

# Original Research Article

## **The Influence of Knowledge Sharing and Digitalization Improvement towards Employees' Productivity: A Qualitative Approach**

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### **ABSTRACT**

Literature indicates that there have been great numbers of publications and papers which highlight specifically the mining industry's development globally through the risk analysis and management perspective. However, theoretical and practical research findings have shown that when analyzing risk management in the mining industry, it is important to consider not just the human component but also the business process and productivity strategy of related organizations. Through the application of qualitative research, this study then intends to gather any useful information through both primary and secondary data sources, such as interviews and/or acquire the information, which is related to the experience of the participants as the unit of analysis and their viewpoints as well as behaviour. Instead of addressing how many or how much, a qualitative research method addresses the how and why of the research question. As such, this study aims to explain the analysis of the existing business processes of PT Antam Tbk and then re-evaluate if there is any factor that is inefficient and ineffective so that the input from employees affects eventually employee productivity. As such, this study recommends applying the strength, weakness, opportunity, and threat (SWOT) analysis in order to explain in detail the business process of PT Antam Tbk. Through such analysis abovementioned, this study is assisted to offer both theoretical and managerial contributions. For theoretical contribution, this study mainly aims to deliver a strategy to optimize the business processes better that eventually may increase significantly the value of PT Antam Tbk, especially employee productivity. Additionally, this study also offers in particular sections the managerial implications of this study's findings.

*Keywords: knowledge sharing, digitalization, SWOT analysis, mining industry, export-import.*

### **1. INTRODUCTION**

One of the riskiest sectors of the economy has always been the mining industry and this is supported by data from organizations like Eurostat or else from the Organization for Economic Co-operation and Development, known as OECD [1]. One of the most favourable topics is the research on risk analysis and management which is considered a crucial element for the mining industry, particularly with regard to economic factors. As a result, there should be an increasing need for fresh publications and studies in this field, particularly in the most prosperous regions like Asia and North America. Literature indicates that there have been great numbers of publications and papers which highlight specifically the mining industry's development globally through the risk analysis and management perspective [2, 3]. However, theoretical and practical research findings have shown that when analyzing risk management in the mining industry, it is important to consider not just the human component but also the business process and productivity strategy of related organizations [1, 4].

Furthermore, in the Asian context, one of Indonesia's top potential industries is the mining industry. This industry's growth is accelerating quickly [5]. In 2017, a state-owned enterprise (SOE) in the mining industry of the Indonesian ministry called MIND ID (Mining Industry Indonesia), has been established and selected Indonesia Asahan Aluminium (PT Inalum Tbk.) as the parent mining company with the subsidiaries, such as (a) Aneka Tambang (PT Antam Tbk.); and (b) PT Timah Tbk. MIND ID owns the shares from each subsidiary, namely: 65% from PT Antam Tbk, 65.02% from PTBA Tbk, and 65% from PT Timah Tbk

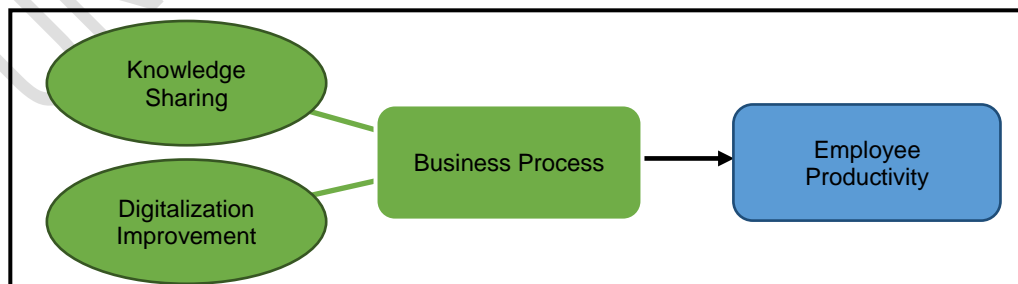
65% [5]. The establishment of such a holding company is to increase the business capacity and funding, to manage the mineral and coal natural resources, and to escalate the local content and value-addition through the downstream method [6, 7].

