



A Systematic Literature Review of Performance Pyramids System Implementation in the Manufacture Industries

Hibarkah Kurnia^{1*}

¹Industrial Engineering Department, Mercu Buana University, Street Menteng Raya No 29, Jakarta 10340, Indonesia

ARTICLE INFORMATION

Article history:

Received: 17 February 2021

Revised: 1 March 2021

Accepted: 6 March 2021

Category: Review paper

Keywords:

Literature

Performance pyramid system

Manufacture industries

ABSTRACT

The prevailing literature and empirical studies on organizational performance management stress the increasing importance of non-financial performance measures and propose companies implement an integrated performance measurement system. The purpose of our research is to investigate the characteristics of performance measurement and management in various industries. This paper discusses the published literature related to the Performance Pyramids System (PPS), focusing on the latest progress in the 18 years, starting from 2002 until 2020. This paper involves the study review of 50 articles related to PPS implementation of available database search, including Google Scholar, Elsevier, Science Direct, and other publishers in the world. This literature review contains results from a variety of different perspectives. The perspective includes the industry's focus, the focus of the number of distribution by country, the year of publication, and the number of publishers. This is useful for all types of manufacturing industries to find solutions to problems. The paper also provides advantages for researchers next to add to the literature. The aims of this study are: (i) to identify the most discussed approaches in the literature to evaluate the organizational performance, and (ii) to carry out a diagnosis of how small and medium enterprises with economic activity in several countries measure and operationalize the evaluation of their performance. To meet the study's objectives, we analyzed published studies in scientific journals and conducted twelve interviews in SMEs. The results indicate that, in addition to the majority of the studied organizations not having a formal process of their strategy, they also do not measure their products in an integrated system that would allow them to evaluate according to their strategic goals

*Corresponding Author

Hibarkah Kurnia

E-mail: hibarkah@gmail.com

This is an open-access article under the **CC-BY-NC** license.



1. INTRODUCTION

Performance Pyramid System (PPS) is an interrelated system of different performance variables controlled at various organizational levels. The performance pyramid objective links a corporate strategy with top-down (customer priority) objectives and bottom-up measurement. This performance measure includes four levels of goals that address the effectiveness of external organizations (left side of the pyramid) and inter-internal efficiency (right side of the pyramid). (Lynch and Cross (1992), n.d.) The performance pyramid is useful for describing how goals are communicated to the operational level and how the steps are conveyed back to a higher level. The main strength of PPS is its attempt to integrate company objectives with the companies operational performance. However, this approach does not provide an indicator for identifying essential understanding, nor does it explicitly apply the concept of continuous improvement.

(Folan & Browne, 2005) Inter-organizational performance measurement may be divided into the supply chain and extended enterprise performance measurement: the former relying solely on traditional logistics measures. Simultaneously, the latter incorporates the supply chain system's structural aspects and adds non-logistics perspectives to its measurement arena. Finally, the performance measurement literature's encroachment into the processes related to performance management is examined, and areas for future research are suggested. (Rethans et al., 2002) This paper aims to describe current views of the relationship between competence and performance and delineate some of the two areas' distinctions' implications to assess doctors in practice. (Liao et al., 2010) Even though many studies have addressed the importance of LO and the alleged relationship with competitiveness, the incoming impacts of knowledge have forced them to focus on the knowledge-intensive industry (KII). (Smith et al., 2010) Performance Measurement for Health System Improvement is an authoritative and practical guide for policymakers, regulators, patient groups, and researchers.

(Atieh et al., 2016) A warehouse management system on supply chain performance provides fewer resources effort, a more efficient and reliable inventory management system. The supply chain procedures carried out in the warehouse were reviewed before customizing software that can handle the necessary transactions. (Clardy, 2013)The purpose of a well-designed performance management system should be to channel and motivate employees to concentrate their energies on value-added performance. The extent to which an organization achieves this outcome depends on its performance management system's design and structure.

2. LITERATURE REVIEW

(Hachem & Elsayed, 2016)The investigated parameters relate to the outer skin surface geometry and the associated air cavity depth between this façade system's two skins. Two main geometrical designs are explored. A simple folded plate geometry - saw-tooth consists of a single fold and more complex folded-plate units based on pyramids. (Marques Godinho et al., 2017) The performance of our system was assessed through a comparative analysis of the state-of-the-art solutions. The results demonstrate that it is possible to have a very competitive solution based on standard workflows. (Djidjou-Demasse et al., 2017) Pyramiding strategies performed better only with slowly changing virus reservoir dynamics. Mosaics are more versatile than the pyramiding approach. We found that deploying a mosaic of three to five resistance genes generally provided effective disease control unless the epidemics were driven mostly by within-field infections. We considered the epidemiological and evolutionary mechanisms underlying the greater versatility of mosaics. (Kabeel et al., 2016) The accumulated distillate water productivity from the square pyramid solar stills decreases with an increase in the glass cover angle above the Latitude angle. The maximum accumulated distillate water productivity from the square pyramid solar stills occurs when the glass cover angle equal to the Latitude angle. (H.-H. Lin et al., 2013)Fabricated large-area (156 × 156 mm²)

subwavelength antireflection structure on poly-Si substrates could improve the solar cell efficiency reproducibly up to 16.27%, higher than 15.56% using wet etching. (Li et al., 2019) Feature Pyramid Network (WFPN) shows significant improvement over the traditional feature pyramids in several applications. Using WFPN in the Faster R-CNN system, the proposed method achieves better performance on the PASCAL detection benchmark. (T. Y. Lin et al., 2017) exploit the inherent multi-scale, pyramidal hierarchy of deep convolutional networks to construct feature pyramids with marginal extra cost. A top-down architecture with lateral connections is developed for building high-level semantic feature maps at all scales. (Abdullah et al., 2017) We proposed our SCS technique and modified the SLM technique to be applied in the diversity MIMO-OFDM system for PAPR and BER performance improvement.

