agile teams to include stakeholder input, reevaluate work, and take an iterative approach at each stage of the process. Based on the description above, the researcher is interested in further researching the Effect of Lean and Agile Management on Work Effectiveness and Efficiency and Its Impact on Service Performance of the Sumedang Population and Civil Registration Department (Dispendukcapil).

### **Service Performance**

Performance is a general term used for part or all of the actions or activities of an organization in a period with reference to a number of standards such as past or projected costs, on the basis of efficiency, accountability or management accountability and the like (Banker et al., 2018). Service is basically an activity or benefit offered by one party to another, essentially intangible, and does not result in ownership of anything; the production process may also not be associated with a physical product (Andrii, 2015). However, according to Ding & Keh (2017), service is an intangible product, lasts for a while, and can be felt or experienced. It means that

service is a product that has no form so there is no form that can be owned, and lasts for a moment or does not last long, but can be experienced and felt by service recipients. From this understanding, service can be interpreted as an activity provided to help prepare and manage whether it is in the form of goods or services from one party to another (Brandesen & Honingh, 2016).

The definition of public service is based on the Decree of the Minister for Empowerment of State Apparatus No. 81 Year 1993 refined by the Decree of the Minister of Empowerment of State Apparatus No. 63 Year 2003 which states "Public services are all forms of services carried out by central, regional, and regional government agencies, or regionally owned enterprises, or state-

owned enterprises in the form of goods and services, both in the context of efforts to meet the needs of the community and in the context of implementation of the provisions of laws and regulations".

The concept of performance measurement in public sector organizations is aimed at helping public managers assess the achievement of a strategy through financial and non-financial measuring tools (Adams et al., 2014). Public sector performance measurement is carried out to improve government performance, resource allocation and decision making, and realize public accountability and improve customer communication. Indicators of service performance variables (Speklé & Verbeeten, 2014) are in the following table.

**Table 1. Indicator of service performance**

<b>Indicator</b>	<b>Aspect</b>
<b>Requirement</b>	1. The services provided by the Population Service are in accordance with the applicable requirements.
<b>Procedure</b>	2. The services provided by the Population Service are in accordance with applicable procedures.
<b>Service Time</b>	3. The waiting time to get service is under 30 minutes
<b>Fees</b>	4. The services provided are free of charge
<b>Product Specification</b> <b>Service Type</b>	5. The service officers explain in detail the services needed
<b>Executor Competence</b>	6. The ability of officers when providing services
<b>Executor Behavior</b>	7. The courtesy of officers when providing services
<b>Service Notice</b>	8. The ability and obligation of officers to carry out services in accordance with service standards
<b>Complaint Handling</b>	9. The officers provide complaint handling and follow-up

**Lean and Agile Management**

Lean is a concept to do more and more with less and less human effort,

equipment, time, and space in fulfilling what consumers want. Lean management is an operational approach in

organizational management (Parkhi, 2019). Another opinion states that lean is a management system and methodology that aims to improve the quality, safety, and efficiency of a service process (Khorasani et al., 2020). Lean management is driven by the philosophy of respect to people and continuous improvement (Rosin et al., 2020). This effort is carried out systematically with existing resources, focusing on customer value and removing existing waste (Lenarduzzi et al., 2021). The ultimate goal is to get process speed, quality improvement and efficiency (Mousavi Isfahani et al., 2019).

Agile is a project management process that divides a project into smaller tasks and stages (Nabass & Abdallah, 2019). This segregation of jobs allows Agile teams to include stakeholder input, reevaluate work, and take an iterative approach at each stage of the process. One of the most common approaches in Agile involves dividing work into short developmental phases, known as sprints (Ghezzi & Cavallo, 2020).

According to Nabass & Abdallah (2019), Lean and Agile Management is supported by 5 dimensions, namely:

- a. structure & Integration,
- b. coordination,
- c. planning,
- d. resort Allocation, and
- e. communication.

### **Work Effectiveness**

The effectiveness of this work is the ability of the company/organization in carrying out its duties and functions

without any pressure in the process (Kröll et al., 2017; Simon, 2018). Kröll et al. (2017) stated that the effectiveness of the work is also defined as a link between goals and outputs; the greater the share of output in achieving goals, the more effective an organization and/or program and/or activity is. Therefore, it can be concluded that work effectiveness is a measure of how far the target has been achieved (Schroeder et al., 2019). There are a number of factors that can have an influence on the effectiveness of work including 1) time, 2) task, 3) productivity, 3) motivation, 4) job evaluation, 5) supervision, 6) environment, and 7) facilities and infrastructure.