Moreover, this study finds that as PT Antam Tbk is a member of MIND ID, it is a vertically integrated, export-oriented, and diversified mining and metals company. Literature also implies that with the operations spread throughout the mineral-rich Indonesian archipelago, PT Antam Tbk carries out all activities from exploration, quarrying, and processing to marketing of nickel, ferronickel, gold, silver, bauxite, alumina, and coal ores [8]. According to the annual report of PT Antam Tbk, the earnings before interest, taxes, depreciation, and amortization (EBITDA) of PT Antam Tbk has reached for the amount of Indonesian Rupiah (IDR) 5.71 trillion in 2021 and the overall growth of such EBITDA has been at 79% year on year [5]. The positive achievement of PT Antam Tbk's performance cannot be separated from the implementation of Covid-19 health protocols in the new normal era of the Covid-19 pandemic. In 2021, ferronickel production achievement was maintained at an optimal level of 25,818 tons of nickel. Meanwhile, nickel ore production reached 11.01 million wet metrics, growing 131% year on year from 2020 production of only 4.77 wet metrics [4, 5, 8].

Furthermore, based on the reports above, this study finds that there is a proper application of the business process strategy that is executed by PT Antam Tbk, given the fact that a suitable strategy of business process may potentially lead the organization to achieve a maximum revenue [9, 10]. This is because, the study of Dobrosavljević and Urošević [11] denotes that a business process is a set of activities that have one or several kinds of inputs and create an output that has benefits for customers, which is called revenue. Some scholars [12] also indicate that an increase in revenue can occur although employee productivity decreases. Following this indication, this study aims to explain the analysis of the existing business processes of PT Antam Tbk and then re-evaluate if there is any factor that is inefficient and ineffective so that the input from employees affects eventually employee productivity. As such, this study recommends applying the strength, weakness, opportunity, and threat (SWOT) analysis in order to explain in detail the business process of PT Antam Tbk. Through such analysis abovementioned, this study is assisted to offer both theoretical and managerial contributions, mainly in delivering a strategy to optimize the business processes better that eventually may increase significantly the value of PT Antam Tbk, especially the employee productivity.

Based on the explanation earlier, this study then aims to construct the research framework, which is demonstrated in Figure 1, as well as research propositions that are shown in Table 1.

**Figure 1. Research Framework**



Source: Data Generated (2023)

**Table 1. Research Propositions**

No	Proposition	Detail
1	P1	Knowledge sharing through business process enhancement affects employee productivity significantly and positively.
2	P2	Digitalization Improvement through business process enhancement affects employee productivity significantly and positively.
3	P3	The business process simultaneously affects employee productivity

Source: Data Generated (2023)

## 2. MATERIAL AND METHODS

Productivity is originally considered a measurement to identify the organization or company's capability in increasing its goods or services production. As stated by Mukrodi, and Catio [13], productivity is a comparison between the output produced by the organization with the input used by the organization. Inputs in the form of resources such as labour, capital, materials, and/or fuels. Moreover, the concept of productivity is not only related to large quantities of output but also depends on large or small quantities of inputs. If it is associated with an organization as a system consisting of inputs, processes and outputs, then according to Tangen [14], organizational productivity can be achieved by transforming processes from inputs to outputs. The productivity of output, which is obtained by the input process, depends on a continuous transformation business process, on the way to improve and use effectively and efficiently the organization elements such as labour, capital, materials, fuel or energy, and other inputs.

Experts define a business process is an activity that is proceeded by an organization in order to manage and transform the organizational resources (inputs) into products and/or services (outputs) for the customers. The study of Rebuge and Ferreira [15] suggests that an organization has a great opportunity to outperform other organizations although it offers a similar type of product or service if such an organization has a business process better and runs such process properly. This is also applied, not only in the process of producing products or services, but also, applied in internal organizational processes such as the process of procurement of goods or services, raw material payment, and so on [16]. In addition to internal processes, the external environment also affects the business processes that are running. There are many methods used to analyze a business process of organization and one of methods is SWOT Analysis [17].

Subsequently, the knowledge sharing is considered as one of the crucial factors for organization in order to achieve the organization's strategic targets that later may help such organization to create a novel knowledge source and eventually through the collaboration and conception, may deliver numbers of benefits for the organizations, for example, (a) the improvement of problem solving skills, decision making abilities development, as well as the digitalization enhancement inside the organization [18 - 20]. The study of Binsaeed et al. [20] denotes that digital technology is considered as the systems, resources, and electronic and digital devices, which generate as well as process data, for example, social media, smartphones, etc. Within the context of human resource, this technology also plays significant roles on the organization, e.g. information technology improvement both inside organization that later helps the organization complete the tasks and achieve the strategic goals efficiently. Similarly, the digitalization manifests in various forms in business and social life, the main issue is to take advantage of the positive induced effects and to minimize the negative one and keep the sustainability enforced [19, 20].

