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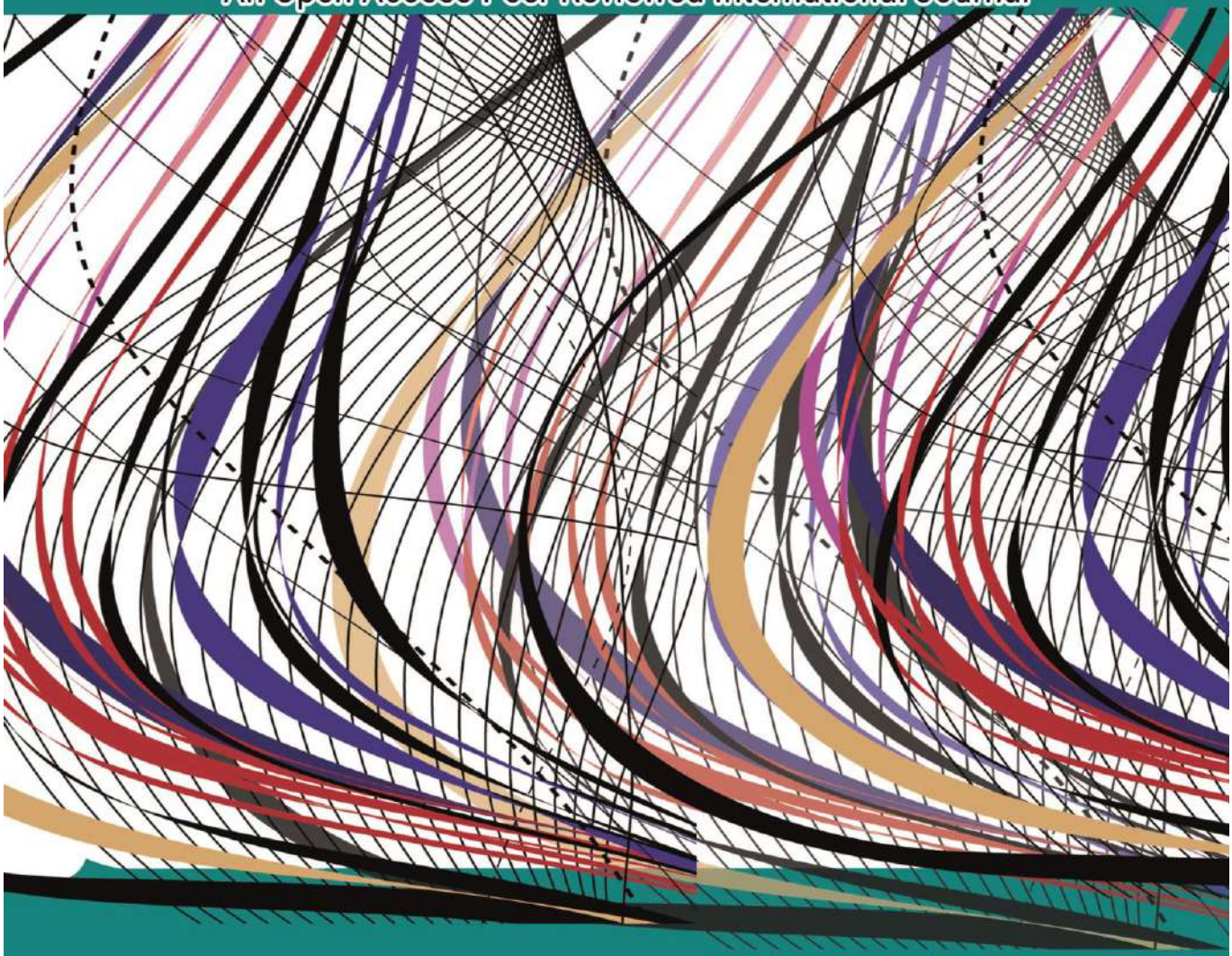

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FOREWORD

I am pleased to put into the hands of readers Volume-6; Issue-4: April, 2020 of **"International Journal of Advanced Engineering, Management and Science (IJAEMS) (ISSN: 2354-1311)" ,** an international journal which publishes peer reviewed quality research papers on a wide variety of topics related to Science, Technology, Management and Humanities. Looking to the keen interest shown by the authors and readers, the editorial board has decided to release print issue also, but this decision the journal issue will be available in various library also in print and online version. This will motivate authors for quick publication of their research papers. Even with these changes our objective remains the same, that is, to encourage young researchers and academicians to think innovatively and share their research findings with others for the betterment of mankind. This journal has DOI (Digital Object Identifier) also, this will improve citation of research papers.

I thank all the authors of the research papers for contributing their scholarly articles. Despite many challenges, the entire editorial board has worked tirelessly and helped me to bring out this issue of the journal well in time. They all deserve my heartfelt thanks.

Finally, I hope the readers will make good use of this valuable research material and continue to contribute their research finding for publication in this journal. Constructive comments and suggestions from our readers are welcome for further improvement of the quality and usefulness of the journal.

With warm regards.

Dr. Dinh Tran Ngoc Huy
Editor-in-Chief
Date: May, 2020

Editorial Board/ Reviewer Board

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Evaluation of corporate performance based on corporate governance

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Abstract*— *The performance evaluation of enterprises is closely related to the incentive and supervision mechanism in corporate governance, and can provide information support for the operation of both. The traditional enterprise performance evaluation index cannot meet the needs of enterprises under the new economic conditions and should be changed. Many enterprises and researchers at home and abroad have put forward the method of improving the index of enterprise performance evaluation. This paper tries to set up a set of enterprise performance evaluation index system around the value chain in strategic management to evaluate the value creation process of enterprises objectively, systematically and dynamically.

Keywords*— *corporate governance; performance evaluation; strategic management.

I. INTRODUCTION

After unremitting practice and exploration, china's state-owned enterprises have realized the necessity and urgency of establishing a modern enterprise system. The corporate governance system is based on the property right structure, and the basic model is the principal-agent system (Liu and Xia 2005). According to the agency theory, the enterprise is a contract network, the owner is the principal, the director and manager are the trustee, the owner entrusts the assets invested in the enterprise to the board of directors of the company, the board of directors as the highest decision-making body, has the right to reward and punish senior managers and appoint and remove the power, the senior management is responsible to the board of directors, is the executive body of the enterprise management. Because the object function of the trustee and the trustee is different, the interests are opposite, in the case of information asymmetry, there is inevitable moral hazard and reverse selection, which makes the enterprise interests suffer losses (Wang et al 2006, Xu 2007). Therefore, the supervision and incentive of trustees is an effective way to reduce the cost of agents and protect the interests of trustees. From this point of view, the main solution of regulating corporate governance is to establish and improve the internal and external monitoring mechanism of the company while stimulating the trustee's behavior, so that it is consistent with the company's strategic objectives. Because the operation of monitoring mechanism is a continuous dynamic process, only performance evaluation can make it have direction and effect, and the incentive mechanism is based on performance evaluation. Because of this, performance evaluation for the improvement of the company's monitoring mechanism and incentive mechanism cannot be ignored, is an important part of the corporate governance structure system.

Around the corporate governance structure, the perfect performance evaluation system mainly includes the comprehensive performance evaluation of the board of directors, the board of supervisors, the management and the enterprise (Zhou et al 2005). From the history of performance evaluation development, since the 1980s, multinational companies have begun to distinguish between the evaluation of corporate performance and the evaluation of the performance of managers. At present, China's corporate governance structure is not perfect, the board of directors of the company's control is weakened, and the

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general manager-led management of the company has been strengthened (Guo 2010). The performance evaluation of enterprises is an important part of the performance evaluation of the board of directors and managers, and giving full play to its function of management control means can not only promote the board of directors to better exercise the decision-making function, but also enable the supervisor to carry out management activities from the enterprise's goal, which plays an important role in the healthy development of the enterprise governance system.