Work effectiveness has an approach that can be used as a measure of work effectiveness namely the source approach, process approach, and target approach (Erwinsyah, 2017). This source approach is a measurement of effectiveness through input. In this approach, it focuses on the success of the company in obtaining the right physical or non-physical resources for the company (Wataya & Shaw, 2019). The process approach is an approach to be able to measure how far the effectiveness of the implementation of the program is from the company's mechanism. The target approach is an approach that measures where the focus of attention is generated as well as the company's success in getting the results according to plan (Hietschold et al., 2014). Indicator and dimension to measure work effectiveness is in the following table.

**Table 2. Indicator and Dimension of Work Effectiveness**

<b>Dimension</b>	<b>Indicator</b>
<b>Involvement</b>	1. Transparency of the objectives to be obtained
	2. Transparency of strategy to achieve goals
	3. Strong analysis and policy formulation mechanisms
<b>Consistency</b>	4. Detailed planning
	5. Making the appropriate program
	6. Facilities and infrastructure are available
<b>Adaptability</b>	7. Effective and efficient implementation
	8. Implementation of monitoring and control system

**Work Efficiency**

Efficiency is an effort to achieve maximum performance by using the available possibilities (materials, machines, and humans) in the shortest possible time, in real conditions (as long as the situation can change) in real situation or condition (as long as the condition can change) without disturbing the balance between the factors of purpose, tools, effort, and time (Pacaux-Lemoine et al., 2017).

The definition of efficiency according to Schmalz et al., (2019) is the best comparison between the results obtained with the activities carried out. Working with efficiency is working with the least possible movement, effort, time, and fatigue. By using a simple way of working, using tools that can help speeding up task completion and save motion and energy; this type of person can be said to work efficiently and obtain satisfactory results.

Work efficiency indicators can be seen from the increase in time savings that show good results, work by following established effective and efficient

procedures or working methods, compliance, obedience, neatness, and accuracy of work, satisfactory volume and quality of work, attitude on the way, etc.

**Methods**

The research method used in this study is a quantitative method. Quantitative research methods are designed to test existing hypotheses. Quantitative methods are expressed as numbers obtained from measurements using a variable scale in research. Respondents in this study were 50 employees (Sugiono, 2016).

The data analysis used a structural approach to the Equation Model (SEM) assisted by the smart PLS application. The stages of data analysis in this study are explained in the following.

1. The measurement model stage. This stage is carried out to test the validity and reliability of each indicator. The validity test in this study uses convergent validity by correlating the item score (component score) with the construct score produces the loading factor value. The instrument is

declared valid if it has a loading factor value of  $> 0.6$ . After conducting the validity test, a reliability test is carried out to determine the reliability of the instrument (Petruzzo et al., 2017). Measurement of the level of reliability in this study uses alpha coefficient or Cronbach alpha and composite reliability; the item is declared reliable if it has a coefficient value  $> 0.6$ .

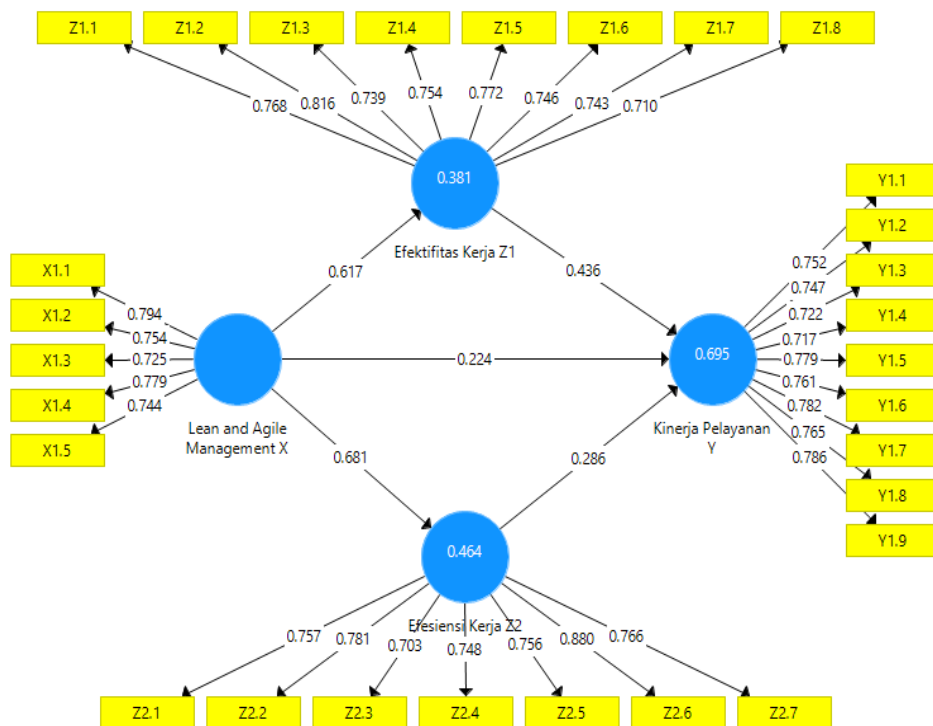
2. Structural Model Test Stage. This stage is a hypothesis testing stage which aims to determine whether there is an influence between variables or a correlation between constructs measured using SmartPLS. Structural or inner model is measured by looking at the r-square which shows how much influence between