Furthermore, according to Namugenyi [18], SWOT analysis is a tool to analyze the opportunities within both the internal and external factors of the organization. The internal factors cover the strengths and the weaknesses of the organization, while the external factors highlight on the potential opportunities and threats of the organization. The organization strength is seen as the internal factor that may potentially improve the organization competence, such as a diverse product line. Whereas, the organization weakness is considered as the internal obstacle that may exist and may eventually affect the organization capability for success, for example, inadequate of staffing and/or training. The organization opportunity is seen as the external element that can be pursued or exploited to gain benefit, such as a new technology, whereas the organization threat is an external factor that may hinder organization performance and may have the potential thwart success or even it could jeopardize the organization entity's success, for example, the increasing competition [17, 18]. Furthermore, such internal and external factors are related to the organization's strategic aspects, e.g. the competence strategic, as such, SWOT analysis is considered scientifically to become a valuable tool for the organization in identifying the distinctive competence, especially certain capabilities and resource and core competencies. The use of appropriate core competencies may lead the organization to provide a sustainable competitive advantage accordingly [18].

## **2.1 Research Method**

One of research method types, called qualitative research, highlightson the actual issues and it offers more in-depth understandings [21]. This kind of research, according to Maxwell [21], aids in the generation of hypotheses or propositions as well as the further investigation and, as opposed to quantitative that normally gathers the numerical data points or intervening treatments. Also, qualitative research method explores as well as delivers deeper an insight, which emphasizes on the real-world issues. The most interesting as Foley and Timonen [22] explain is that qualitative research has a great number of strengths, such as the ability of such method to explain the processes and patterns of human behavior that can be difficult to quantify. Given the fact that, phenomena, e.g. the experiences, attitudes, and behaviors can be tough to precisely capture quantitatively, however, the approach in qualitative lets the participants themselves to describe in how, why, or what they are thinking, feeling, as well as experiencing at a certain time or during an event of interest [22]. Hence, within the application of qualitative research, as the suggestion of several prior studies [22-26], the experience of the participants as the unit of analysis of this study and their viewpoints as well as behavior are gathered through several approaches, such as interviews. Instead of addressing how many or how much, a qualitative research method addresses on the how and why of the research question. Following the explanation above, this study applies a qualitative descriptive research method in order to explore and identify the how and why of the existing business process of PT Antam Tbk through the application of SWOT analysis. Research with a descriptive method is also applied in this study in order to analyze in depth related to the newest business processes of PT Antam Tbk through the observation of several PT Antam Tbk business units.

### **2.1.1 Data Source and Data Collection**

In this study, there are two kinds of data are needed, namely primary data and secondary data. The primary data are the data that are obtained directly from the research location through direct observation of the research object. The secondary data are the data, which are obtained based on the references or the literatures related to: (a) research problems; (b) annual reports of PT Antam Tbk from 2017 to 2021; (c) the analysis of external factors that is related to PT Antam Tbk commodities and cost production; and (d) the annual reports of similar companies for the comparative analysis. Furthermore, to collect the primary and secondary data, this study applies several data collection techniques, namely (a) observation, which is a systematic data collection on observed activities, especially the

visual data collection and transform such visual findings into the written documents; (b) literature study, which is a way of collecting data through written relics, especially the archives including books, official documents, and statistical reports that are related to this study's research problem; and (c) interview, which is the conversations with a specific purpose and this conversation is carried out by two parties, namely the interviewer, who asks the question and the interviewee, who gives the answer. Additionally, the research time span of this study is from April 2023 to June 2023 and the research location is at PT Antam Tbk which is located at Jalan T. B. Simatupang, South Jakarta, Indonesia.

### 2.1.2 Data Analysis

According to the study of Helms and Nixon [17], there are 5 beginning-step in the first of SWOT analysis. The first step is the measurement of the organization's internal and external strategic factors (weight, rating, and score for each indicator) with SWOT indicators namely: the strength, weakness, opportunity, threat. The second step is the assessment of the weight value of each indicator. The total weight score should be 1 or 100%. Moreover, the weight score is also determined based on the level of significance with the significance scale score is 1 to 4 (1 = not very significant, 2 = not significant, 3 = significant, 4 = very significant). The third step is the calculation of the rating through the analysis of organizational strengths and opportunities with a scale of 1 to 4 (1 to 2.99 = a decreasing of the organizational performance level, 3 to 4 = an increasing of the organizational performance level). The fourth step is the assessment of organizational weaknesses and threats with a scale of 1 to 4 (2.99 to 1 = more weaknesses compared to the competitors, 3 to 4 = fewer weaknesses compared to the competitors). Finally, the fifth step is to assess the score based on the results of the multiplication of the weight value and the rating value.