II. STRUCTURE OF ENTERPRISE PERFORMANCE EVALUATION INDICATORS

2.1 Limitations of traditional enterprise performance evaluation indicators

Modern enterprises in the information age are facing more and more serious survival challenges, on the one hand, the rapid development of science and technology and the cross-border flow of capital make the business field of enterprises increasingly extend toed towards internationalization, facing more intense competition: on the other hand, the speed of information transmission, information processing costs reduced, which makes the product life cycle shortened, the enterprise's production and operation concept from the industrial society to the customer demand-oriented, creating value for customers has become the business purpose of many enterprises. However, under the background of enterprises constantly seeking the path of innovation and sustainable development, the traditional enterprise performance evaluation system is gradually unable to meet the needs of the enterprise's own changes, exposing many defects (Ji et al 2019). First of all, the traditional enterprise performance evaluation system is produced under the conditions of industrial economy, because the manufacturing process in mechanized production tends to be procedural and integrated, the evaluation of business results is more important than the monitoring and evaluation of the process. Therefore, the traditional enterprise performance evaluation index is mainly a reflection of the past business results, with historical, single and static, can not be implemented by enterprises to adapt to some advanced management methods, for example, in recent years, the implementation of the total quality management method, target management method, timely system (Just-in-time) and operating cost law, etc. need to carry out dynamic assessment and evaluation of the process, and the traditional performance evaluation indicators if not reform will lag behind the pace of enterprise management development (Zhang 2019). It's even an obstacle to its development. Secondly, in the industrial economy, enterprises emphasize the evaluation of inputs and output results in tangible means of production, while ignoring the evaluation of intangible assets, especially human resources value, and the performance evaluation indicators formed according to this are mostly quantifiable financial indicators; In evaluating the allocation and benefit of these economic resources, it is necessary to involve the use of non-financial indicators, which requires the expansion and reform of the traditional performance evaluation index system. Finally, the traditional enterprise performance evaluation index system focuses on the analysis of the efficiency of the utilization of resources within the enterprise, ignoring the impact of the external environment on the enterprise; therefore, its indicators cannot provide users with forward-looking information about the long-term development of enterprises, so it cannot help the strategic management of enterprises. It is precisely because of these shortcomings of the traditional enterprise performance evaluation system that it is necessary to design a complete system of enterprise performance evaluation indicators to provide the evaluation information demanders with information on different levels of the overall framework of enterprise performance to meet their diversity needs.

2.2 The composition of an improved system of corporate performance evaluation indicators

Some foreign scholars and enterprises have studied and practiced how to establish a system of corporate performance evaluation indicators that combine financial and non-financial indicators, for example, for example, Fortescue Management Consulting Company has recommended the following corporate performance evaluation index system, which includes: :(1) Overall performance; (2) sales; (3) profitability; (4) operating expense control; (5) cost control in functional areas; (6)

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labor productivity; (7) inventory management; (8) accounts receivable management; (9) financial management. The results of the transformational research on the performance evaluation of enterprises should be the comprehensive credit card proposed by Kaplan and Norton in the United States in the early 1990s. The comprehensive credit card includes performance evaluation indicators in four areas: (1) Financial indicators can show whether the enterprise strategy and implementation is contributing to the improvement of its final operating results, generally involving the evaluation of the profitability of the enterprise; (2) On the customer side, it generally includes several core and overall measures of the results of the development and implementation of the enterprise strategy, including customer satisfaction, the ability to retain the original customers, the attractiveness of new customers and the share of the target market; (3) In terms of internal business processes, it includes the measure of different objectives of enterprises in the short business cycle and the long-term innovation cycle; (4) In terms of learning and growth, it includes a measure of the investment spending by a business in terms of talent, systems and organizational processes. By transforming the enterprise's strategy into a target and measurement method, the integrated integral card can combine short-term and long-term goals, ideal results and related drivers, hard objective factors and flexible subjective factors, which is undoubtedly a major improvement to the traditional enterprise performance evaluation methods (Pu 2020, Zhou and Lv 2019). The above-mentioned ideas for the improvement of traditional performance evaluation indicators are generally to classify the important factors affecting the performance of enterprises, and then respectively in the relevant part of the design indicators to measure, the resulting index system is the enterprise under the guidance of strategic objectives of the business performance of the macro, comprehensive evaluation, but not the enterprise this economic entity of the value creation process of dynamic measurement and evaluation, therefore, the author tries to build a set of enterprise performance evaluation index system around the enterprise's value chain operation process. Michael Porter, a professor at Harvard Business School, defines the value chain as "a chain of value creation activities in which a business enables customers to obtain valuable property or services". According to Porter," the value chain activities of an enterprise can be divided into two main items according to its content: one is the main activity and the other is to support the activity. The main event includes the following: (1) internal logistics activities; (2) production activities, (3) external logistics activities, (4) marketing and sales activities, (5) after-sales service activities. The support activities consist of the following sections: (1) procurement activities; (2) technical development activities; (3) human resources management activities; (4) general management activities. Through the process of enterprise's value chain activities, we can understand the situation of enterprises at all stages of the process of creating value, and can make a more timely, comprehensive and objective evaluation of the formation and existing problems of enterprise performance. "The central link of a traditional performance appraisal system is to provide products or services to customers, but if this activity is taken into account in the value chain as a whole, good business performance is found to be only one factor in the process of enterprise value formation, not the most decisive element." Therefore, the establishment of evaluation indicators should pay attention to the link with all links in the value chain, and financial and non-financial indicators into it. The following will establish the corresponding evaluation indicators for the components of the enterprise's value chain.

The evaluation indicators of the main activities constitute the internal logistics activities of which usually refer to activities related to the acceptance of raw materials, warehousing, consolidation and inventory control. Production activities refer to the activities of pre-processing, manufacturing and forming the final product. External logistics activities refer to activities related to the storage of manufactured goods, the processing of orders, the arrangement of production procedures, the delivery of products, etc. Marketing and sales activities mainly refer to how to make consumers perceive the characteristics of products and services and recognize their intrinsic value, and thus purchase the product and services related activities. Usually includes market research and segmentation, sales channels, advertising and other marketing tools, such as the adoption of a series of activities. After-sales service activities refer to the link between the product and the

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consumer, through which the value of the product can be maintained and strengthened. The main activities of the various links are the most direct channel of enterprise value formation, the evaluation of the process performance has basic and comprehensive evaluation indicators, the basic evaluation indicators time cycle, cost, quality, etc. , comprehensive evaluation indicators have customer satisfaction, flexibility and service level. Because the operation of each part of the value chain is interconnected and orderly, the time cycle indicators of the main activities reflect the overall time span of the enterprise's value creation on the one hand, and on the other hand, through the evaluation of the time occupied by each part of the value chain operation, it can be coordinated and coordinated with each other. In addition, matching the time taken by the various links in the main activities with the corresponding input and output data can evaluate the operational capacity of the funds over a certain period of time, for example, comparing the time of production activities and the quantity of related manufactured goods in the value chain, the productivity of the unit time can be evaluated, and the efficiency of the internal logistics activities themselves can be evaluated by linking the time taken by internal logistics activities to the amount of inventory inputs, Comparing the number of manufactured goods in the subsequent value chain with the subsequent value chain can also be used to assess the extent to which logistical activities have a time-to-time impact on the output of production activities. In short, the time evaluation index around the value chain of the main activities is not complicated in its own operation, it is important to evaluate the enterprise's industry characteristics, organizational structure, production scale, technical level and market positioning to be considered, for example, for electronic products with short life cycle, the time period of the main activities in the value chain is also required to be short; The traditional accounting system links the cost only with the individual operating tasks, activities, and departments, so as to limit the evaluation of the cost to the enterprise, for example, through the establishment of a responsibility center to control its controllable cost, and some uncontrollable costs in the whole company level distribution, cost motivation is monotonous, cost is only a function of production, the cost evaluation of information to the enterprise strategic decision-making effect is not very good. In the value chain, the scope of cost evaluation not only includes the internal processing chain, but also accommodates the enterprise and external customers of the value chain, the cost extension is expanded, covering from raw material acceptance, warehousing, finishing costs to after-sales service costs, cost driver diversification, cost evaluation focus is closely related to the enterprise's competitive strategy, for example, when the cost-leading strategy is adopted, the focus of cost evaluation is to reduce the cost of the enterprise to improve the business efficiency: The importance of cost reduction is secondary to the improvement of product functionality. The evaluation index of quality can be formulated by reference to the provisions of the ISO9000 quality certification system for the provisions of the ISO9000 quality certification system, such as product, product marking and traceability, process control, inspection and testing of equipment inspection, measurement and testing, inspection and test status, nonconforming product control, corrective measures, handling, storage, packaging and payment, quality records and after-sales service. "The customer satisfaction indicators in the composite indicators must select those indicators that reflect the effectiveness of the product in meeting the needs and expectations of the customer and which are manageable for the company." The Malcolm Baldridge National Quality Award, established by the U.S. Department of Commerce in 1987, designed the following seven evaluation indicators for customer satisfaction: awareness of customer requirements and expectations, customer relationship management, customer service standards, commitment to customers, resolution of quality improvement requirements, confirmation of customer satisfaction, and confirmation of customer satisfaction and comparison of customer satisfaction. Flexible evaluation index mainly reflects the comprehensive ability of enterprises to adjust design, production, marketing and a series of activities in a timely manner, guided by customer demand. Service level index is the comprehensive embodiment of service response time, quality, and related cost and so on.