variables in the model. Then, proceed with the estimation of the path coefficient obtained by the bootstrapping procedure with a value that is considered significant if the t-statistics is greater than 1.96, with a score of p-values is  $< 0.05$ ; while to see the direction of the effect, the Beta value coefficient is used.

**Results and Discussion**

The research method used in this study is a quantitative method. Quantitative research methods are designed to test existing hypotheses. The data analysis used a structural approach to the Equation Model (SEM) assisted by the smart PLS application.

**Figure 1. Test Result**



**Test Outer Model**

**Validity Test Results**

Validity test serves to measure the validity of the questionnaire. In this study, validity

testing is carried out using convergent validity and AVE. The instrument is declared valid if the AVE value is  $> 0.05$  and the outer loading value is ( $> 0.7$ ).

**Table 3. Validity Rest Result**

<b>Variable</b>	<b>Indicator Code</b>	<b>AVE</b>	<b>Outer Loading</b>	<b>Result</b>
<b>Lean and Agile Management (X)</b>	X1.1	0.577	0.794	Valid
	X1.2		0.754	Valid
	X1.3		0.725	Valid
	X1.4		0.779	Valid
	X1.5		0.744	Valid
<b>Service Performance (Y)</b>	Y1.1	0.573	0.752	Valid
	Y1.2		0.747	Valid
	Y1.3		0.722	Valid
	Y1.4		0.717	Valid
	Y1.5		0.779	Valid
	Y1.6		0.761	Valid
	Y1.7		0.782	Valid
	Y1.8		0.765	Valid
	Y1.9		0.786	Valid
<b>Work Effectiveness (Z1)</b>	Z1.1	0.572	0.768	Valid
	Z1.2		0.816	Valid
	Z1.3		0.739	Valid
	Z1.4		0.754	Valid
	Z1.5		0.772	Valid
	Z1.6		0.746	Valid
	Z1.7		0.743	Valid
	Z1.8		0.710	Valid
<b>Work Efficiency (Z2)</b>	Z2.1	0.595	0.757	Valid
	Z2.2		0.781	Valid
	Z2.3		0.703	Valid
	Z2.4		0.748	Valid
	Z2.5		0.756	Valid
	Z2.6		0.880	Valid
	Z2.7		0.766	Valid

In this study, researchers used two types of reliability tests which are the Cronbach Alpha test and the Composite Reliability test. Cronbach Alpha measures the lowest value (lowerbound) reliability. The data is declared good if the data has a

Cronbach alpha value > 0.6. Meanwhile, composite reliability measures the actual reliability value of a variable. The data is declared to have high reliability if it has a composite reliability score > 0.7.

**Table 4. Cronbach Alpha and Composite Reliability Test Result**

Variable	Cronbach Alpha	Composite Reliability
<b>Lean and Agile Management (X)</b>	0.817	0.872
<b>Service Performance (Y)</b>	0.907	0.923
<b>Work Effectiveness (Z1)</b>	0.893	0.914
<b>Work Efficiency (Z2)</b>	0.886	0.911

Based on the calculations carried out, it is found that all items of the instrument are reliable with all variables having a Cronbach Alpha score of > 0.6 and Composite Reliability of > 0.7.

**Inner Model Test**

Coefficient determination (R-Square) is used to measure how much endogenous variables are influenced by other variables. Based on data analysis conducted through the use of the smartPLS program, the R-Aquare value was obtained as shown in the following table.

