

Identifying Influential Indonesian SMEs Scaling-up Factors: AHP Quantified

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ABSTRACT

Indonesian government through the Ministry of Cooperatives and Small-Medium Enterprises (KEMENKOPUKM) has targeted 6% of MSMEs to be scale-up in the next five years. Despite the existing regulation of Law No. 20, year 2008 about MSMEs classification, there are no specific indicators for measuring scaled-up SMEs. The government is still under review of internal insights towards SMEs scaling up indicators from stakeholders of cross-field sectors. There are several research toward SMEs performance and growth parameters. Nonetheless, each study has its own version of the most influential indicators. This study has gathered the prior research and quantifying indicators that have impacted scaled-up the most using analytical hierarchy process (AHP). It results the most influential factor to the least one as follows: innovation (21.6%), productivity (20.7%), financial (19.9%), human capital and workforce composition (14.0%), global market (13.2%), and age of company (10.1%).

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1. INTRODUCTION

Small Medium Enterprises (SMEs) in Indonesia have been proven survived in multiple crisis both global and regional (Tambunan, 2019). It includes the Asian monetary crisis in 1997 and the global economic crisis in 2008, and the latest global crisis occurring, were COVID-19 pandemic in 2020. Within those years, SMEs became one of the major economic agents that drove Indonesia to conquer the pressures of the country.

Despite being one of the biggest economic drivers, SMEs in Indonesia are still struggling. In general, SMEs face difficulty in identifying business possibilities outside of their main capabilities. This occurs since SMEs are most likely emphasized in product portfolio, a specific knowledge base, and limited financial resources (Rumanti *et al.*, 2022).

The Indonesian government, through the Ministry of Cooperation and Small Medium Enterprises (KEMENKOPUKM), targets to scale up the MSMEs in the country by 6% in the next 5 years (Humas Kementerian Koperasi dan UKM, 2020). Approximately, there are 760.000 MSMEs that are expected to scale up to the next level. The micro levels are prospected to be small levels; the small levels are looked forward to be medium ones.

Indonesian Law no. 7, year 2021, regarding the accessibility for MSMEs and cooperatives, classifies MSMEs

towards revenue and assets. As presented in Table I, any business that has a capital maximum of IDR 1 billion or gains a maximum revenue of IDR 2 billion is considered a micro level, maximum capital IDR 5 billion and revenue IDR 15 billion per annum is classified as small business level [16]. Despite the existing regulation, the government is still under reviewing internal insights towards SMEs scaling up indicators from stakeholders of cross-field sectors. Scaling up for SMEs means exceptionally aggressive growth in business performance for a certain time period (Bohan *et al.*, 2024).

There are various Performance Measurement Systems (PMSs) for assessing company performance, for instance: Baldrige Performance Excellence Model, Balanced Scorecard, Performance Pyramid System (SMART) and many more. Nonetheless, the current PMSs are most likely designed for big companies since they have complexity which capture the multidimensional factors. As for SMEs,

TABLE I: TYPE OF MSMEs IN INDONESIA

Type of business	Total capital	Yearly revenue
Micro	IDR 0–1 billion	IDR < 2 billion
Small	IDR 1–5 billion	IDR 2–15 billion
Medium	IDR 5–10 billion	IDR 15–50 billion

Source: Indonesia Law no. 7, 2021.

which commonly have small teams and few departments, shall be suitable to apply the PMSs that cover three points below (Garengo *et al.*, 2005):

1. The PMS covers the culture, maturity, and leadership, such as strategy alignment.
2. The PMS delivers clear and comparable results.
3. The PMS gives clarity and simplicity for SMEs.

There are several prior researches and studies which specifically capture SMEs indicators or PMS. There are two SME indicator studies, which are OECD (Organization for Economic Co-operation and Development) in Understanding Firm Growth: Helping SMEs scale up (2021), ACCA (the Association of Chartered Certified Accountants) in Scale Up Success: What do SMEs need to supercharge their growth (2018). Other researches explain how to measure the SMEs performances. For instance, SMEs Soundness Assessment by Soekarno *et al.* (2020), CAT (Complex Assessment Test) by Hradilek (2020), and IPMS (Integrated Performance Measurement System) by Laitinen (2002).

Each research explicitly describes different kinds of SMEs indicators in performing and growing the business. For instance, some mention the importance of the global market or internationalism for SMEs, but others do not share the same thing. Despite many kinds of distinctions, there are several indicators that have a correlation with one another, such as financial ratio, standardized process, and human capital.