3. RESEARCH METHOD

This paper's purpose of exploring more deeply the implementation of PPS in various industries. Learn to search and find several journals starting from the year until 2002 in all international publications. Studies carried out by men notice database famed, including Google Scholar, Elsevier, Science Direct, and other publishers. This paper's purpose of elaborating on knowledge about the

Performance Pyramids System in the industry, consider PPS as an organizational strategy and search for ways to get more insight into PPS. In doing a literature review, several steps must be executed so that the systematic and directed implementation The first step is to define the problem. At this stage, the writer is required to choose a topic that is following the topic taken in the manufacturing industry, not in the service sector. Questions must be written completely and accurately. Then the second step is looking for literature and journals. At this stage, the writer looks for literature relevant to the research and then looks for an overview of the research topic. After that, review according to topic based on research sources. The third step is to evaluate or identify the literature. Search results are sorted as case studies or industry focus theory, focus number of distribution by country, focus year of publication, and publishers' number. The data collected, analyzed, and the results are presented in graphical form. At this stage, look for the similarities and inequalities of the literature obtained. Then compare from various perspectives, then make a summary (summarize). The fourth step concludes the identification of all the literature obtained. The last stage is publishing in national and international journals. More details can be seen in fig. 1.

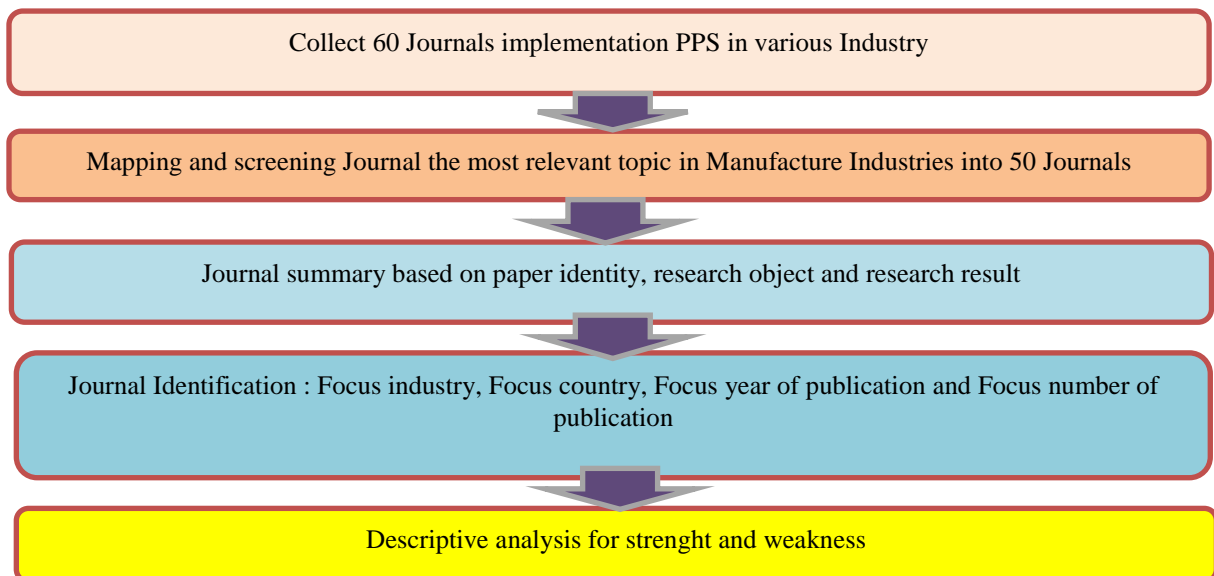


Fig. 1. Study framework

4. RESULT AND DISCUSSION

Table 1. Existing literature review of Performance Pyramids System

No	Paper Identity	Research Object	Result
1	(Lu et al., 2020)	Increase small-medium enterprises (SMEs)	The dimensions of the modified Carroll pyramid of CSR have an affirmative and positive impact on the organizational performance of industrial SMEs
2	(Razzaq et al., 2020)	Light management in solar cells	Amount to a short-circuit current density (JSC) loss of 2.2 mA/cm ² on 125 μm thick substrates
3	(Orlando et al., 2020)	Improve the state of knowledge on organic rice	Showed a wide variability (0–7 t/ha) and normal distribution (median 4 t/ha). The lower, middle and upper quartiles of yield showed a mean of about 2, 4, and 6 t/ha
4	(Zhou et al., 2020)	Reducing radiation exposure	The proposed approach significantly outperforms simpler baselines as well as the best previously published result
5	(Shah et al., 2020)	Internal pyramid structure and performance	The pyramid structure of Pakistani firms is more complicated than Chinese and Malaysian firms, both vertically and horizontally
6	(Muthu Manokar et al., 2020)	Varying the water depth	At 1 cm water depth, the pyramid solar still with and without insulation produced 19.46% and 8.26% higher yield than the single basin type solar. The daily efficiency of solar is even improved to about 28.5% with insulation, whereas the daily efficiency for solar still without insulation is 26.17%.
7	(Huang et al., 2020)	Spacial relations among different components	Extensive experiments have demonstrated the effectiveness of our proposed method
8	(Khalid et al., 2020)	Critically evaluate the applicability of established supply chain management	Technological integration with customers, technical integration with suppliers, and supply chain partner development
9	(Fallahzadeh et al., 2020)	Conventional pyramid-shaped solar still (CPSS) integrated with a heat pipe solar collector (HPSC)	Using the HPSC augmented the hourly and accumulated yield. The reserved creation was escalated to 6970 and 3300 ml/m ² for the MPSS (with water as the working fluid at the FR of 40%)
10	(Rosca & Bendul, 2019)	Integrate BOP consumers in value creation activities	BOP consumer integration enhances economic, social, and ecological performance
11	(Paraschi et al., 2019)	Airport Business Excellence Model (ABEM)	Importance Performance Analysis reveals that Employee Results are the Most Critical Success Factor for airport excellence
12	(Zhu et al., 2019)	Propose a new construct – BOP orientation	The effect of BOP orientation is contingent on both the institutional factors and the industry conditions
13	(Seuring et al., 2019)	Sustainable supply chain management (SSCM)	Customer pressures and demands drive related developments when third parties (non-governmental organizations [NGOs], certification agents, or middlemen) are involved in auditing and monitoring suppliers
14	(Wigneswaran et al., 2019)	Improving medication management	Reconciliation, safety programs, and medication therapy management for patients at high risk for medication-related problems