Moreover, after conducting the earlier 5 beginning-step of SWOT analysis, this study then conducts the EFAS (external factors analysis summary) and IFAS (internal factors analysis summary) analysis [17, 18]. The scoring scale for the EFAS total score is 1 to 4, if it is closer to 1, then there are more threats than opportunities, and if it is closer to 4 then there are fewer threats compared to opportunities). As for the IFAS rating scale is also 1 to 4, if the closer to 1 then there are more internal weaknesses compared to the strengths of the organization and if the closer to 4, then there are more strengths than internal weaknesses. After obtaining the results of the EFAS and IFAS analysis, this study accordingly is helped to determine the organization's leading strategy in increasing employee productivity.

## 3. RESULT AND DISCUSSION

### 3.1 Internal Factors Analysis Results

According to Table 2, the highest score of PT Antam Tbk's strengths is from the possession of such company on the abundant natural resources, whereas, the weakness side of PT Antam Tbk is from the declination on organizational productivity due to the lack of the requirements of manhours that are higher in completing work or projects, is also considered as the highest score of PT Antam Tbk's weakness.

**Table 2. The Validity Test Results**

*\*Remarks: Value 4 (Very Strong), 3 (Strong), 2 (Weak), 1 (Very Weak)*

Internal Factors Strategy	Weight	Scale	Score
<b>Strengths</b>			
PT Antam Tbk has abundant natural resources with various commodities such as gold, nickel, bauxite, copper, silver.	0.12	4.0	0.48
PT Antam Tbk has been operating for 55 years, so it has experience and expertise in mining.	0.12	3.5	0.42

PT Antam Tbk has a partnership program of 42,179 fostered partners in carrying out corporate social responsibility (CSR).	0.096	3.0	0.288
PT Antam Tbk has an investment portfolio in diverse products such as stocks, mutual funds, property insurance, gold savings, so this helps PT Antam Tbk is more dependence on the commodity price fluctuations in the market.	0.12	3.5	0.42
PT Antam Tbk has many strategic collaborations with several large companies, such as a joint venture with PT Borneo Alumina Indonesia.	0.096	3.0	0.288
<b>Weaknesses</b>			
There is a delay in the supply chain, especially the consumable materials for factories, hence, the employee operational productivity tends to decrease due to the shortages of raw materials.	0.069	1.5	0.10
The use of appropriate technology for the factories and mining sites requires quite expensive investments.	0.069	1.5	0.10
The declination on organizational productivity because the lack of the requirements of manhours that are higher in completing work or projects.	0.103	2.0	0.21
The application of outsourcing employee is below from a minimum standard.	0.103	2.0	0.16
Social conflicts with the surrounding local communities at several mining operational sites have brought the mining operations to a halt.	0.069	2.0	0.14

(Data Processed, 2023)

### 3.2 External Factors Analysis Result

Based on Table 3, the highest score in the opportunities of PT Antam Tbk external strategic factors, which is 0.52, that may potentially increase the employee work productivity, are: (a) the implementation of the work health and safety procedure that ensures the health and safety system at work place of all PT Antam Tbk's employee; and (b) PT Antam Tbk has an ISO 24001 certification in which relates to the environmental management system. Whereas, for the highest score in the threats of PT Antam Tbk external strategic factors, which is 0.43, is from 2 factors, namely: (a) the saturation of psychological disorders, lack of focus and mental fatigue, as well as the health of PT Antam Tbk's employees; and (b) the declination trend of PT Antam Tbk's employees' health.