The indicators of support activities constitute the purchase activity of which refers to the purchase of factors of production used to be invested in the value chain. Input

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factors include not only liquid assets such as inventory, but also fixed assets such as machinery and equipment. In the performance evaluation of it, in addition to taking into account the quality, price and time of the factors of production invested, but also to consider the contribution of upstream suppliers to the value of enterprises and the impact of the input of the procurement of production materials on the downstream value chain, the investment rate index of assets can be used to evaluate the contribution of invested assets to the value of enterprises. Technology development activities are activities that improve the quality of a product or labor and the effectiveness of operations in the value chain or can innovate the product. The contribution of technology development activities to the value of enterprises is quite uncertain and difficult to measure directly, so it is difficult to measure their performance. Korean scholars have developed a system of indicators to evaluate the performance of research and development activities, including inputs, intermediate processes, outputs and results. Among them, the evaluation indicators of the input stage are: sufficient investment, adequate equipment, professional investment, personnel skills, intermediate process evaluation indicators are: feasibility of the plan, the effectiveness of the selection of projects, the cooperation between departments and production and marketing departments, strict implementation of the degree of effort of the plan, adequate information management, the expansion and diversification of research areas; Human resources management activities throughout the value chain activities, its performance evaluation, most enterprises now focus on employee satisfaction, employee loyalty and employee productivity evaluation of the three aspects. Basic management activities include the development, implementation and implementation of business functions such as administration, finance and law, and it also covers the entire value chain. The use of traditional financial techniques to evaluate the performance of basic management activities is difficult because it involves factors such as budget, quality of work, working hours and service levels, and the quality of work and service levels are more difficult to quantify, although they are closely related to the cost of functional departments, but the performance of the two is not positively related to the size of the costs. The usual methodology for the performance evaluation of basic management activities is mainly to budget for the business strategy of the enterprise, and then to evaluate the actual performance and budget comparison. Budgeting may be prepared by examining the level of expenditure for similar functions in the industry to determine the amount of the budget, or adjusting historical budget data according to the business strategy of the enterprise, in addition to the use of a zero-based budget method. It should be pointed out that the construction of enterprise performance evaluation index system is oriented by the information needs of different performance evaluation information users. In the case of the high concentration of equity in China's enterprises, the vast number of small and medium-sized investors in the capital market, they tend to use the index system formed on the basis of corporate financial report to measure the business performance of enterprises, and for institutional investors with high shareholding ratio, how to reduce the disadvantages brought about by information asymmetry to the business performance of enterprises have a real, objective, scientific understanding and evaluation is related to their vital interests, so, in addition to the use of earnings per share, net assets per share, Price-earnings ratio and other evaluation indicators from the external financial report of enterprises, the value chain-based enterprise performance evaluation index system can enable the main investors of enterprises to have a comprehensive, systematic and dynamic understanding of the formation of enterprise performance, thus helping them to exercise their client's authority in corporate governance; Improve economic efficiency and better exercise the duties and obligations of agents.

III. PROBLEMS TO BE PAID ATTENTION TO IN ENTERPRISE PERFORMANCE EVALUATION

First of all, the effective implementation of enterprise performance evaluation must be based on the sound and perfect corporate governance structure. As mentioned earlier, the performance evaluation of the enterprise is closely integrated with the incentive and supervision mechanism in the corporate governance structure and provides information support for the operation of the two. If the corporate governance structure does not meet the

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requirements of the modern enterprise system, and the incentive and supervision mechanism fails to exert the driving and restraining power of the enterprise agent's behavior, the performance evaluation will flow into the form and will not have its due effect on the improvement of the enterprise's performance.

Secondly, it is necessary to distinguish the performance evaluation of enterprises from those of managers. In the past empirical study of management and enterprise performance, it is found that the management has a great influence on the company's performance, the two have a strong correlation, but it should be noted that due to the existence of some uncontrollable factors in the business environment, there is also a situation in practice where the performance of the enterprise and the subjective efforts of managers are not consistent, so different methods should be used to evaluate the performance of enterprises and managers. For example, in a survey of the performance of 200 Multinational companies in the United States, foreign scholars found that most parent companies regard return on investment as the primary choice for evaluation of the performance of subsidiaries, while management performance evaluations are now more likely to compare their actual work results with budgeted.

Finally, it should be noted that the design of the performance evaluation index of the enterprise should be related to the specific situation of the enterprise. Because of the different industry characteristics and development stage sits, the focus of its business strategy is different, therefore, for different enterprises, the selection of specific performance evaluation indicators and weight determination have different practices, there is no evaluation index system applicable to all enterprises.

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Communication among blind, deaf and dumb People

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Abstract**—** *Now-a-days Science and Technology have made the human world so easy but still some physically and visually challenged people suffer from communication with others. In this project, we are going to propose a new system prototype called communication among Blind, deaf and dumb people .This will helps the disabled people to overcome their difficulties in communicating with some other people with disabilities or normal people. The blind people will communicate through the speakers, the deaf and dumb people will see through it and reply through typing in a terminal .These are all done as an application , so that will be easily understand by the people with disabilities.*

Keywords**—** ***Social interaction, blindness, Granger causality.***

I. INTRODUCTION

Social cognition is the product of the behavioural and cognitive processes dedicated to build our social world. In humans as well as in other species, many social cues take the form of body language and therefore require vision in order to be understood [1]. For example the imitative behaviour in newborn infants provides an innate foundation for understanding inner states belonging to other persons and for mapping others' actions into actions of their own body [2]. Since vision directly enables the contextual perception of surrounding objects, the absence of vision adversely affects not only language, motor, and cognitive development [3], but also social competence [4-6] in visually impaired people. For example, since totally blind children lack visual references, they might not be aware of social cues in the form of body gestures while communicating with others. Similarly, low vision children might not correctly express and interpret body language because their imitative behaviours during infancy was prevented due to their degraded vision. As a consequence, visually impaired children often face problems in integrating socially. Preschool-age children with visual disabilities often have difficulty engaging in positive social interactions. Many do not display a full range of play behaviours [4-11], spend more time in solitary play interacting more with adults than with their sighted peers [6, 9, 10, 1217], and are typically unable to demonstrate peer-related social competence [18-20]. This social impairment gives rise to feelings of frustration and fear of interaction, rather than self efficacy and independence, which characterize the social experience of typical children.

II. RELATED WORK

1. Participants

Six visually impaired (3 females, age range: mean age: 42 years old) and eight sighted (4 females, age range: mean age: 40 years old) adults participated in the study. Furthermore, seventeen visually impaired (12 females, mean age: 12 years old) and twelve sighted (4 females, mean age: 13 years old) children aged 6 to 17 participated to the study. Adults and children groups were aged-matched ($t(12) = -0.15$; $P = 0.88$; $t(27) = 0.35$; $P = 0.72$).

2. ABBI

ABBI is a wearable electronic device positioned on the wrist that produces sounds when moved. It comprises an ABBI bracelet and a mobile phone with an ad-hoc application that allows one to control the sound and the volume. The bracelet and the mobile phone communicate via Bluetooth Low-Energy [23, 28].

Audio Social Interaction Task and Protocol

The task was performed in a dark room for better tracking movements with the motion captive system. The task required the experimenter to wear ABBI on the wrist and

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move the arm making three different shapes (straight line, circle and lemniscates symbol) in random order. The participant stood in front of the experimenter and had to follow the experimenter movement that the participant perceived from the moving sound source (i.e. the ABBI bracelet). Each trial lasted 30 seconds, and each shape was performed 5 times in a random order, for a total of 15-20 minutes per participant including breaks. Blind and blindfolded sighted participants performed 15 trials in which the shape produced by the experimenter was known in advance and 6 trials in which it was not

III. LITERATURE SURVEY

1. Multi-modal Interfaces for Interaction-Communication between Hearing and Visually Impaired Individuals: Problems & Issues

In this paper the author said one important and challenging problem in human interaction is the communication between blind and deaf individuals. The challenge here involves several cases: (i) first case is a deaf person usually does not speak in order a blind person to hear him/her; (ii) second case is when a blind person speaks a deaf person cannot hear; (iii) third case is when a deaf person makes sign language signs a blind person cannot see them. Thus, this paper presents a study on multi-modal interfaces, issues and problems for establishing communication and interaction between blind and deaf persons. A system-prototype Tyflos- Koufos is proposed in an effort for offering solutions to these challenges.