Considering the various parameters on each research, it could not be helped but a necessary study towards what indicator that impactfully drives SMEs for scaling up the most. The study is expected to resemble which parameters are uncomplicated for SMEs to measure their own growth.

2. LITERATURE REVIEW

2.1. SMEs Indicator Prior Researches

OECD (Organization for Economic Co-operation and Development) has identified 2 types of scaling up enterprises on Manual Business Demography Statistics. It defines the scaled-up enterprises as follows:

1. *Employment Scalars*: Scalars are firms that grow in employment at an average rate of 10% or more a year over a 3-year period.
2. *Sales Turnover Scalars*: Sales turnover is the amount of money that is earned by a company after selling its products/services that grow at an average rate of 10%.

Within 7 years of research, the OECD found out that SMEs scalars have similar parameters or indicators which are age of company, human capital and workforce composition, innovation and digitalization, financial, productivity and profitability and global market (OECD Centre for Entrepreneurship *et al.*, 2021).

ACCA defines the parameters that shall be meticulously monitored within the growth of SMEs are depended by the length of the company has been established. Despite the profit and customer acquisition become the most

TABLE II: SMEs SOUNDNESS LEVEL

Score	SME Soundness Level	Rating
87–100	Great soundness	AAA
72–86	Good soundness 1	AA
58–71	Good soundness 2	A
44–57	Fair soundness 1	BBB
30–43	Fair soundness 2	BB
15–29	Poor soundness	CCC
0–14	Bad soundness	CC

Note: Source: (Soekarno *et al.*, 2020).

important factors, there are several additional factors for delivering the significant sales turnover than peers. Those who emphasize productivity, staff, research and development (R&D), and internationalism will earn 20%–30% higher sales turnover.

Another PMS is SMEs Soundness Assessment which has two major aspects to be measured which are (Soekarno *et al.*, 2020):

1. Financial aspects are divided into liquidity ratio, activity ratio, debt ratio, and profitability ratio.
2. Non-financial aspects cover marketing indicators, operational aspects, human resources indicators and good governance aspects.

The soundness assessment also ranks the SMEs performance based on the score. The lowest rank is “Bad Soundness” with rating CC and score 0–14. The highest level is “Great Soundness” with rating AAA and score 87–100. Other scorings and ratings of SMEs Soundness Level are detailed in Table II.

Complex Assessment Tool (CAT), Model for Complex Evaluation of Organizational Maturity in Small and Medium Enterprises, is developed by Hradilek (2020). The principle of this model is underlying on a set of 17 criteria, which are non-financial areas. It is divided into three categories: management, stakeholders, and resources. The results are given for each indicator of each category and combine as a total score.

Integrated Performance Measurement System (IPMS) by Laitinen (2002) highlights the fundamental aspects of SMEs growth on cost performance, production unit factors performance, production personnel performance, activities performance, products performance, innovativeness performance, profitability performance, competitiveness, and financial performance. Each aspect is measured by multiplying the two or more components which are involved. For instance, production unit factors performance is calculated by multiply capacity utilization to readiness for efficiently operating. Another example is activity performance, which is measured by multiplying time by cost and quality (Laitinen, 2002).

2.2. Analytical Hierarchy Process (AHP)

Analytical Hierarchy Process (AHP) was introduced by Saaty (1987) in the journal entitled “The Analytic Hierarchy Process—What It Is and How It Is Used.” It is one of the most commonly applied methods for determining and making decisions in many sectors, including business, manufacturing, and healthcare. It emphasizes on the mathematical framework to ensure the consistency of

each judgment from the expert or representative parties (Saaty, 1987).

The first step of this method is defining the goal or the focus, then defining the criteria, sub-criteria, and alternatives. The sub-criteria are not necessarily required or determined when the goals only provide the criteria and alternatives. The second phase is gathering the experts', partitioners', or stakeholders' judgments or preferences toward the criteria and alternatives. The pairwise comparisons are implemented to judge or assess the importance or the preference of each criterion and alternative. The fundamental scale of the pairwise comparison is shown in Table III.

AHP is one of the powerful decision-making tools that involves multiple criteria and is widely used among other techniques like Fuzzy Technique or Data Envelopment Analysis (DEA) (Koilkuntla et al., 2012). AHP can also be implemented in both qualitative and quantitative data (Cebeci & Ruan, 2007). AHP is most likely applicable for meticulously quantifying and weighting the priorities among several indicators and sub-indicators that are compelling in making a powerful framework of Total Quality Management (TQM) implementation and other PMSs (Chin et al., 2002; Koilkuntla et al., 2012; Soekarno et al., 2020).