**Table 3. External Factors Analysis Result of PT Antam Tbk**

*\*Remarks: Value 4 (Very Strong), 3 (Strong), 2 (Weak), 1 (Very Weak)*

Internal Factors Strategy	Weight	Scale	Score
<b>Opportunities</b>			
The training and development of employees in PT Antam Tbk are in line with the employee's needs on the competency in the work unit.	0.13	3.5	0.45
PT Antam Tbk applies and updates periodically the newest digital technology.	0.13	3.0	0.39
PT Antam Tbk implements the work health and safety procedure of the employees.	0.13	4.0	0.52

PT Antam Tbk provides bonuses as well as the training and workshops for the employees in accordance with the competency needs.	0.087	3.0	0.21
PT Antam Tbk implements the performance management that is carried out every semester through the assessment of the system called, the employee performance management system.	0.13	2.5	0.45
<b>Threats</b>			
Social conflicts of local communities over the land use.	0.13	2.0	0.26
Falling commodity prices lead to a lack of work motivation.	0.08	2.0	0.17
The delay on supply chain due to the shortage of raw materials.	0.08	1.5	0.13
Work saturation, psychic disorders, lack of focus, and mental exhaustion of the employees.	0.43	1.0	0.43
The declination trend of employees' health.	0.43	1.0	0.43

(Data Processed, 2023)

Based on the description of IFAS and EFAS analysis results, this study then applies the assessment through the matrix calculation that is based on the approach of four alternative groups of strategy. The four alternative groups consist of several combinations, namely: **SO** (strengths) and (opportunities), **ST** (strengths) and (threats), **WO** (weaknesses) and (opportunities), and **WT** (weaknesses) and (threats), which can be presented in the following Table 4 and Table 5. In line with the results in Table 4, Table 5, and Table 6, this study indicates that PT Antam Tbk's strategy in increasing employee work productivity is to increase employees' knowledge sharing, training on the use of appropriate and latest technology as well as digitalization, and the number of innovations and improvements in each PT Antam Tbk's business units through several events, such as: a quality convention events, workers attending webinars, digital workshops, and national and international mining events.

Furthermore, Table 4 to Table 6 also help this study to denote that through several divisions of PT Antam Tbk, especially: (a) human capital business partner & talent management division, (b) people & organization development division, and (c) human capital services & industrial relations division, PT Antam Tbk carries out a great number of various strategic policies and programs related to human resource management, which aim to create a comfortable and productive work environment and encourage the employees to continue to be more innovative in carrying out their work activities.

**Table 4. The Results of IFAS and EFAS Matrix Analysis – SO and ST Combination**

<b>Strengths</b>	<b>SO</b>	<b>ST</b>
<ol style="list-style-type: none"> <li>1. PT Antam Tbk has abundant natural resources with various commodities such as gold, nickel, bauxite, copper, silver.</li> <li>2. PT Antam Tbk has been in operation for 55 years, so it has various experiences and expertises in mining. Also, PT Antam Tbk has a partnership program</li> </ol>	<ol style="list-style-type: none"> <li>1. PT Antam Tbk intensifies a great number of trainings for all employees in order to further improve the employees' competence.</li> <li>2. PT Antam Tbk utilizes periodically the latest digital technology for mining optimization.</li> <li>3. Through the learning and development (L&amp;D) unit, PT Antam Tbk continuously strengthens its employees' competencies (knowledge,</li> </ol>	<ol style="list-style-type: none"> <li>1. PT Antam Tbk improves properly the CSR program according to the needs of local communities and in sync with the local governments.</li> <li>2. PT Antam Tbk conducts a program, which is related to the knowledge sharing of manpower, training on the use of appropriate and latest technology, and increase the number of innovations and improvements in each PT Antam Tbk's business</li> </ol>

<p>with 42,179 fostered partners in carrying out CSR.</p> <p>3. PT Antam Tbk has an investment portfolio inside diverse products such as stocks, mutual funds, insurance, property, gold savings.</p> <p>4. PT Antam Tbk has strategic cooperation with several large companies such as Joint Venture with PT Borneo Alumina Indonesia.</p>	<p>skills, and attitudes), which are aimed eventually to improve the overall company's performance and productivity.</p> <p>4. PT Antam Tbk puts a great attention on its employees' performance planning that must be developed by each employee personally with the guideline of each supervisor and obediently implements the coaching and counseling mechanisms for all employees.</p>	<p>units.</p> <p>3. PT Antam establishes the remuneration policy based on both internal and external considerations such as the value of the company conditions, the company's long-term plans, as well as the company's business environment.</p> <p>4. PT Antam Tbk applies a strategic cooperation with large companies to minimize supply chain delays for consumable or shortage materials.</p>
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(Data Processed, 2023)

In addition, Table 4 to Table 6 also indicate that the remapping on the existing human resource strategy through several programs, such as, both the reskill and up skills program, especially, the development of the existing skills of the employees may be later a handy tool to help the employees easily fill the offers of several vacant positions, in which are located inside the core business units and/or projects. Through the implementation of such programs above, it may help PT Antam Tbk to reduce and/or avoid efficiently and effectively the existence of future costs, for example, the costs from a new personnel recruitment procedure, etc.