2. Design of an Assistive Communication Glove using Combined Sensory Channels

This paper presents a new design of a wireless sensor glove developed for American Sign Language Finger spelling gesture recognition. Five contact sensors are installed on the glove, in addition to five flex sensors on the fingers and a 3D accelerometer on the back of the hand. Each pair of flex and contact sensors are combined into the same input channel on the BSN node in order to save the number of channels and the installation area. After which, the signal is analyzed and separated back into flex and contact features by software. With electrical contacts and wirings made of conductive fabric and threads, the glove design has become thinner and more flexible. For validation, ASL finger spelling gesture recognition experiments have been performed on signals collected from six speech-impaired subjects and a normal subject. With the new sensor glove design, the experimental results have shown a significant increase in classification accuracy.

3. Automation of the Arabic Sign Language Recognition

Interfaces in sign language systems can be categorized as direct-device or vision-based. The direct-device approach uses measurement devices that are in direct contact with the hand such as instrumented gloves, flexion sensors, styli and position-tracking devices. On the other hand, the vision-based approach captures the movement of the singer's hand using a camera that is sometimes aided by making the signer wear a glove that has painted areas indicating the positions of the fingers or knuckles. The main advantage of vision-based systems is that the user isn't encumbered by any complex devices; their main disadvantage, however, is that they require a large amount of computation just to extract the hand position before performing any analysis on the images. In this paper we will discuss only the directed-devise methods.

4. Design of new digital blind feed forward timing recovery algorithm for linear modulations in digital communication receivers

Synchronizers are a significant part of digital communication receivers since they are used to estimate the received signal timing. Among these synchronizers, non-data-aided (NDA) or blind synchronizers are even more important due to bandwidth efficiency. In this study, a different approach is investigated to derive new feed forward NDA timing estimators based on Newton algorithm. Two novel estimators with four and two samples per symbol are presented and compared with traditional timing estimators, respectively. One of the main advantages of the second proposed estimator is the ability to control the loop gain automatically. This ability improves the convergence speed and robustness of the design. Simulation results show that the presented estimators outperform the conventional estimators over a noisy channel, especially at small excess bandwidth and low signal to noise ratio.

5. ACE Assisted Communication for Education: Architecture to support Blind & Deaf communication

Deaf and blind students face communication barriers that are constantly present in their daily lives. These barriers arise naturally since the deaf community; the blind community and the rest of the students and teachers use different languages and different channels to communicate. These barriers have a significant impact in the academic, personal and professional development of deaf and blind students. Using automatic tools to assist the fluid communication between people using different languages and different channels of communication might

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significantly promote the social inclusion of disabled students. In this paper we describe the ACE architecture which incorporates Virtual Sign, a translator for sign language and other components to allow for the real time translation between sign and oral languages. This architecture supports any sign language. We expect ACE will provide ways for the fluid communication among deaf people, blind people and those not constrained by these disabilities.

IV. EXISTING SYSTEM

In existing system Sign Language is the only way of communication for speech impaired people. A the general people unable to understand the sign language , so it becomes very difficult for a speech impaired person to communicate with them. There is no system to communicate speech impaired people.

V. PROPOSED SYSTEM

In this project an electronic speaking system and a terminal for typing was developed to ease the communication process of speech impaired people and the speaker is developed for speaking for the visually impaired people .This makes the disabled people to communicate easily without the help of others.

VI. MODULES

1. **BLIND MODULE**
2. **DEAF MODULE**
3. **DUMB MODULE**

1. BLIND MODULE

In older days, they use Braille system to communicate with blind people, to overcome this, we use voice controller system to communicate with the blind people .In this, the blind people can talk through the voice controller to communicate with other people. In another case, we have an app like, the blind people can call or message to the respective person in their contact by drawing their own gestures respective of their contacts.

It is much more useful for the blind people to communicate.

2. DEAF MODULE

In this deaf module, we can able to communicate with the deaf people, using the terminal. They can type on whatever they want to say and it will be displayed in the terminal page of other people

3. DUMB MODULE

Sign languages are languages that are used by dumb people to express their feeling through manual articulations in combination with non-manual elements. Sign languages are also natural languages in their own grammar and lexicon.[1] Sign languages are not universal as they are not mutually intelligible,[2] although there are also striking similarities among sign languages.

Linguists consider spoken and signed communication to be types of natural language as they both express their own thoughts in their way of communication. Sign language should not be confused with body language, as they are a type of nonverbal communication.

VII. FIGURES AND TABLES

Fig. 1 Blind module

Fig . 2 Dumb module

VIII. FUTURE ENHANCEMENT

Future work would utilize a cyber glove and more sophisticated featured extraction algorithm will be utilized. Upon successful implementation of the proposed system, another system would be developed to transfer spoken language into signs using handheld devices like PDA.

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IX. CONCLUSION

The acquisition of spatial hearing is typically a good indicator of the future ability to independently navigate in the environment and engage in positive social interaction with peers. While for sighted individuals the visual feedback represents the most important incentive for actions and thus for the development of mobility and social skills [32], visually impaired individuals strongly rely on auditory landmarks to encode spatial and social information. Indeed, it has been shown that visually impaired children often have difficulties engaging in positive social interactions, making their assimilation into preschool programs difficult and giving rise to counter-productive feelings of frustration. In this study, we proposed an audio social interaction task in which two agents have to interact thanks to an audio source in order to synchronize their arm movements. As a measure of social competence, the application of the Granger Causality method allows the quantification of sensor motor information flow between partners. This is the first attempt at the evaluation of joint action coordination in visually impaired people. More importantly, we also measured the effects of an extensive but entertaining interventional program with ABBI on the development of social competence in visually impaired children aged 7-17 years old.

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Industry Partners' feedback on the OJT performance of Bachelor of Science in Information Technology (BSIT) Students

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Abstract*— *This study determined the feedback of trainers/supervisors regarding the respondents' personal, interpersonal and technical understanding skills in their on-the-job training (OJT) program using descriptive research design. The respondents of the study were 156 BSIT students enrolled in the OJT Program during the 2nd Semester of A.Y. 2018–2019 at Nueva Ecija University of Science Technology, San Isidro Campus.

The findings of the study have shown that the students were excellent in numerous personal skills. Likewise, they were very good in most of their technical understanding skills which are hard skills in the field of Information Technology. Still, there were areas in which students' performance need enhancement. Due to this, the researchers proposed a plan of action as an intervention to improve the program that would later result in the improvement of the students' performance in their OJT.

Keywords*— *Feedback, information technology, interpersonal skills, on-the-job training, personal skills, technical understanding skills.

I. INTRODUCTION

One of the voluminous challenges every academic institution has to face is how their graduates would fit in the industry standards when it comes to information, skills and competencies. It is necessary that the students were able to acquire the knowledge, skills, and competencies needed to address the complex social, economic and even political issues they have to face in the real battleground (Kazis, Vargas and Hoffman, 2004).In this era, where technology plays a vital role(Navarro, 2019), technology-based education particularly courses in Computer Science and Information Technology has become one of the most in-demand courses nowadays (Miro, 2019). The Nueva Ecija University of Science and Technology which is composed of several campuses offering IT courses is sensible enough to have their students prepared after graduation in combating the real corporate world so that these students would be able to get a job suited in their field. The challenge has now been assumed by the academe through its On–the–Job Training and Career Development Center (Verecio, 2014).

As part of the curriculum, students will undergo On–the–Job Training (OJT) in which they were deployed to different partner agencies in the field of IT that would provide them practical experiences (Mina and Aydinan, 2019). According to Dulnuan and Saulog (n.d.), internship or practicum is a program that provides student–learners the opportunity to enhance their formal education that isfull of concepts and theories with applied knowledge, skills and desired attitudes that would eventually lead them in gaining practical experience in recognized industries. This training is a pervasive method for augmenting student–learner's productivity and cultivating their job performance (Gupta and Bostrom 2006). It connects the gap between theory and

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practice as well as between classroom education and real industry life (Laguador, 2013).