2.3. Conceptual Framework

Structuring the research activities is crucial part for avoiding unnecessary and scattered data. The writer has developed a conceptual framework to gain in-depth knowledge and perspective of prior research. The framework helps to map out what required data and other methods shall be applied to achieve the research goals. The research conceptual framework is presented in Fig. 1.

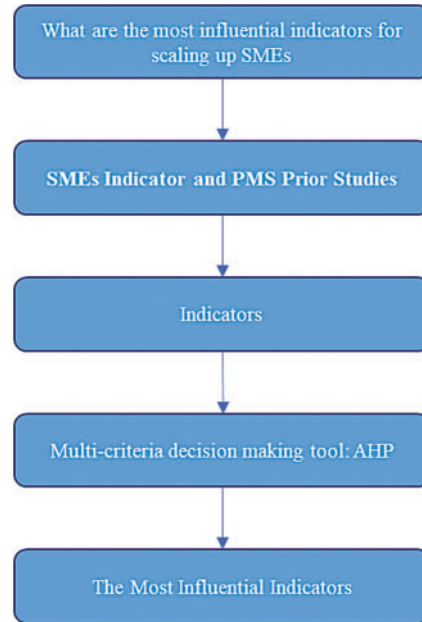


Fig. 1. Conceptual framework.

TABLE IV: PRIOR RESEARCHES TOWARD SMEs INDICATORS AND PMS

SMEs indicators and PMS	Prior researches/Books
SMEs scaling factor by OECD	OECD (2007), OECD Centre for Entrepreneurship et al. (2021)
SMEs growth indicators by ACCA	ACCA (The Association of Chartered Certified Accountants) (2018)
SMEs soundness assessment CAT model	Soekarno et al. (2020) Hradilek (2020)
Integrated Performance Measurement System (IPMS)	Laitinen (2002)

3. RESULTS AND DISCUSSION

3.1. Identifying the Indicators

This research begins by gathering all the parameters of each study and then comparing each one of them. By collecting broader and wider references from multiple prior researches towards SMEs indicators, gives a comprehensive and wholistic views regarding the essential factor for SMEs in scaling up their business. The list of prior research and books are listed in Table IV.

In order to select the most powerful yet applicable PMS, the writer had been screening the PMS that its indicators are majorly applied by other PMSs. It is showed by number of thick symbol (✓) which are also highlighted by blue color. The (✓) means that the particular factor is measured in each PMS. The blue color explains that the specific indicator is applied in 4 or more PMS methods.

The selected PMS method is SMEs Scaling Factors, which is research conducted by OECD in 2021. It has eleven (11) indicators which shares the same implementation on 3 or more other studies. In addition, the other PMSs only share 10 indicators. Comparison of each PMSs is presented in Table V.

OECD SMEs Scaling Factors as selected method classifies hi-growth firms, including SMEs scalers, into 2 major types, which are scaling by employment and sales

TABLE III: AHP FUNDAMENTAL SCALE

Absolute scale	Definition	Explanation
1	Equal importance	Two activities contribute equally to the objective
3	Moderate importance of one over another	Experience and judgment strongly favor one activity over another
5	Essential or strong importance	Experience and judgment strongly favor one activity over another
7	Very strong importance	An activity is strongly favored and its dominance demonstrated in practice
9	Extreme importance	The evidence favoring one activity over another is of the highest possible order of affirmation
2, 4, 6 and 8	Intermediate values between the two adjected judgments	When compromise is needed

Note: Source: Saaty, 1987.

TABLE V: COMPARISON OF PMS AND SMEs INDICATORS

Indicators	OECD SMEs scaling factor	SMEs soundness assessment	CAT model	IPMS by Laitinen	ACCA SMEs growth indicators
Age of company	✓				✓
Financial					
Liquidity ratio (some focus only on current asset ratio)	✓	✓		✓	✓
Activity ratio		✓			
Debt ratio	✓	✓			✓
Profitability ratio	✓	✓	✓	✓	✓
Quick ratio					
Marketing					
Marketing strategy		✓			
Media marketing		✓			
Customer service		✓	✓	✓	
Market share				✓	
Operational					
Described/standardized process and quality control (SOP)	✓	✓	✓	✓	
Purchasing		✓			
Raw material inventory		✓			
Finished goods inventory		✓			
Human resources					
Employee education level	✓		✓		✓
Required skills/Job specification	✓	✓	✓		✓
Human resources numbers		✓			
Wages	✓		✓	✓	✓
Good governance					
Legal certification		✓			
Business reports		✓			
Network/Global market/internationalism					
Exported/imported products/services	✓				✓
External parties			✓		
Innovation or technology					
Patent/Intellectual property/Exclusivity	✓		✓		✓
R&D staffs	✓		✓		✓
R&D activities or expenditure	✓		✓	✓	✓
IT staffs	✓				
Productivity	✓		✓	✓	✓