**Table 5. Inner Model Test Result**

	R Square	R Square Adjusted
<b>Service Performance (Y)</b>	0.695	0.685
<b>Work Effectiveness (Z1)</b>	0.381	0.375
<b>Work Efficiency (Z2)</b>	0.464	0.458

**Hypothesis Test**

**Table 6. Hypothesis Test Result**

	Original Sample (O)	T Statistics ( O/STDEV )	P Values
<b>Lean and Agile Management (X) -&gt; Service Performance (Y)</b>	0.224	1.981	<b>0.048</b>
<b>Lean and Agile Management (X) -&gt; Work Effectiveness (Z1)</b>	0.617	8.254	<b>0.000</b>
<b>Lean and Agile Management (X) -&gt; Work Efficiency (Z2)</b>	0.681	9.816	<b>0.000</b>
<b>Work Effectiveness (Z1) -&gt; Service Performance (Y)</b>	0.436	4.865	<b>0.000</b>
<b>Work Efficiency (Z2) -&gt; Service Performance (Y)</b>	0.286	3.496	<b>0.001</b>



The results of testing the first hypothesis, which is lean and agile management toward service performance, obtained a positive beta score (0.200) with a t-statistic of 1.981 ( $p > 1.96$ ) and p-values of 0.048 ( $p < 0.05$ ) resulting a significant positive effect where lean and agile management can improve service performance. This supports the research conducted by (Hallgren & Olhager, 2009) which found that lean and agile have an effect on service performance in the manufacturing sector. This is also supported by (Cheung et al., 2018) which found that lean and agile management improve supply and performance in the information technology sector. Lean and agile management is a combination of two methodologies. Lean is a management system and methodology that aims to improve the quality, safety, and efficiency of a service process, while agile management is a project management process that divides a project into smaller tasks and stages. Lean management effort is carried out systematically with existing resources, focusing on customer value and removing existing waste (Lenarduzzi et al., 2021). The ultimate goal is to get process speed, quality improvement and efficiency (Mousavi Isfahani et al., 2019)

The results of testing the second hypothesis, which is lean and agile management toward work effectiveness, obtained a positive beta score (0.200) with a t-statistic of 8.254 ( $p > 1.96$ ) and p-values of 0.000 ( $p < 0.05$ ) resulting a significant positive effect where lean and agile management can increase work effectiveness. This supports the opinion of (Stern, 2020) that lean and agile management can improve a project better,

faster and more cost-effectively. There are a number of factors that can or can have an influence on the effectiveness of work including 1) time, 2) task, 3) productivity, 3) motivation, 4) job evaluation, 5) supervision, 6) environment, and 7) facilities and infrastructure. The purpose of Lean and Agile is about contributing to overall citizen satisfaction. This is accomplished by optimizing value and by delivering services faster (Stern, 2020). Therefore, in this case, the application of lean and agile management is a solution to increase work effectiveness.

The results of testing the third hypothesis, which is lean and agile management toward work efficiency, obtained a positive beta score (0.200) with a t-statistic of 9.816 ( $p > 1.96$ ) and p-values of 0.000 ( $p < 0.05$ ) resulting a significant positive effect where lean and agile management can improve work efficiency. In this study, indicators of work efficiency include increasing time savings with good results, working by following established effective and efficient procedures or working methods, compliance, obedience, neatness and accuracy of work, satisfactory volume and quality of work, attitude on the job, and so on. Therefore, the application of lean and agile management is a solution to increase work efficiency.

The results of testing the fourth hypothesis, which is work effectiveness toward service performance, obtained a positive beta score (0.200) with a t-statistic of 4.865 ( $p > 1.96$ ) and p-values of 0.000 ( $p < 0.05$ ) resulting a significant positive effect where work effectiveness can increase work efficiency. This is in line with research conducted by Simon (2018)

where employee work effectiveness has a positive and significant relationship to the quality of public services.

The results of testing the fifth hypothesis, which is work efficiency toward service performance, obtained a positive beta score (0.200) with a t-statistic of 3.496 ( $p > 1.96$ ) and p-values of 0.001 ( $p < 0.05$ ) resulting in a significant positive effect where work efficiency can increase service performance. This is in line with research conducted by SYAM, (2020) which states that there is a significant effect of work efficiency on employee performance.