15	(Li et al., 2019)	Weighted Feature Pyramid Network (WFPN)	Shows significant improvement over the traditional feature pyramids in several applications
16	(Moussa, 2019)	The negligence of implementing GPRS	Energy efficiency, materials, and resources are the most coveted aspects of Egyptian curriculums, while Management and Innovation are not well covered in Egyptian high educational facilities.
17	(Kawedar et al., 2019)	The effectiveness of the internal control system (SPI)	The control environment, control activities, information and communication, and control monitoring positively and significantly affect financial performance. However, good governance and risk assessment are not proven to

Table 1. Existing literature review of Performance Pyramids System (continued)

No	Paper Identity	Research Object	Result
18	(Fachreza et al., 2018)	The influence of work motivation, work environment, and organizational culture on employee performance	affect economic performance There is an influence of work motivation, work environment, and organizational culture through employee performance on Bank performance
19	(Wang et al., 2018)	The forms of excess executive compensation	Decreases pay-performance sensitivity only in non-family firms. In contrast, pyramidal ownership and higher control-ownership deviation reduce insider compensation in family firms
20	(Agani et al., 2018)	Balanced performance measurement	The performance level of SIAKAD is still below the target based on indicators of academic administration service effectiveness, system operator satisfaction, increased system operator competence, system quality, and advanced IT staff expertise
21	(Harimurti, 2018)	Performance improvement measures	There are 23 KPIs according to the five Logistics Scorecard perspectives
22	(Suhardoyo, 2018)	Management of employee performance	Compensation feed-back in the form of salaries, allowances, bonuses, and incentives that are adjusted to the performance that has been done
23	(Kosasi, 2017)	Utilization through IT application investment	The lowest perspective value is operational excellence, with a difference in the value of 6.16%
24	(Marques Godinho et al., 2017)	Digital pathology and whole-slide imaging (WSI), Biomedical Informatics in hospital	That it is possible to have a very competitive solution based on standard workflows.
25	(Djidjou-Demassee et al., 2017)	Agricultural landscapes	Mosaics are more versatile than pyramiding strategies, and we found that deploying a mosaic of three to five resistance genes generally provided effective disease control, unless the epidemics were driven mostly by within-field infections
26	(T. Y. Lin et al., 2017)	Feature Pyramid Network (FPN)	It can run at 5 FPS on a GPU and thus is a practical and accurate solution to multi-scale object detection
27	(Abdullah et al., 2017)	Wireless communication system	By using diversity MIMO-OFDM, which is STFBC, the improvement of BER performance also can be improved until 55%
28	(Sharma & Sharma, 2017)	HR analytics	Thereby positively affecting an employee's perceived accuracy and fairness. This further positively affects employees satisfaction with the PA system
29	(Puryono & Kurniawan, 2017)	UMKM Batik supply chain	The efficiency level is 65.4%, and profitability is 34.6%
30	(Molly et al., 2017)	Measuring the level of utilization of information systems	Additional human resources (HR) are needed to help SWCU Wi-Fi performance, both in terms of handling complaints and completing projects, considering SWCU Wi-Fi
31	(Haslina, 2017)	Improve the quality of learning services	The teacher's ability to plan, implementing, and assessing the learning process and results in the 2013 Curriculum is good but not optimal in planning, learning, and assessment processes, especially time management in learning, is less effective. The use of K-13 assessments is not authentic.
32	(Hachem & Elsayed, 2016)	Energy performance of multi-story office buildings	The total annual electricity generation potential, by the multifold configurations, can exceed that of the flat façade by up to 80%
33	(Atieh et al., 2016)	Warehouse Management System	The production station consists of three steps: bundling, labeling, and repackaging. The system handles three phases of the product lifecycle: receiving, processing, and distribution of SIM and prepaid scratch cards
34	(Kabeel et al., 2016)	Glass cover angle on the performance of a square pyramid solar	The accumulated distillate water productivity up to almost 4.13 L/m ² day in the system-A, 3.5 L/m ² days in the system-B, and 2.93 L/m ² days in the system-C
35	(Damanik et al., 2016)	Performance measurement	Performance measurement at PT.PLN (Persero) APJ Malang, 2013-2015, has been good even though it is not

Table 1. Existing literature review of Performance Pyramids System (continued)