Note: (✓): Measuring Indicator, (■): Indicator which is applied in 4 or more PMS.

turnover (OECD Centre for Entrepreneurship *et al.*, 2021). The larger expansion of production requires the greater managerial services involved. Managerial services include gaining new employees, developing the technique to utilize resources efficiently, and earning new knowledge and experience (Penrose & Pitelis, 2009).

In order to avoid contradiction, the writer creates weighted criteria and indicators using the whole parameters based on the OECD study. It consists of two criteria, which are employment scaler and sales turnover scaler, and six indicators, which are age of company, HC and workforce composition, Finance, productivity, innovation, and global market.

3.2. AHP Process

After determining the indicators, the study then continued using a quantitative method, which systematically structured the expert judgment towards scaling up indicators. In this particular study the writer is using AHP which

aims the reliable results for each indicator by avoiding the bias judgments within the experts. The AHP structure is defined as in Fig. 2.

In this study, the writer runs AHP using a software named Expert Choice 11. It allows the writer to collect the pairwise judgment of each respondent for comparing the relative importance. It shows the CR, which demonstrates the consistency of experts' judgment. When the CR more than 10%, the expert shall iterate the judgments of certain indicators until it reaches less than 10%.

In this study, the writer considers experience of respondent that have minimum 2 years of relation or interact with SMESs in Indonesia the most. There are 11 practitioners from across fields and organizations involved. The respondents, which are 3 business consultants, 2 academicians, 2 policy makers, 1 venture partner, 1 e-commerce platform, and 2 financing institutions, have given their

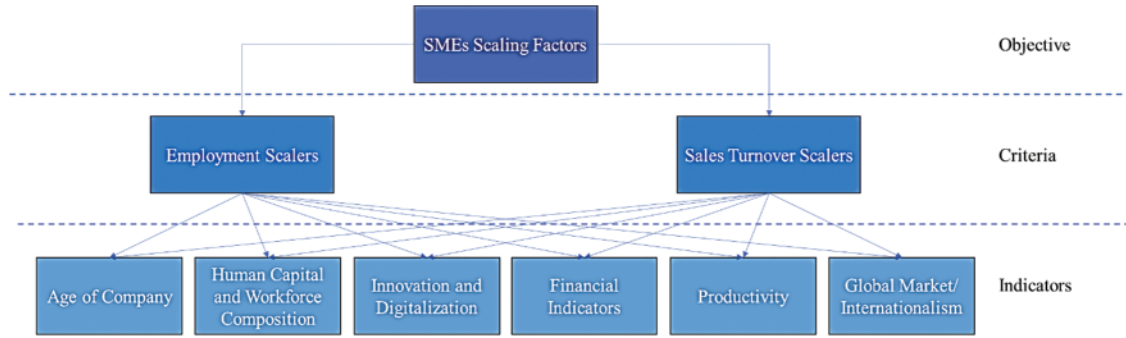


Fig. 2. AHP structure SMEs scaling indicators.

TABLE VI: RESPONDENT PROFILE

No	Respondent	Position/Organization	Years of experience	Expertise
1	Respondent #1	CEO–Xperteam	3	Business consultant
2	Respondent #2	Lecturer–Telkom University	13	Academics for entrepreneurship and entrepreneur herself
3	Respondent #3	Venture Partner–Init 6 Fund	4	Venture capital for early staging start ups
4	Respondent #4	CEO and Co-founder–Wiseco.id	10	Business development and strategy—Business consultant
5	Respondent #5	Head of Investment for MSMEs - Ministry of Cooperatives and SMEs (KEMENKOPUKM)	15	Policy maker for MSMEs; Investment for MSMEs
6	Respondent #6	Senior Associates - McKinsey	5	Business consultant; Develop financial solution for SMEs
7	Respondent #7	Head of Social Impact - Evermos	7	e-commerce platform; SMEs growth and research; World Economic Forum Contributor
8	Respondent #8	Team member of Ministerial Staff–Ministry of State-Owned Enterprises (Kementerian BUMN)	3.5	Policy maker; Financial solution; SMEs Financial and Development
9	Respondent #9	Credit Account Officer–BNI Wirausaha	2	Financing solution
10	Respondent #10	Commercial Relationship Manager–BNI Komersial	10	Financing solution
11	Respondent #11	Lecturer and Director of SMEs Business Incubation–MBA ITB	12	Entrepreneurship; marketing; business growth

judgment either in person or online discussion. Information of respondent profile is thoroughly tabulated in Table VI.