It is also an enhancement of technical knowledge, skills and attitudes of students towards work necessary for satisfactory job performance. These programs exposed the students to work on realities that would ideally hone their skills and prepare them once they get out of the university or college (Department of Labor and Employment, 2015). It means that the OJT is a two–way process wherein both parties, the companies and the students are benefited from the program.

In the study conducted by the People Management Association of the Philippines (PMAP) in 2006 which is cited by the Department of Labor and Employment (2015), it has emphasized the importance of an effective On–the–Job Training program to ensure appropriately skilled graduates as it ensures the possibility of good performer graduates. Thus, every academic institution together with national government agencies and private institutions should work together for skill-specific tasks and mentoring of the students to achieve such objectives.

Since the Nueva Ecija University of Science and Technology (NEUST) San Isidro Campusoffers Bachelor of Science in Information Technology (BSIT) as part of its undergraduate programs, aimed to produce graduates that they believe are contributing to the growing workforce of IT professionals, there is a need foran assessment as to how responsive theirgraduates have been performing during their training. This scenario triggered the researchers to conduct this study. It aimed to determine the level of OJT performance to variously identified competencies specifically in terms of their personal, interpersonal and technical understanding skills. Furthermore, as part of the ongoing efforts in the fulfillment of the University's commitment to its stakeholders, it is important that this campus is aware of the feedback of the student–learners' trainers/supervisors to their performance during their training since the quality of internship learning heavily depends on the quality of feedback and supervision by both the company and the university (Narayanan, Olk and Fukami, 2010). At the same time, this can also serve as a foundation to further improve the program currently being implemented.

II. METHODOLOGY

The research design utilized in this study was descriptive. Descriptive research aims to accurately and systematically describe a population, situation or phenomenon (McCombes, 2019).

The respondents of this study who were chosen purposively (Subia, 2018) were limited to the respective trainers/supervisors from the different partner agencies of all student–learners enrolled in the OJT Program of the BSIT program during the 2ns Semester of A.Y. 2018–2019 at Nueva Ecija University of Science Technology San Isidro Campus. A total of one hundred fifty-six respondents (156) participated in the survey.

The researchers used a survey–questionnaire based on CHED CMO–No. 53 s. 2006. Included in the memorandum order are expected competencies to be acquired by the graduates from BSCS, BSIT and BSIS programs. The questionnaire is divided into three parts. The first part is composed of the personal skills of the trainee, the second part is the interpersonal skills of the trainee and the last part is focused on the technical understanding skills of the trainee.

The collection of data was done through in-person distribution and the respondents were given enough time to think about their answers to the questions. Responses from the questionnaire were tabulated, analyzed and computed using frequency count, percentage and weighted mean.

Each response to every item was evaluated based on the following scale and verbal interpretation:

Scale of Values	Limits of Scale	Verbal Interpretation
5.00	4.21 – 5.00	Excellent
4.00	3.41 – 4.20	Very Good
3.00	2.61 – 3.40	Good
2.00	1.81 – 2.60	Fair
1.00	1.00 – 1.80	Poor

III. RESULTS AND DISCUSSION

This section provides the presentation of the results of the study. Corresponding analysis and interpretation regarding some presented data were discussed.

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Table 1. Personal Skills of the Student–Trainees

No.	Indicators	Score	
		Weighted Mean	**Verbal Interpretation**
1	Personal–discipline	4.39	Excellent
2	Critical thinking	4.16	Very Good
3	Inter and Intra person motivation	4.20	Very Good
4	Problem-solving	4.22	Excellent
5	Planning and organizing	4.27	Excellent
6	Ethical thinking	4.22	Excellent
7	Entrepreneurial thinking	4.08	Very Good
8	Innovative	4.29	Excellent
9	Perseverance in pursuing goals and continuous improvement	4.43	Excellent
Overall Weighted Mean		**4.25**	**Excellent**

The data above displayed the feedback of the trainers/supervisors on the personal skills of the student–learners who have undergone their training in their companies. The students were excellent in the following: perseverance in pursuing goals and continuous improvement(WM= 4.43); innovative skills (WM=4.29); planning and organizing skills (WM=4.27) and problem-solving skills (WM=4.22). It seems that the respondents were ready in the real world of work because of their higher level of personal skills particularly, problem-solving skills. Problem-solving is the most important aspect of learning which means that the respondents were capable of solving a wide variety of complex and meaningful problems as they grow older (Salangsang & Subia, 2020; Subia, 2020).The inclination of the trainers/supervisors as they see their trainees wanting to pursue long–term goals with perseverance and passion may be determined in part by their beliefs about one's capabilities and the relative influence of external causes (Duckworth, Peterson, Matthews and Kelly, 2007). This indicator is somehow impressive on the part of the company as they see that their trainees are goal-oriented and are seeking professional development.

The trainers/supervisors, on the other hand, found the students very good in terms of their entrepreneurial thinking skillswith a weighted mean of 4.08. Since the students are taking an IT course, they did not excel in this kind of soft skills. In this case, the educational system has to train young people who want to learn entrepreneurial skills and this can be integrated with the curriculum because ICT business needs new entrepreneurs and innovative business cultures (Juvonen and Ovaska, 2012). Interpersonal relations and even teamwork are interactive skills that are an aggregation of these aforementioned personal skills which by all means can be developed in customary programs the university has prepared for the students but a more substantial amount of the skills can only be established and acquired in the real environment of the workplace (Sabag, Trotskovsky and Schechner, 2006). According to Carter (1998), the internship is viewed as a vehicle that supports the adaptation of academic preparedness to skills required by the work market.

Table 2. Interpersonal Skills of the Student–Trainees

No.	Indicators	Score	
		Weighted Mean	**Verbal Interpretation**
1	Teamwork collaborative	4.09	Very Good
2	Oral and written communications	4.21	Excellent
3	Conflict resolution	4.20	Very Good
Overall Weighted Mean		**4.17**	**Very Good**

The data above exhibited the feedback of the trainers/supervisors on the interpersonal skills of the student–learners who have undergone their OJT in their companies. It can be renowned from the data above that the students have been rated excellent by their trainers/supervisors in terms of oral and written communication skills with a weighted mean of 4.21. Communication skills, both in oral and written, are substantial for a student's academic success and future career prospects (Lucanus, 2017).On the other hand, the students were rated very good in terms of their teamwork collaborative skills with a weighted mean of 4.09. Students have been observed lacking the necessary teamwork collaborative skills (Carnegie Mellon University, 2019) that's why group projects are not working well even during

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their academics because students tend to weigh and compare their contribution to their group mates'. In the same article, it has been mentioned that real-world stories about what can go erroneous when these skills are weak can further emphasize the message that these skills are dominant to professional success. According to Phillpott (2019), on a scale of 1 to 5, managers rated the importance of having good interpersonal skills at 4.37, just below the "ability to work in teams" (which obviously comes in at 4.49). Therefore, interpersonal skills are crucial and must be given full attention by the academicians.

Table 3. Technical Understanding Skills of the Student–Trainees

No.	Indicators	Score	
		Weighted Mean	**Verbal Interpretation**
1	System Analysis and Design	4.21	Excellent
2	Operation of Database, Network and Multimedia System	4.20	Very Good
3	Software integration, testing and documentation	4.21	Excellent
4	Systems management and administration	4.14	Very Good
5	Principles of Accounting	3.97	Very Good
Overall Weighted Mean		**4.15**	Very Good

The data above revealed the feedback of the trainers/supervisors on the technical understanding skills of the student–learners who have undergone their training in their companies. It can be remarked from the data above that the students have been rated excellent by their trainers/supervisors in terms of system analysis and design and software integration, testing and documentation with a weighted mean of 4.21. On the other side of the coin, the student–learners were rated very good in terms of their knowledge in the principles of accounting with a weighted mean of 3.97.Information Technology (IT) may be the most stimulating program in terms of skill gaps for the reason that there is the fast speed of change in terms of hardware and software development (Patacsil and Tablatin, 2017). Yet, if the trainees have these technical understanding skills, these are entry-level skills that if they possess can provide them long–term careers (Pritchard, 2013).