No	Paper Identity	Research Object	Result
36	(Panudju et al., 2016)	Measurement of company performance	stable. So it can be concluded that PT PLN (Persero) APJ Malang's business is healthy with the AA category based on Ministerial Decree Number 100 of 2002.
37	(Widyasari, 2015)	Effectiveness of accounting information systems	Internal business processes have the most considerable weight: 0.350, customers weigh 0.292, learning and growth weigh 0.235, and finance the smallest is 0.123.
38	(Kurniawan et al., 2015)	Performance evaluation	The variables of accounting information system users' technical capabilities, the effectiveness of accounting information systems, top management support, and the physical work environment positively affect individual performance.
39	(Singh et al., 2015)	The pharmaceutical industry	PDAMBalikpapan city has the highest production value, 66.98% availability 95.83%, performance efficiency 96.40%, and quality rate 72.50%. Simultaneously, the lowest productivity value is PDAM KabupatenSintang 10.18% availability 37.50%, performance efficiency 41.30%, and quality rate 65.70%.
40	(H.-H. Lin et al., 2013)	Polycrystalline silicon wafer solar cell	Control system demonstrates improved control performance and improvements in the final product quality in the presence of process and raw material variations
41	(Clardy, 2013)	The design and structure of its performance management system	Fabricated large-area (156 × 156 mm ²) subwavelength antireflection structure on poly-Si substrates, which could improve the solar cell efficiency reproducibly up to 16.27%, higher than 15.56% using wet etching
42	(Setiawan S et al., 2011)	Performance measurement	The basic framework of any performance management system as presented here involves four levels of operations, policies, and practices
43	(Liao et al., 2010)	Continuing education institutes (CEIs)	The MPE results show that the 3 (three) seeded commodities are Paprika, Lettuce, and Broccoli. The SCOR - Fuzzy AHP combination generates supply chain performance metric weights: delivery performance (0.111), compliance with quality standards (0.299), order fulfillment performance (0.182), order lead time (0.068), order cycle fulfillment (0.080), supply chain (0.052), supply chain management costs (0.086), cash payment cycle (0.080), and daily stock (0.048)
44	(Smith et al., 2010)	The governance of the health system	That a LO (Learning Organization) would be the best solution for KII to bridge the gap in terms of system planning
45	(Aitken et al., 2008)	Single-molecule fluorescence techniques	Performance Measurement for Health System Improvement is an authoritative and practical guide for policymakers, regulators, patient groups, and researchers
46	(Angerhofer & Angelides, 2006)	Modeling the constituents of a collaborative supply chain	That biological reducing agents increase both the frequency and duration of blinking events of Cy5, an effect that scales with reducing potential
47	(Folan & Browne, 2005)	The evolution of performance measurement (PM)	How the constituents, key parameters, and performance indicators are modeled into the environment
48	(Arnould & Mohr, 2005)	The relationship between development and marketing	The basic requirements for a successful PM system are two frameworks - one structural and one procedural as well as several other performance management tools
49	(Arah et al., 2003)	Health systems perform	The value of microlevel, longitudinal analyses in assessing cluster performance in BOPMs
50	(Rethans et al., 2002)	The purpose of assessing doctors in the practice	That they all conceive health and health system performance in one or more supportive frameworks but differ in concepts and operations
			Competency-based assessments were defined as measures of what doctors do in testing situations

The identification of literature will be identified from various perspectives. The perspective includes the industry's focus, the focus of the number of distribution by country, the year of publication, and the number of publishers. PPS implementation is very popularly used in the manufacturing industry. More precisely, in the other sector.

Fig. 2 informed that PPS is more widely implemented in industrial others (24%) such as government, hospital, university, warehouse, etc and then the internet (16%). This is in line with the growing trend of both industries. The PPS is used to measure the objective links, an organizational strategy with top-down (customer priority) objectives, and bottom-up measurement.