Moreover, based on Table 4 to Table 6, this study indicates that PT Antam Tbk provides a scholarship program for employees who want to enhance their educational background in selected campus, both domestically and abroad. The scholarship includes fund for the living expenses. After the study is completed, PT Antam Tbk then ensures that all the graduated employees are eligible to continue to work and advance their career development within the company. Likewise, to support the digital transformation process of human resource, several programs, such as (a) training and development programs, (b) cultural development programs, and (c) knowledge management, PT Antam Tbk has been supported by an integrated learning system in the form of the MIND ID academy applications, namely: the learning management system (LMS) application and the human capital information system (HCIS) application. Through these applications, the employees of PT Antam Tbk can access various references and knowledge sources as well as can also collaborate with each other in improving their competencies.

**Table 5. The Results of IFAS and EFAS Matrix Analysis – WO and WT Combination**

Weakness	WO	WT
<p>1. There is a delay in the supply chain, especially the consumable materials for factories, hence, the employee operational productivity tends to decrease due to the shortages of raw materials.</p> <p>2. The use of appropriate technology for the factories and mining sites requires quite</p>	<p>1. PT Antam Tbk needs to manage all delays in the Supply Chain with the failure mode and effect analysis (FMEA) as well as to form a special team.</p> <p>2. The participation of all parties in optimizing the implementation of the work health and safety system in order to help all company members to create and maintain a safe,</p>	<p>1. The implementation of the occupational safety and health policies in every operational activity has launched the "SUPERSAFE" program to motivate every employee, either permanent employees or non-permanent employees, to always pay attention on the mining safety regulations in every operational activity.</p> <p>2. Implementing the Mining Safety Management System (SMKP) and</p>

expensive investments. 3. The declination on organizational productivity because the lack of the requirements of manhours that are higher in completing work or projects. 4. The application of outsourcing employee is below from a minimum standard. 5. Social conflicts with the surrounding local communities at several mining operational sites have brought the mining operations to a halt.	comfortable, healthy, and productive work environment. 3. Realizing a zero fatality in carrying out the safety guarantee of the mining site correctly. 4. Collaboration with a number of large companies for technology transfer. 5. Increasing the control over the use of outsourcing personnel with the competencies based on the needs of each work unit. 6. The proper improvement on the CSR program according to the needs of local communities and in sync with the local governments.	adopting the application of Occupational, Health & Safety Management System (OHSAS) 18001: 2007 and ISO 45001: 2018. 3. Invite and persuasively ask the board of commissioners of PT Antam Tbk, Directors, and the employees to involve actively in national health insurance program. 4. Remapping PT Antam Tbk's human resources strategy through several programs, for example, the reskill and up skills program and career development program. 5. Strictly control of all outsourcing employees in the company with the enforcement of stricter work rules, thus it may minimize the factors that hinder both employee and company's work productivity.
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(Data Processed, 2023)

Based on Table 6, the highest score of PT Antam Tbk efforts in optimizing its company and employees' productivity is from the combination of S1, S2, S3, S4, S5, T4, and T5. This can be seen in the several periodical assessments of competency of the employees. For example, the competency tests in 2020, that is completed by all employees at the division, bureau, and department levels and such test is assessed directly by the facilitator or direct supervisor. Additionally, the results of the abovementioned test indicate that the business partner & talent management division is responsible for the implementation of the competency measurement and based on the results of such test above must be properly presented in front of all divisions inside PT Antam Tbk to potentially open the opportunity in enhancing the whole company and employees' productivity. Likewise, the results of the assessment also become one of the references in determining the career advancement for every employee of PT Antam Tbk.