Table 4. Proposed Plan of Action to Improve the OJT

Problems	Reason	Strategy	Responsible Person/s
Oral and written communications	OJT does not express well in the English language but they express themselves more in using their native language.	• Exposure to different activities involving the use of the English language. • Creating an English zone area for students and faculty to practice the use of English in communication	Students, Faculty, Members of the Administration
Systems analysis and design **Operation of databases, network and multimedia systems**	Improper placement of OJT to the company. The task being assigned to the OJT was more on clerical works.	• Assign to IT-based companies specifically outside the province since there are a limited number of IT companies present in the province. • To further improve the IT core functions, attendance to IT seminars and conferences for the latest innovation in the IT field.	OJT Director, OJT Coordinators, Students, Faculty, Members of the Administration
Software integration,			

testing and documentation	
Systems management and administration	
Principles of accounting	

The table above presents the proposed plan of action that the researchers believe can improve the OJT program of the BSIT courses in NEUST San Isidro Campus.

IV. CONCLUSION AND RECOMMENDATION

Based on the findings of the study, the current program of the On–the–Job Training and Career Development Center of NEUST as stipulated in its manual is operative. Although, there were areas needing improvement in terms of the three skills analyzed above. In relation to these foregoing results, the researchers formulated a proposed plan of action to strengthen and further improve the OJT program. The researchers based this proposal on some of the inadequacies found in the performance of the student–learners based on the feedback of the trainers/supervisors of the different partner agencies of the university. It is suggested by the researchers that IT educators should check and observe the trends in the world of IT to update their modules and learning materials so as to further enhance their teaching approach which would result in the enrichment of the technical understanding skills of the students. In order to sustain the delivery of quality education, the mentors in the IT Department must set a retention policy in their program and give directions to those students who could not really adapt the curriculum set by the university which is a major solution to avoid mismatch of skills. Also, the OJT Coordinators must ensure that the students were deployed to companies that are engaged in the field of IT in order for the students to gain additional learning in the real corporate world. Lastly, the university should strengthen the OJT Office wherein its function is intensive monitoring of all the interns across programs and identify qualified coordinators.

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Climate and Consumption Pattern -Demand and Supply of Water District concessionaires

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Abstract*— *This study aimed to describe the climate and consumption pattern-demand and supply in Santa Rosa, Nueva Ecija of Water District Concessionaires from the year 2016-2018. It looked into which season and year have a high or low water supply and consumption. The descriptive research design was utilized and gathered data were primarily taken from the Monthly Data Sheet from Production Division of Santa Rosa (N.E.) Water District. The demand presented the meter billed while the supply illustrated the production of the Santa Rosa (N.E.) Water District. The study revealed that the concessionaires were consuming more in the dry season rather than in the rainy season. They have the highest water supply in 2018 with 3,355,162 cubic meters while 2016 has the lowest with 2,792,392 cubic meters. As to the percentage consumption, the respondents consume 82.37% of supply in 2018 (2,763,679/3,355,162x 100%), 86.44% in 2017 (2,581,267/2,986,165 x100%) and 85.13% in 2016 which disclosed that the respondents consume more water percentage in 2017 than in 2016 and 2018.

Keywords*— *Climate change, flooding, Government-Owned Controlled Corporation.

I. INTRODUCTION

Climate change is an inevitable event that happens because of pollution. It is a change in global or regional climate patterns. It affects water reserves especially in tropical countries such as the Philippines. When summer season, water reserves tend to evaporate quickly because of excessive heat trapped by the greenhouse effect in the ozone layer and when it's a rainy season to much rain pours in the sky that results in flooding in the lower places in the Philippines; thus, water reserves tend to replenish too much the limit of a dam can hold [1].

Water is an essential need for human life because up to 60% of the human body is made up of water. It is so essential because we cannot live without water. We use it in our daily activities such as taking a bath, washing clothes and dishes, and etc. [2].

Santa Rosa (NE) Water District is a Government-Owned Controlled Corporation (GOCC) and is an autonomous unit politically and economically independent from the local government. The Board of Directors formulated the policies, rules and regulations of the water district. Management of the operation of the water district is handled by the General Manager who is appointed by the Board of Directors [3].As of December 2019, the district has a total of 12,059 service connections operating 24 hours a day. Through the hard work and dedication of its personnel, SRWD was able to withstand the hardships and challenges of times and was able to make use of its resources in order to achieve its goal and objectives in giving the best water service to the people of Santa Rosa [3]. In Santa Rosa(N.E) Water District, water reserves come from the groundwater which is easily depleted as the rate of recharge of deep wells is less than the Consumption of the concessionaires.

The usage of water is greatly affected by the changes in climate because people will tend to use more water when the season is summer and tend to consume less when its rainy season.

This research shows the climate and supply and consumption pattern of Santa Rosa (N.E.) Water District concessionaires and to see which season has a high or low consumption/supply in two seasons.

II. METHODOLOGY

This study utilizeda descriptive research design wherein the monthly water consumption and supply data were gathered through the monthly datasheet from 2016 to 2018.According to [4] as cited in [5], a "descriptive survey can systematically

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describe a situation, problem, phenomenon, service or programs, or provide information or describe the attitude towards an issue". Selected concessionaires who were chosen purposively [6]were asked about their consumption and supply patterns.The data were analyzed using frequency and percentage.

III. RESULTS AND DISCUSSION

1. Temperature and Rainfall from 2016-2018

Table 1. Average Temperature and Rainfall for 2016-2018 [7]

Month	Temperature °C		Rainfall (m^3)
	Minimum	Maximum	
January	17.4	33.2	0.0
February	17.0	34.5	5.4
March	19.4	37.0	2.5
April	19.4	38.8	0.2
May	21.8	38.5	90.7
June	22.0	36.7	297.6
July	22.0	34.7	513.4
August	22.6	33.6	552.8
September	22.2	33.1	993.7
October	21.0	35.0	514.1
November	19.3	33.6	33.9
December	19.0	35.1	16.2
TOTAL	**243.1**	**423.8**	**3018.0**
Average	**20.3**	**35.3**	**251.5**

The table shows that the average that rainy season falls between the months of June – October with a monthly average rainfall of 574.22m^3 and the average annual temperature ranges between 20.26°C and 35.32°C. March, April and May are the dry and hot months, marked by an almost absence of rain and temperature reads at an average of 30°C.

2. Monthly Consumption and Supply from 2016-2018

Table 2 shows that 2018 has the highest supply of water with 3,355,162 cubic meters while 2016 has the lowest with 2,792,392 cubic meters. As to the consumption, the respondents consume 82.37% of supply in 2018 (2,763,679/3,355,162x 100%), 86.44% in 2017 (2,581,267/2,986,165 x100%) and 85.13% in 2016. This finding shows that the respondents consume more water in 2017 than in 2016 and 2018.

The table alsoreveals the consumption and supply of 2016 with a peak of consumption and supply in July which is 211,267m^3 and 253,995m^3, respectively, it shows that even in rainy season consumption and supply of water is still in rising but there is a large amount of usage in water between the month of March-Maywith an average of 202,915m^3 while the average monthly usage of January, February and June-December is lower with an average monthly consumption of 196,476m^3shows that more concessionaires are consuming in the dry season rather than Rainy Season.

Table 2.Monthly Consumption and Supply for 2016-2018 [8]

	2016		2017		2018	
MONTHS	**CONSUMPTION (METER BILLED) in m3**	**SUPPLY (PRODUCTION) in m3**	**CONSUMPTION (METER BILLED) in m3**	**SUPPLY (PRODUCTION) in m3**	**CONSUMPTION (METER BILLED) in m3**	**SUPPLY (PRODUCTION) in m3**
JANUARY	184,978	222,992	189,968	228,672	202,319	251,420
FEBRUARY	179,400	215,950	187,781	214,484	210,695	260,718
MARCH	208,319	242,896	218,458	257,926	233,834	285,571
APRIL	210,238	238,571	228,665	250,610	239,291	298,514

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MAY	190,188	230,068	225,279	250,479	243,840	303,828
JUNE	204,254	238,764	216,621	244,876	228,545	285,588
JULY	211,267	253,995	214,347	249,119	225,608	273,590
AUGUST	190,193	228,218	222,751	252,924	235,787	290,646
SEPTEMBER	194,033	226,025	208,293	248,340	226,708	268,107
OCTOBER	205,481	235,447	235,750	264,800	244,232	283,995
NOVEMBER	185,867	222,698	191,999	239,724	218,491	270,710
DECEMBER	212,811	236,768	241,355	284,211	254,329	282,475
TOTAL	**2,377,029**	**2,792,392**	**2,581,267**	**2,986,165**	**2,763,679**	**3,355,162**

As to the consumption and supply of 2017, with a peak of consumption and supply in December which is 241,355m^3 and 284,211m^3, respectively, it shows that even in rainy season consumption and supply of water is still in rising but there is a large amount of usage in water between the month of March-May with an average of 224,134m^3 while the average monthly usage of January, February and June-December is lower with an average monthly consumption of 212,096.11m^3shows that more concessionaires are consuming in the dry season rather than Rainy Season.