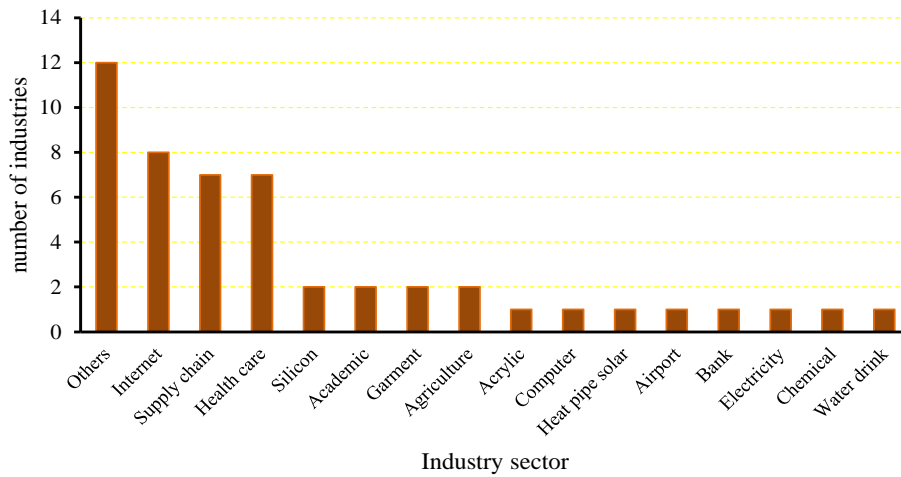


Fig. 2. The focus of the industry

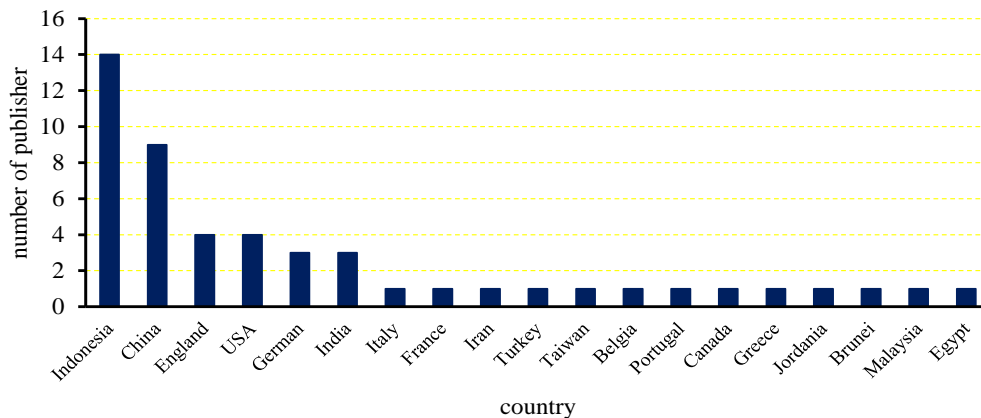


Fig. 3. The focus of the distribution by country

Fig. 3 analyzes the distribution of PPS publications in manufacturing companies. Indonesia is the most frequently implemented PPS. In this case, PPS neglects, especially in developed and developing countries. In Indonesia, growth is 28% of the total

publisher, which of the literature review, the projected increase in the economy's complexity. Reports have indicated that Indonesia has many opportunities that have not been utilized in various industries and encourage growth and fieldwork creation.

With the development of the economy and the progress of Indonesia's scientific knowledge that is sustained, the country is rated to be in

the path of the right to be a state of the most powerful in the world.

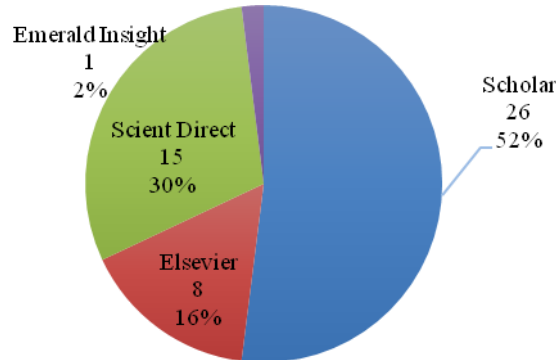


Fig. 4. The focus of the number of publishers

Fig. 4 shows that Scholar Publisher was most frequently searched during the 2002-2020 period, 52%. This is evident in identifying the Journal, at the most base on publisher Google Scholar. The author suggests that researchers

use Google Scholar to collect reference sources in research because Google Scholar is also a reputable journal publisher and quickly gets the desired paper research.

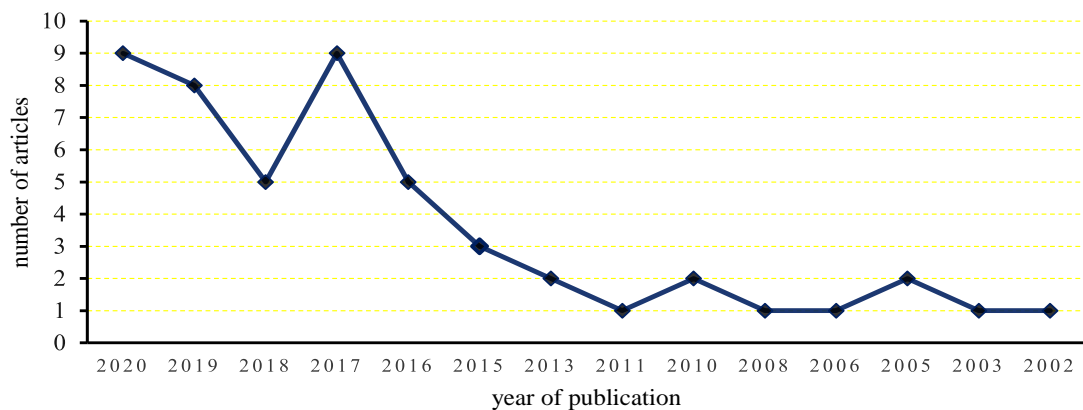


Fig. 5. The focus of year of publication

Fig. 5 shows that 2017 and 2020 is a year of publication that was most frequently searched during the 2002-2020 period amount is nine articles for each year. This is evident in identifying the Journal; for several years, almost every year, many journals have entered international publications starting

from 2015.

4.1. STRENGTH ANALYSIS

In this literature study, the authors found the strength of all the journals that had been analyzed. Strength is based on three perspectives, namely journal writing,

industry, and science

- Journal explained in a clear and complete ranging from the abstract, introduction, review literature, methodology, results & discussion and conclusions.
- The advantage for the perpetrator of researchers in problem-solving related to implementation with the performance pyramid system.

4.2 WEAKNESS ANALYSIS

In addition to the strengths obtained in the literature study, the author also found several weaknesses based on perspectives, namely journal writing, industry, and science.

- The format of writing journals is not organized, so that makes the writer

business to apply the method of performance pyramid system to get how goals are communicated to the operational level and how the steps are conveyed back to a higher level

- Providing new references for the next difficulty in identifying literature.
- The approach of the performance pyramid system requires a time that is very long in the implementation. Need stages which systematic to get a result that is best and necessary monitoring it regularly.
- There are many new tools in the modern like this so that researchers have many options in solving problems. As a result, the performance pyramid system is neglected.