**Table 6. The Strategy of PT Antam Tbk in Developing the Employees' Productivity**

SWOT Combination	The Combination Relationships	Weight	Grade
SO1	S1,S2,O1,O4	16	2
SO2	S1, S2, S4, O2	15	3
SO3	S1,S5,O1,O4	16	2
SO4	S1,S2,O5,O1	16	2
WO1	W1,W2,W4,O2	10	6
WO2	W2,W3,W5,O3	10	6
WO3	W2,W3,W5,O3	10	6
WO4	W1,W3,O2	8	7
ST1	S1, S2, T1	10	6
<b>ST2</b>	<b>S1, S2, S3, S4,S5,T4, T5</b>	<b>24</b>	<b>1</b>
ST3	S4, S5,T4, T2	12	4

ST4	S1, S4, S5,T2, T3	16	2
WT1	W2,W5,T4,T5	8	7
WT2	W2,W4,T4,T5	8	7
WT3	W2,T4,T5	6	8
WT4	W5,T4,T5	6	8

(Data Processed, 2023)

Based on the Table 6, this study finds that, within the context of productivity optimization, the efforts of PT Antam Tbk are: (a) the improvements programs on the daily operational activities. This can be seen in the 2022 annual report of PT Antam Tbk that, in 2021, such company has successfully conducted various programs, which are primarily related to the knowledge sharing of the employees, such as a training on the use of appropriate and latest technology and the inclination of a great number in employees' work health and safety procedure innovations, and the improvement actions inside each PT Antam Tbk's business units. As a result of such programs, this company is eventually able to optimize its productivity through the enlargement of the production capacity of gold manufacturing by 66.7% per day. In addition, such company can also increase a kilobar production capacity through the procurement of a new gold bar press machine.

Moreover, within the context of digitalization technology enhancement, in 2022, PT Antam Tbk has continually intensified various digitalization projects. Some of the projects that have been applied are: paperless data and central database, computerized maintenance mangement system (CMMS), and so on. Based on the results abovementioned, this study then recommends that all the propositions, which are, P1, P2, and P3 are accepted. In other words, the knowledge sharing, in reference with the study of Binsaeed et al. [19], through business process enhancement affects employee productivity significantly and positively, the digitalization improvement through business process enhancement affects employee productivity significantly and positively, and the business process simultaneously affects the employee productivity. The findings of this study are also similar with the prior study from Binsaeed et al. [20] that explains knowledge sharing is one of central keys for the adoption of digital technology, including the improvement of digitalization inside the organization.

## 4. CONCLUSION AND RECOMMENDATION

### 4.1. Conclusion

Based on the results obtained from the data analysis within the prior sections of this paper, this study recommends several conclusions, namely:

- a) The results of the SWOT analysis, especially the analysis of the internal-external matrix factors of PT Antam Tbk in increasing both company and employee's productivity indicate that PT Antam Tbk efforts in improving and developing their company and employee's productivity is in a stable stage. This is due to PT Antam Tbk has been able to collaborate or cooperate with other mining companies in order to develop and optimize its business and resources, which is primarily done through the joint venture concept.
- b) The results of the SWOT analysis show that in increasing the employee's productivity, PT Antam Tbk's implements a strategy that is mainly focus on the inclination of employee's knowledge sharing, training on the use of appropriate and latest technology and digitalization, and the number of innovations and improvements in every PT Antam

Tbk's business units, particularly through several events, for example, webinars, digital workshops, as well as, the national and international mining events.

#### 4.2. Recommendation

- a) As for theoretical contribution, this study recommends that the role knowledge sharing as well as digitalization improvement through the proper and developed business process strategy play an important and crucial role on the growth of organization's productivity including the productivity of the organization's employees. This is also supported by several prior studies [11, 21, 23], for example, the study Dobrosavljević and Urošević [11], which indicates that business process plays significant role on the development of micro micro, small and medium-sized enterprises.
- b) As for managerial and practical contribution, based on the findings of this study, hence, this study offers several recommendations for business owners, practioners, as well as for PT Antam Tbk, namely:
  - It is necessary to optimize the use of the existing human resources while still paying attention on the work health and safety environment of the employees in order to maintain and improve the organizational sustainability.
  - It is crucial to implement a more optimal utilization of the existing applications related to the digital transformation technology in order to support the inclination of the company's productivity.
  - It is important to maintain the good industrial relations between managements and employees, as well as, the trade unions, which are related to the harmonization of employees' relations within the organization. Doing so, it may deliver the increasing on the work ethic and maintaining the trust between superiors and subordinates that may guide the whole organization to achieve successfully the vision and mission of the organization/company.
  - It is vital to implement the coaching and counseling between superiors and subordinates, so that the potential destructive obstacle that hinder the whole organization's productivity can be minimized.

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