In 2018, the table presents with a peak of consumption in December which is 254,329m^3 and a peak in supply in May which is 303,828m^3, respectively, there is a large amount of usage in water between the month of March-May with an average of 224,134m^3 while the average monthly usage of January, February and June-December is lower with an average monthly consumption of 212,096.11m^3shows that more concessionaires are consuming in the dry season rather than Rainy Season

IV. CONCLUSIONS

The result of the data which were the Monthly Data Sheet from Production Division of Santa Rosa (N.E.) Water District provided some evidence about how the climate impacted the demand and supply on the concessionaires on the area. It was shown more concessionaires are consuming in the dry season rather than in rainy season from the year 2016-2018.They have the highest water supply in 2018 and consume more water percentage in 2017.

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Competitive Profile Matrix of Selected Drug Stores at Jaen, Nueva Ecija, Philippines

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Abstract*— *To evaluate the Critical Success Factors and establish the Competitive Profile Matrix (CPM) of the drugstore business is the main objective of this study. This paper aims to critically appraise the importance of a company's competitive advantage and its role in formulating a company's strategy. It is a descriptive and conceptual analysis based on a literature review emphasizing strategic success tools such as Competitive Profile Matrix (CPM), for producing factors of achieving competitiveness in the fiercely competitive market. This research was conducted for three months from September 2019 to November 2019. The research method used was a descriptive approach using a scholarly–made questionnaire based on related literature and studies. The respondents of the study were the three (3) selected drug stores located at Jaen, Nueva Ecija, Philippines. Findings have shown that the drug store owner–respondents strongly agreed that products offer, financial strategy and location as strategic success factors. Furthermore, the respondents also agreed that company reputation, people or employee motivation and promotional strategy werealso factors for the company to be successful. 7. Company B has the highest total when it comes to its Competitive Profile Matrix compare to Company A and C because of the good location and company reputation.

***Keywords*— *company, competitive profile matrix, critical success factors, drug store, retail business*.**

I. INTRODUCTION

As the population grows, the demand for medicine which is a necessity has continuously increased and that makes a drugstore business one of the most stable industries at the present time (Anlacan, 2012). Drugstores typically sell with the hope that they are providing the necessary medical, hygienic and health products and services to their customers delightfully. Customer expectations are difficult to meet (Taylor, 2019) and as competition offers plenty of options to the market, customer satisfaction becomes the core of any business, including community pharmacies (Satterfield, 2017).

Since medicine has become a daily essential, the demand for drugstore is growing and the potential of the pharmacy business becomes brighter than ever (Anlacan, 2013).According to Day and Wensley (1988), most drugstores were independent micro-businesses with strong local and occupational orientation. They also added that drugstores have their own specific qualities and featured values. According to Zentes, Morschett and Schramm–Klein (2007), drugstores are one of the special stores in retail businesses. Operationally, for retail drugstores that are found in barrios, small towns or municipalities, differentiation should be measured relative to the competition which is meaningful in the assessment of competitive advantages.

On the rise competition and a rapidly changing environment have left many drugstore retailers a thorough search for avenues of survival. The turbulence in retailing is manifested by going–out–of–business sales, insolvencies and extrapolations of larger-scale failure (Zinn, 1990). To avoid such business situations, the business has to gain its competitive edge and this is the idea that has been adopted by the disciplines of marketing and strategic management as a passage too long–term advantage (Day and Wensley, 1998).

The emergence of the term competitive advantage came in the 1970s (David, 2012). The process of strategic management and the management of competitive advantage as specifically identifying, developing, and taking advantage of the regions through which a tangible and sustainable

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business edge can be achieved (South, 1980).Thus, diagnosing the inside and outside forces remain one of the vigorous tasks for every organization in their quest for survival. Organizations need to pay enough attention to strategy formulation, strategy implementation, and strategy evaluation (Burnes, 2009). Moreover, they must also engage in strategic management which is all about gaining and maintaining competitive advantage (David, 2011). The Competitive Profile Matrix (CPM) that identifies a firm's major competitors and its particular strengths and weaknesses in relation to a sample firm's strategic position (David, 2011) is a very useful tool in strategic management that is effective in formulating a more suited strategy. Hence, this study was performed to investigate and describe Critical Success Factors and determine the Competitive Profile Matrix (CPM) of the selected three (3) drug stores at Jaen, Nueva Ecija in the Philippines (Subia, Mangiduyos and Turgano, 2020).Specifically, it sought to describe the company's profile in terms of years in operations, types of ownership, number of branches and number of employees in the company. It is also intended to describe the strategic success factors of the company in terms of company reputation, product offering, people or employee motivation, promotional strategy and financial strategy. Lastly, it was conducted to determine the Competitive Profile Matrix of the drug stores.

II. METHODOLOGY

The study used a descriptive method of research in an attempt to analyze and interpret the company's profile, the strategic success factors and the competitive profile matrix of the three (3) drug stores at Jaen, Nueva Ecija, Philippines. As widely accepted, the descriptive method of research is a fact-finding study that involves adequate and accurate interpretation of findings. Descriptive research describes a certain present condition (Creswell, 2014). Relatively, the method is appropriate to this study since descriptive research in this study was utilized to describe the profile of the company in terms of years in operations, types of ownership, number of branches and number of employees. Likewise, it was also used to determine the strategic success factors of the drug stores in terms of company reputation, product offering, people or employee motivation, promotional strategy and financial strategy. Moreover, it was utilized to determine the Competitive Profile Matrix (CPM) of particular drug stores.

The respondents of the study who were chosen purposively (Subia, 2018) were the owners/managers of the three (3) selected drug stores located at Jaen, Nueva Ecija, Philippines. Inclusion criteria were: a drug store that is operating for 5 years or more and is located in the aforementioned municipality. In order to collect the necessary data, the researcher utilized a scholarly–made questionnaire which was based on the reviewed literature and study related to the subject. The instrument is a structured questionnaire and is composed of close-ended questions that help to bring about information regarding the strategic success factors of the drug stores as rated by company owners/managers. The close-ended part of the questionnaire includes the profile of the company and the strategic success factors. In the strategic success factors, the rating scale of the close-ended questionnaire and the corresponding verbal description was presented on the table below:

Scale for Strategic Success Factors

Scale	Range	Verbal Description
5	4.20–5.00	Strongly Agree
4	3.40–4.19	Agree
3	2.60–3.39	Neutral
2	1.80–2.59	Disagree
1	1.00–1.79	Strong Disagree

Appropriate statistical tools, such as frequency, percentage and weighted mean were used in this part of the study. Meanwhile, the Competitive Profile Matrix (CPM) which is also composed of the critical success factors including both internal and external issues of the drug storeswere developed by asking the owners/managers to assign to each factor a weight that ranges from 0.0 (not important) to 1.0 (very important). The weight indicates the relative importance of that factor to being successful in the firm's industry. On the other side of the coin, the ratings given by the owners/managers refer to strengths and weaknesses, where: 4 = major strength, 3 = minor strength, 2 = minor weaknesses, and 1 = major weaknesses (David, 2011). Lastly, the researcher has to multiply the weight by the rating for each factor to get a weighted score and then adds up each competitor's weighted scores to get a total weighted score. Data analysis was employed for the computations of the gathered information of the questionnaire from the respondents.

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III. RESULTS AND DISCUSSION

This section provides the presentation of data relevant to the problems stated above. Corresponding analysis and interpretation regarding some presented data were discussed using the above–mentioned statistical tools.