5 CONCLUSION

Using a literature review, this study described, on one hand, some of the performance pyramids characteristics influencing performance management and, on the other hand, the most frequently mentioned models in the literature with a significant impact on the design of performance pyramids system. With the central question of this study on what to measure and how to measure, a diagnostic study has been made in twelve SMEs with industrial activity in several countries. Besides the theory underline the importance of performance management in SMEs for supporting the development of organizational systems, our research showed that very few companies carry out performance management.

This conclusion can be explained by the facts that (i) there is a significant gap between theory and practice, (ii) SMEs are

characterized by poor strategic planning, (ii) their decision-making processes are not formalized, and (iii) most SMEs' performance measurement approach is informal, not planned and not based on a predefined model. Finally, the lack of explicit strategies and methodologies to support management's control process promotes both a short-term orientation and a reactive approach to managing corporate activities. This is exceptionally problematic because the development of strategic performance measurement is necessarily long-term and explicitly requires that the resulting measures should be strategically focused.

In future studies, we plan to investigate the impact of organizational performance, type of operations, and competition level in the structure of key performance indicators companies are using to further improve organizational performance management.

REFERENCES

Abdullah, E., Idris, A., & Saparon, A. (2017). Paper reduction using the scs-slm technique in st bc Mimo-OFDM. *ARPN Journal of Engineering and Applied Sciences*.

Agani, M. Al, Munadi, R., & Subianto, M. (2018). Evaluasi Kinerja Sistem Informasi Akademik Menggunakan IT Balanced Scorecard Pada Universitas Serambi Mekkah Banda Aceh. *Jurnal Informatika Upgris*. <https://doi.org/10.26877/JIU.V4I1.2071>

Aitken, C. E., Marshall, R. A., & Puglisi, J. D. (2008). An oxygen scavenging system for improvement of dye stability in single-molecule fluorescence experiments.

Biophysical Journal. <https://doi.org/10.1529/biophysj.107.117689>

Angerhofer, B. J., & Angelides, M. C. (2006). A model and a performance measurement system for collaborative supply chains. *Decision Support Systems*.

- <https://doi.org/10.1016/j.dss.2004.12.005>
- Arah, O. A., Klazinga, N. S., Delnoij, D. M. J., Ten Asbroek, A. H. A., & Custers, T. (2003). Conceptual frameworks for health systems performance: A quest for effectiveness, quality, and improvement. *International Journal for Quality in Health Care*. <https://doi.org/10.1093/intqhc/mzg049>
- Arnould, E. J., & Mohr, J. J. (2005). Dynamic transformations for base-of-the-pyramid market clusters. *Journal of the Academy of Marketing Science*. <https://doi.org/10.1177/0092070304273495>
- Atieh, A. M., Kaylani, H., Al-Abdallat, Y., Qaderi, A., Ghoul, L., Jaradat, L., & Hdairis, I. (2016). Performance Improvement of Inventory Management System Processes by an Automated Warehouse Management System. *Procedia CIRP*. <https://doi.org/10.1016/j.procir.2015.12.122>
- Clardy, A. (2013). A General Framework for Performance Management Systems: Structure, Design, and Analysis. *Performance Improvement*. <https://doi.org/10.1002/pfi.21324>
- Damanik, Y., Sudjana, N., & NP, M. (2016). ANALISIS PENGUKURAN KINERJA PERUSAHAAN DENGAN METODE BALANCED SCORECARD UNTUK MENILAI TINGKAT KESEHATAN BUMN (Studi pada PT. PLN (Persero) Area Pelayanan dan Jaringan Malang Periode 2013-2015). *Jurnal Administrasi Bisnis S1 Universitas Brawijaya*.
- Djidjou-Demasse, R., Moury, B., & Fabre, F. (2017). Mosaics often outperform pyramids: Insights from a model comparing strategies for deploying plant resistance genes against viruses in agricultural landscapes. *New Phytologist*. <https://doi.org/10.1111/nph.14701>
- Fachreza, Musnadi, S., & Majid, M. S. A. (2018). Pengaruh Motivasi kerja, lingkungan kerja, dan budaya organisasi terhadap kinerja karyawan dan dampaknya pada kinerja Bank Aceh Syariah di Kota Banda Aceh. *Jurnal Magister Manajemen*.
- Fallahzadeh, R., Aref, L., Gholamiarjenaki, N., Nonejad, Z., & Saghi, M. (2020). Experimental investigation of the effect of using water and ethanol as working fluid on pyramid-shaped solar performance still integrated with heat pipe solar collector. *Solar Energy*, 207(June), 10–21. <https://doi.org/10.1016/j.solener.2020.06.032>
- Folan, P., & Browne, J. (2005). A review of performance measurement: Towards performance management. *Computers in Industry*. <https://doi.org/10.1016/j.compind.2005.03.001>
- Hachem, C., & Elsayed, M. (2016). Patterns of façade system design for enhanced energy performance of multi-story buildings. *Energy and Buildings*. <https://doi.org/10.1016/j.enbuild.2016.08.051>
- Harimurti, C. (2018). MODEL PENINGKATAN KINERJA SISTEM LOGISTIK YANG EFEKTIF DAN EFISIEN. *Jurnal Logistik Indonesia*. <https://doi.org/10.31334/jli.v1i1.127>
- Haslina, Y. N. U. (2017). KINERJA GURU DALAM IMPLEMENTASI KURIKULUM 2013 PADA SMA NEGERI 5 LHOKSEUMAWE. *Jurnal Administrasi Pendidikan: Program Pascasarjana Unsyiah*.
- Huang, F., Qi, X., Li, C., & Hu, W. (2020). Aerial image classification by learning a quality-aware spatial pyramid model. *Future Generation Computer Systems*, 111, 271–277. <https://doi.org/10.1016/j.future.2020.04.047>
- Kabeel, A. E., Abdelgaied, M., & Almulla, N. (2016). Performances of pyramid-shaped solar still with different glass cover angles: Experimental study. *IREC 2016 - 7th International Renewable Energy Congress*. <https://doi.org/10.1109/IREC.2016.7478869>
- Kawedar, W., . S., Handayani, R. S., & Purwanto, A. (2019). Good Governance, Sistem Pengendalian Internal, Dan Kinerja Keuangan Organisasi Sektor Publik. *Matrik: Jurnal Manajemen, Strategi Bisnis Dan Kewirausahaan*. <https://doi.org/10.24843/matrik:jmbk.2019.v13.i02.p09>
- Khalid, R. U., Seuring, S., & Wagner, R. (2020). Evaluating supply chain constructs in the base of the pyramid environment. *Journal of Cleaner Production*, 270, 122415. <https://doi.org/10.1016/j.jclepro.2020.122415>
- Kosasi, S. (2017). Pengukuran Kinerja Sistem Informasi Karyawan Menggunakan IT Balanced Scorecard. *Eksplora Informatika*.
- Kurniawan, V. R. B., Heston, Y. P., & P, C. W. (2015). PENGUKURAN PRODUKTIVITAS SISTEM OPERASIONAL PERUSAHAAN