Each expert is asked to quantify the importance between sales turnover and employment for scaling up SMEs. Then, they will give a judge using pairwise comparison in the employment scalars indicators. When the consistent ratio (CR) reaches above 10%, then the expert will iterate the judgment until it is below the maximum ratio allowed. The last thing is pairwise comparing for the sales turnover indicators.

CR on both criteria is below 10% with total reaches 1.5%. It means that the judgments within experts and practitioners are consistent and do not contradictive against each other. The pairwise comparison CR of employment scaler is 0.53%. Meanwhile, CR for sales turnover scaler is 1%. It means that the judgments between experts and practitioners are consistent and do not contradict each other. The respondents state in AHP result that sales turnover scaler is the most likely drives the SME scaling up factors. Sales turnover achieved 67.8% compare to employment which only reaches 32.2%. Detail is shown in Table VII.

TABLE VII: AHP RESULT OF SMEs SCALING CRITERIA

Criteria	AHP result
Employment scaler	32.2%
Sales turnover scaler	67.8%

For the employment scalars, the most important factor is financial, which reaches 27.7%. The second and the third in consecutive are productivity and innovation, which reach 18.9% and 16.8%, the rest are human capital and workforce composition, global market, and age of the company. The three of them reach weight in a row 15.8%, 11.8% and 9%. Each indicator and its AHP result of employment scaler is presented in Table VIII.

For the sales turnover scalars, the most influential factor is innovation, which weighs 23.5%. The second one is productivity then, followed by financial indicators. Both of them weight in a row as 21.4% and 17.5%. The fourth position is the global market, which reaches 13.7%, and the fifth one is human capital and workforce, which is 13.3%. Both scalars share the similar last rank indicator which is age of company for 10.6% in sales turnover scalars.

TABLE VIII: AHP RESULT OF EMPLOYMENT SCALER INDICATORS

Indicator	AHP Result
Financial	27.7%
Productivity	18.9%
Innovation	16.8%
Human capital and workforce composition	15.8%
Global market	11.8%
Age of company	9%

TABLE IX: AHP RESULT OF SALES TURNOVER SCALER INDICATORS

Indicator	AHP result
Innovation	23.5%
Productivity	21.4%
Financial	17.5%
Global market	13.7%
Human capital and workforce composition	13.3%
Age of company	10.6%

TABLE X: AHP RESULT OF OVERALL SMEs SCALER INDICATORS

Indicator	AHP result
Innovation	21.6%
Productivity	20.7%
Financial	20.4%
Human capital and workforce composition	14.0%
Global market	13.2%
Age of company	10.1%

Table IX explains the AHP result of each indicator of sales turnover scaler.

For all deliberately SMEs scaling factors the weighted position is innovation in 21.6%. The second and the third one is productivity (20.7%) and finance (20.4%). The bottom there are human capital and workforce composition (14.0%), global market (13.2%) and age of company (10.1%). The detail is shown in Table X.

4. CONCLUSION

This research focuses on the parameters that drive SMEs to scale up their businesses, which are deliberately similar to mapping out the company’s performance. Based on prior research, particularly study conducted by OECD, there are several parameters that shall be considered in determining SMEs scaling-up success factors. The aspects cover financial, innovation, human capital and workforce composition, productivity, global market, and age of the company.

The respondent’s judgment is captured by weighting pairwise comparisons among those indicators using AHP. It results the most influential factor to the least one as follows: innovation (21.6%), productivity (20.7%), financial (19.9%), human capital and workforce composition (14.0%), global market (13.2%) and the last is age of company (10.1%).

The result is aligned with the prior study on the importance of innovation in driving performance acceleration. Innovation activities, including investment in fixed and intangible assets, drive the labor productivity growth of companies in many countries. The fixed investment is most

likely associated to machinery and equipment. The intangible assets cover R&D, intellectual properties, software, new organizational structure, and brand equity (OECD, 2010).

CONFLICT OF INTEREST

The authors declare that they do not have any conflict of interest.

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