### Conclusion

According to the research and discussion that has been carried out, it can be concluded that Lean and agile management have a significant positive effect on service performance, work effectiveness, and work efficiency. There are a number of factors that can have an influence on the effectiveness of work including 1) time, 2) task, 3) productivity, 3) motivation, 4) job evaluation, 5) supervision, 6) environment, and 7) facilities and infrastructure. In addition, work effectiveness and efficiency also have a significant positive effect on service performance.

### About Author

**Arip Rahman Sudrajat** is a Lecturer of FISIP Universitas Sebelas April

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### References

- Adams, C. A., Muir, S., & Hoque, Z. (2014). Measurement of sustainability performance in the public sector. *Sustainability Accounting, Management and Policy Journal*. <https://doi.org/10.1108/SAMPJ-04-2012-0018>
- Agostino, D., & Arnaboldi, M. (2017). Social media data used in the measurement of public services effectiveness: Empirical evidence from Twitter in higher education institutions. *Public Policy and Administration*. <https://doi.org/10.1177/0952076716682369>
- Andrii, V. (2015). The Essence of Intangible Service as a Special Theoretical Category in the Modern Post-industrial Economics System. *Procedia Economics and Finance*. [https://doi.org/10.1016/s2212-5671\(15\)00999-5](https://doi.org/10.1016/s2212-5671(15)00999-5)
- Banker, R. D., Byzalov, D., Fang, S., & Liang, Y. (2018). Cost Management Research. *Journal of Management Accounting Research*. <https://doi.org/10.2308/jmar-51965>
- Batley, R., & Mcloughlin, C. (2015). The Politics of Public Services: A Service Characteristics Approach. *World Development*. <https://doi.org/10.1016/j.worlddev.2015.05.018>
- Brandsen, T., & Honingh, M. (2016). Distinguishing Different Types of Coproduction: A Conceptual Analysis Based on the Classical Definitions.

- Public Administration Review.  
<https://doi.org/10.1111/puar.12465>
- Cheung, W., Chiang, A.-H., Sambamurthy, V., & Setia, P. (2018). Lean vs. Agile Supply Chain: The Effect of IT Architectures on Supply Chain Capabilities and Performance. *Pacific Asia Journal of the Association for Information Systems*.  
<https://doi.org/10.17705/1pais.10103>
- DeNisi, A., & Smith, C. E. (2014). Performance Appraisal, Performance Management, and Firm-Level Performance: A Review, a Proposed Model, and New Directions for Future Research. *Academy of Management Annals*.  
<https://doi.org/10.1080/19416520.2014.873178>
- Ding, Y., & Keh, H. T. (2017). Consumer reliance on intangible versus tangible attributes in service evaluation: the role of construal level. *Journal of the Academy of Marketing Science*.  
<https://doi.org/10.1007/s11747-017-0527-8>
- Erwinsyah, A. (2017). Manajemen kelas dalam meningkatkan efektifitas proses belajar mengajar. *TADBIR: Jurnal Manajemen Pendidikan Islam*.
- Ghezzi, A., & Cavallo, A. (2020). Agile Business Model Innovation in Digital Entrepreneurship: Lean Startup Approaches. *Journal of Business Research*.  
<https://doi.org/10.1016/j.jbusres.2018.06.013>
- Hallgren, M., & Olhager, J. (2009). Lean and agile manufacturing: External and internal drivers and performance outcomes. *International Journal of Operations and Production Management*.  
<https://doi.org/10.1108/01443570910993456>
- Hamsinah, Sjahrudin, H., & Gani, M. (2019). Jurnal organisasi dan manajemen. *Jurnal Organisasi Dan Manajemen*.
- Hietschold, N., Reinhardt, R., & Gurtner, S. (2014). Measuring critical success factors of TQM implementation successfully-a systematic literature review. *International Journal of Production Research*.  
<https://doi.org/10.1080/00207543.2014.918288>
- Janenova, S., & Kim, P. S. (2016). Innovating Public Service Delivery in Transitional Countries: The Case of One Stop Shops in Kazakhstan. *International Journal of Public Administration*.  
<https://doi.org/10.1080/01900692.2015.1064445>
- Janet Vinzant Denhardt, R. B. D. (2016). New Public Service: serving not steering. In *American National Standard for Information Sciences*.
- Khorasani, S. T., Cross, J., & Maghazei, O. (2020). Lean supply chain management in healthcare: a systematic review and meta-study. In *International Journal of Lean Six Sigma*.  
<https://doi.org/10.1108/IJLSS-07-2018-0069>
- Kröll, C., Doebler, P., & Nüesch, S. (2017). Meta-analytic evidence of the effectiveness of stress management at work. *European Journal of Work and Organizational Psychology*.  
<https://doi.org/10.1080/1359432X.2017.1347157>
- Lenarduzzi, V., Besker, T., Taibi, D., Martini, A., & Arcelli Fontana, F. (2021). A systematic literature review on Technical Debt prioritization: Strategies, processes, factors, and