- DAERAH AIR MINUM (PDAM)
Operation System Productivity Measurement
of Perusahaan Daerah Air Minum (PDAM).
Jurnal Sosek Pekerjaan Umum.
- Li, X., Lai, T., Wang, S., Chen, Q., Yang, C., & Chen, R. (2019). Weighted feature pyramid networks for object detection. *Proceedings - 2019 IEEE Intl Conf on Parallel and Distributed Processing with Applications, Big Data and Cloud Computing, Sustainable Computing and Communications, Social Computing and Networking, ISPA/BDCLOUD/SustainCom/SocialCom 2019*. <https://doi.org/10.1109/ISPA-BDCLOUD-SustainCom-SocialCom48970.2019.00217>
- Liao, S. H., Chang, W. J., & Wu, C. C. (2010). An integrated model for learning organization with a strategic view: Benchmarking in the knowledge-intensive industry. *Expert Systems with Applications*. <https://doi.org/10.1016/j.eswa.2009.11.041>
- Lin, H.-H., Chen, W.-H., & Hong, F. C.-N. (2013). Improvement of polycrystalline silicon wafer solar cell efficiency by forming nanoscale pyramids on the wafer surface using a self-mask etching technique. *Journal of Vacuum Science & Technology B, Nanotechnology and Microelectronics: Materials, Processing, Measurement, and Phenomena*. <https://doi.org/10.1116/1.4795862>
- Lin, T. Y., Dollár, P., Girshick, R., He, K., Hariharan, B., & Belongie, S. (2017). Feature pyramid networks for object detection. *Proceedings - 30th IEEE Conference on Computer Vision and Pattern Recognition, CVPR 2017*. <https://doi.org/10.1109/CVPR.2017.106>
- Lu, J., Ren, L., Zhang, C., Rong, D., Ahmed, R. R., & Streimikis, J. (2020). Modified Carroll's pyramid of corporate social responsibility to enhance the organizational performance of the SME industry. *Journal of Cleaner Production*, 271, 122456. <https://doi.org/10.1016/j.jclepro.2020.122456>
- Lynch and Cross (1992). (n.d.). *Metode - Metode Pengukuran Kinerja - cognoscenti consulting group*. Retrieved November 3, 2020, from <http://ccg.co.id/blog/2016/05/17/metode-metode-pengukuran-kinerja/>
- Marques Godinho, T., Lebre, R., Silva, L. B., & Costa, C. (2017). An efficient architecture to support digital pathology in standard medical imaging repositories. *Journal of Biomedical Informatics*. <https://doi.org/10.1016/j.jbi.2017.06.009>
- Molly, B., Tanaamah, A. R., & Sitokdana, M. N. N. (2017). Analisis Kinerja Sistem Informasi dan Teknologi Informasi untuk Menunjang Kinerja Karyawan Menggunakan Framework IT Balanced Scorecard (Studi Kasus pada Wi-Fi Universitas Kristen Satya Wacana). *Jurnal Teknologi Informasi Dan Ilmu Komputer*. <https://doi.org/10.25126/jtiik.201744499>
- Moussa, R. R. (2019). The reasons for not implementing the Green Pyramid Rating System in Egyptian buildings. *Ain Shams Engineering Journal*, 10(4), 917–927. <https://doi.org/10.1016/j.asej.2019.08.003>
- Muthu Manokar, A., Taamneh, Y., Kabeel, A. E., Prince Winston, D., Vijayabalan, P., Balaji, D., Sathyamurthy, R., Padmanaba Sundar, S., & Mageshbabu, D. (2020). Effect of water depth and insulation on the productivity of acrylic pyramid solar still – An experimental study. *Groundwater for Sustainable Development*, 10, 100319. <https://doi.org/10.1016/j.gsd.2019.100319>
- Orlando, F., Alali, S., Vaglia, V., Pagliarino, E., Bacenetti, J., & Bocchi, S. (2020). A participatory approach for developing knowledge on organic rice farming: Management strategies and productive performance. *Agricultural Systems*, 178(November 2018), 102739. <https://doi.org/10.1016/j.agsy.2019.102739>
- Panudju, A. T., Asfar, A. H., & Fauziah, F. (2016). Pengukuran Kinerja Perusahaan Menggunakan Metode Balanced Scorecard (BSC) Dengan Pembobotan Analytical Hierarchy Process (AHP) Di PT. ABC, TBK. *Integrasi Sistem Industri*. <https://doi.org/10.24853/jisi.4.1.pp-pp>
- Paraschi, E. P., Georgopoulos, A., & Kaldis, P. (2019). Airport Business Excellence Model: A holistic performance management system. *Tourism Management*, 72(April 2018), 352–372. <https://doi.org/10.1016/j.tourman.2018.12.014>
- Puryono, D. A., & Kurniawan, S. Y. (2017). Pengukuran Tingkat Efektivitas Kinerja UMKM Batik Bakaran Secara Berkelanjutan Menggunakan Model Green SCOR. *Jurnal Informatika Upgris*. <https://doi.org/10.26877/jiu.v3i1.1604>
- Razzaq, A., Depauw, V., Cho, J., Radhakrishnan, H. S., Gordon, I., Szlufcik, J., Abdurraheem,