- tools. *Journal of Systems and Software*.  
<https://doi.org/10.1016/j.jss.2020.110827>
- Mousavi Isfahani, H., Tourani, S., & Seyedin, H. (2019). Lean management approach in hospitals: a systematic review. In *International Journal of Lean Six Sigma*.  
<https://doi.org/10.1108/IJLSS-05-2017-0051>
- Nabass, E. H., & Abdallah, A. B. (2019). Agile manufacturing and business performance: The indirect effects of operational performance dimensions. *Business Process Management Journal*.  
<https://doi.org/10.1108/BPMJ-07-2017-0202>
- Ortiz-Catalan, M., Haˆkansson, B., & Braˆnemark, R. (2014). An osseointegrated human-machine gateway for long-term sensory feedback and motor control of artificial limbs. *Science Translational Medicine*.  
<https://doi.org/10.1126/scitranslmed.3008933>
- Pacaux-Lemoine, M. P., Trentesaux, D., Zambrano Rey, G., & Millot, P. (2017). Designing intelligent manufacturing systems through Human-Machine Cooperation principles: A human-centered approach. *Computers and Industrial Engineering*.  
<https://doi.org/10.1016/j.cie.2017.05.014>
- Parkhi, S. S. (2019). Lean management practices in healthcare sector: a literature review. *Benchmarking*.  
<https://doi.org/10.1108/BIJ-06-2018-0166>
- Petruzzo, A., Paturzo, M., Buck, H. G., Barbaranelli, C., D'Agostino, F., Ausili, D., Alvaro, R., & Vellone, E. (2017). Psychometric evaluation of the Caregiver Preparedness Scale in caregivers of adults with heart failure. *Research in Nursing and Health*.  
<https://doi.org/10.1002/nur.21811>
- Rosin, F., Forget, P., Lamouri, S., & Pellerin, R. (2020). Impacts of Industry 4.0 technologies on Lean principles. *International Journal of Production Research*.  
<https://doi.org/10.1080/00207543.2019.1672902>
- Schmalz, T., Schandlinger, J., Schuler, M., Bornmann, J., Schirrmeister, B., Kannenberg, A., & Ernst, M. (2019). Biomechanical and metabolic effectiveness of an industrial exoskeleton for overhead work. *International Journal of Environmental Research and Public Health*.  
<https://doi.org/10.3390/ijerph16234792>
- Schroeder, P., Anggraeni, K., & Weber, U. (2019). The Relevance of Circular Economy Practices to the Sustainable Development Goals. *Journal of Industrial Ecology*.  
<https://doi.org/10.1111/jiec.12732>
- Simon, J. (2018). PENGARUH EFEKTIVITAS KERJA PEGAWAI TERHADAP KUALITAS PELAYANAN PUBLIK DI KELURAHAN SIDORAME BARAT I KECAMATAN MEDAN PERJUANGAN. *Jurnal Publik Reform UND HAR MEDAN*.
- Spekle, R. F., & Verbeeten, F. H. M. (2014). The use of performance measurement systems in the public sector: Effects on performance. *Management Accounting Research*.  
<https://doi.org/10.1016/j.mar.2013.07.004>
- Stern, T. V. (2020). Lean and Agile Project Management: How to Make Any Project Better, Faster, and More Cost Effective. *Lean and Agile Project Management*.

Sugiono. (2016). Metode Penelitian Kuantitatif, kualitatif dan R&D. Bandung: Alfabeta.

SYAM, S. (2020). PENGARUH EFEKTIFITAS DAN EFISIENSI KERJA TERHADAP KINERJA PEGAWAI PADA KANTOR KECAMATAN BANGGAE TIMUR. Jurnal Ilmu Manajemen Profitability. <https://doi.org/10.26618/profitability.v4i2.3781>

Wataya, E., & Shaw, R. (2019). Measuring the value and the role of soft assets in smart city development. Cities.