- Y., & Poortmans, J. (2020). Periodic inverse nanopyramid gratings for light management in silicon heterojunction devices and comparison with random pyramid texturing. *Solar Energy Materials and Solar Cells*, 206(November 2019). <https://doi.org/10.1016/j.solmat.2019.110263>
- Rethans, J. J., Norcini, J. J., Barón-Maldonado, M., Blackmore, D., Jolly, B. C., LaDuca, T., Lew, S., Page, G. G., & Southgate, L. H. (2002). The relationship between competence and performance: Implications for assessing practice performance. *Medical Education*. <https://doi.org/10.1046/j.1365-2923.2002.01316.x>
- Rosca, E., & Bendul, J. C. (2019). Value chain integration of base of the pyramid consumers: An empirical study of drivers and performance outcomes. *International Business Review*, 28(1), 162–176. <https://doi.org/10.1016/j.ibusrev.2018.05.009>
- Setiawan S, A., Marimin, Arkeman, Y., & Udin, F. (2011). Studi peningkatan kinerja manajemen rantai pasok sayuran dataran tinggi di Jawa Barat. *Agritech*.
- Seuring, S., Brix-Asala, C., & Khalid, R. U. (2019). Analyzing base-of-the-pyramid projects through sustainable supply chain management. *Journal of Cleaner Production*, 212, 1086–1097. <https://doi.org/10.1016/j.jclepro.2018.12.102>
- Shah, M. H., Xiao, Z., Abdullah, Quresh, S., & Ahmad, M. (2020). Internal pyramid structure, contract enforcement, minority investor protection, and firms' performance: Evidence from emerging economies. *Research in International Business and Finance*, 52(December 2019), 101170. <https://doi.org/10.1016/j.ribaf.2019.101170>
- Sharma, A., & Sharma, T. (2017). HR analytics and performance appraisal system: A conceptual framework for employee performance improvement. *Management Research Review*. <https://doi.org/10.1108/MRR-04-2016-0084>
- Singh, R., Román-Ospino, A. D., Romañach, R. J., Ierapetritou, M., & Ramachandran, R. (2015). Real-time monitoring of powder blend bulk density for coupled feed-forward/feed-back control of a continuous, direct compaction tablet manufacturing process. *International Journal of Pharmaceutics*. <https://doi.org/10.1016/j.ijpharm.2015.09.029>
- Smith, P. C., Mossialos, E., Papanicolas, I., & Leatherman, S. (2010). Performance measurement for health system improvement: experiences, challenges, and prospects. *Performance Measurement for Health System Improvement: Experiences, Challenges, and Prospects*. <https://doi.org/10.1017/CBO9780511711800>
- Suhardoyo. (2018). Analisis Implementasi Model Manajemen Kinerja Karyawan Pada Industri Manufacture Garment (Studi Kasus : PT. Tae Young Indah). *Cakrawala - Jurnal Humaniora Bina Sarana Informatika*. <https://doi.org/10.31294/JC.V18I2.4221>
- Wang, H. Da, Lin, C. H., & Cho, C. C. (2018). The dark and bright sides of agency problems: Evidence from insider compensation of family pyramidal firms. *Asia Pacific Management Review*, 25(3), 122–133. <https://doi.org/10.1016/j.apmr.2018.09.001>
- Widyasari, H. (2015). Pengaruh Kemampuan Teknik Pemakai, Efektivitas Sia, Dukungan Manajemen Puncak, Lingkungan Kerja Fisik Pada Kinerja Individual. *E-Jurnal Akuntansi*, 11(3), 678–697.
- Wigneswaran, J., St. Peter, W. L., Nissenson, A. R., Krishnan, M., Faris, R., Becker, B., & Lorch, J. (2019). Redefining Medication Management in Dialysis: A Kidney Pharmacy Quality Pyramid. *Kidney Medicine*, 1(5), 307–314. <https://doi.org/10.1016/j.xkme.2019.06.008>
- Zhou, Y. J., Xie, X. L., Zhou, X. H., Liu, S. Q., Bian, G. Bin, & Hou, Z. G. (2020). Pyramid attention recurrent networks for real-time guidewire segmentation and tracking in intraoperative X-ray fluoroscopy. *Computerized Medical Imaging and Graphics*, 83, 101734. <https://doi.org/10.1016/j.compmedimag.2020.101734>
- Zhu, F., Wei, Z., Bao, Y., & Zou, S. (2019). Base-of-the-Pyramid (BOP) orientation and firm performance: A strategy tripod view and evidence from China. *International Business Review*, 28(6), 101594. <https://doi.org/10.1016/j.ibusrev.2019.101594>