Table 1. Profile of the Company

Profile of the Company	Company A	Company B	Company C
Years in Operation	16	20	31
Types of Ownership	Sole Proprietorship	Sole Proprietorship	Sole Proprietorship
Number of Branches	1	1	2
Number of Employees in the Company	6	4	9

It can be seen from the data above that the three-drug stores are already operating for more than 15 years now which means that they have been in the industry now for quite a long time. The years of operations of any business have a great impact on their competitive advantages. It can also be noticed that all drug stores are under the sole proprietorship type of business. The advantage of the sole proprietorship type of business is the less paperwork requirement. Unlike corporations and partnerships, sole proprietors are not required to file any articles of incorporation, exhibit annual reports when they start businesses and the owner has complete control of the business (Woodruff, 2019).Among the three, there is only one drug store which has 2 branches and the rest only have one branch. The number of branches of the business is an important aspect of success for the reason that multiple storefronts increase sales opportunities (Nicasio, 2020). It is believed that every company's greatest asset is its employees and competitive success is achieved through them (Jassim and Jaber, 1998).

Table 2. Strategic Success Factors in terms of Company Reputation

No.	Company Reputations	Weighted Mean	Verbal Description
1.	Presence of good staff attraction and retention.	4.67	Strongly Agree
2.	Service-oriented when working with our customers.	5.00	Strongly Agree
3.	Good company image.	5.00	Strongly Agree
4.	Market share in the area.	4.00	Agree
5.	Number of existing branches in the province.	2.00	Disagree
6.	Engage in Corporate Social Responsibility.	4.33	Strongly Agree
Average Weighted Mean		**4.17**	**Agree**

In various business markets, the company's reputation is a strong influence on the buying decisions of the consumers which may differ from the more specific product related influence of the brand's image (Cretu and Brodie 2007). The table above illustrates the strategic success factors of the three (3) drug stores in terms of company reputation. It can be gleaned from the table above that the owners strongly agreed that being service-oriented when working with customers is one of the factors to become successful. Scholars have long noted that the ability to attract and retain high–quality workers are critical to organizational competitiveness (Delery & Shaw, 2001) and a stream of research in strategic Human Resource Management has examined the linkage between human resources practices, firm performance and effectiveness (Boselie, Dietz and Boon, 2005).

It is also proven from the data above that company image is one of the most important assets of an organization. It acts as a comfort factor for customers and assures them that they are buying from the best (Pamnani, 2016). On the contrary, the

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owners disagreed that the number of existing branches can be contemplated as a factor for success.

Table 3. Strategic Success Factors in terms of Products Offering

No.	Products Offering	Weighted Mean	Verbal Description
1.	Breadth of the product range.	3.67	Agree
2.	Product quality and efficacy.	4.33	Strongly Agree
3.	Reasonable prices of the products.	4.67	Strongly Agree
4.	Availability of clinical data on the products supporting the claim.	4.67	Strongly Agree
5.	The products are largely homogeneous.	3.67	Agree
6.	Response to customer needs.	4.67	Strongly Agree
Average Weighted Mean		**4.28**	**Strongly Agree**

It can be observed from the table above that the owners of the drug stores strongly agreed that the breadth of the product range is a factor for success. The breadth or width of the product refers to the number of different merchandise a retailer offers (Kotler, 2003). In the study of the state of the strategic management in the retail sector, it was found out that service, location and breadth or depth of merchandise were the most declared factors generating competitive advantage in the retail industry (Karemu, 1993). Similarly, the owner–respondents strongly agreed that product quality and efficacy is another factor for the company to be profitable. It is therefore assumed that product quality is positively related to the profitability of repeat purchases (Schmalensee, 1978). Likewise, the respondents strongly agreed that a reasonable price of the products is a factor that must be considered for the company in order for them to be sustainable. Dynamic pricing models update prices frequently, based on changing supply or demand characteristics (Nagle, Hogan and Zale 2010).

Equally, the owners strongly agreed that availability of clinical data on the products supporting the claim is a strategic success factor under products offering because of their ability to enable the development of new knowledge and to guide the increaseof best practices from the growing sum of individual clinical experiences, clinical data represent the resource most central to healthcare progress (Arrow, Bertko, Brownlee, Casalino and Cooper, 2009)

Table 4. Strategic Success Factors in terms of People or Employee Motivation

No.	People or Employee Motivation	Weighted Mean	Verbal Description
1.	Employees are paid in the above minimum wage.	3.67	Agree
2.	Employees are given just compensation.	3.00	Neutral
3.	Financial reward to employees is linked with their performance.	4.67	Strongly Agree
4.	Well trained and highly effective sales force.	4.67	Strongly Agree
5.	Field force personnel are getting recognition rewards.	4.33	Strongly Agree
6.	Positive work ambiance.	4.33	Strongly Agree
Average Weighted Mean		**4.11**	**Agree**

It can be perceived from the table above that the owners of three (3) drug stores strongly agreed that financial reward to employees is linked with their performance. It is essential that good employment practices have been placed on strategies to retain staff and link satisfaction and commitment to retention (Beauregard and Henry, 2009). Likewise, the manager–respondents strongly agreed that well–trained and highly effective sales force is a factor for

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the company to be successful. According to French and Raven (1959), salesperson expertise builds buyer trust by increasing the buyer's confidence that he can provide a valuable solution and deliver on-premises. Also, salespersonsare proven to be effective if they can enhance their interests (Subia, 2020) of their buyers.

By the same token, the owners strongly agreed that field force personnel getting recognition awards is a strategic success factor in boosting their employee morale. Erickson and Gratton (2007) mentioned that in the war for talent, organizations won't become noble employers merely by employingother companies' best practices but rather need to deliver a signature experience to nurture a dedicated organizational workforce. In the same way, the owner–respondents strongly agreed that positive work ambiance is a factor of success that's why organizations also need to provide a positive workplace experience to attract and retain employees (Boxall and Macky, 2009)

Table 5. Strategic Success Factors in terms of Promotional Strategy

No.	Promotional Strategy	Weighted Mean	Verbal Description
1.	Presence of significant campaign using the advertisement.	3.33	Neutral
2.	The sales promotion is through personal selling.	4.33	Strongly Agree
3.	The company develops a value proposition.	4.33	Strongly Agree
4.	Drugstore flyers contain the price of the products.	3.33	Neutral
5.	Word of mouth of customers to another customer.	4.67	Strongly Agree
6.	It offers customer loyalty.	3.00	Neutral
Average Weighted Mean		**3.83**	**Agree**

It can be observed from the table above that the owners strongly agreed that when the sales promotion is through personal selling it is a factor for success. Mercer (1996) mentioned that the best form of promotion is the conversation that takes place between the salesperson and his customer because it is interactive and conversation is specific to the needs of both.

Correspondingly, the owner–respondents strongly agreed that it is also a success factor when the company develops a value proposition. Congruently, they also mentioned that they strongly agreed that word of mouth of the customer to another customer is a major contributor to the success of the company. Recent research suggests consumers value exclusive promotions over inclusive ones (Barone and Roy, 2010) and it was suggested that exclusive promotions have the greatest appeal to consumers who adopt an independent rather than collectivist self–construal.

The owners/managers were neutral in terms of the presence of a significant campaign using advertisement as a factor for the company to be successful. They were also neutral on the idea that drugstore flyers contain the price of the products as a factor to be successful in the industry.

Table 6. Strategic Success Factors in terms of Financial Strategy

No.	Financial Strategy	Weighted Mean	Verbal Description
1.	The company is perceived as financially stable.	4.67	Strongly Agree
2.	The company offers credit transactions to distributors.	4.33	Strongly Agree
3.	The company extends credit to major customers.	4.33	Strongly Agree
4.	The company offers discounts to loyal customers.	4.67	Strongly Agree
5.	The company gives sales discounts to bulk purchases.	4.67	Strongly Agree
6.	The company allocates resources wisely.	4.67	Strongly Agree
Average Weighted Mean		**4.56**	**Strongly Agree**

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It can be observed from the table above that the owners strongly agreed that it is a factor for success if the company is perceived as financially stable by the customers same is true when the company offers credit transactions to distributors. Likewise, the respondents strongly agreed that it is a success factor when the company extends credit to major customers. In the same way, the respondents strongly agreed that it is a success factor when the company offers discounts to loyal customers. Grewal, Hardestyand Iyer (2004) show in a scenario-based study that respondents indicate more trust and fairness if customers who buy more frequently receive lower prices, rather than new customers and thus create customer loyalty.

Just asthe respondents strongly agreed that it is a success factor when the company gives sales discounts to bulk purchases. Conditional promotions are another type of promotion where some condition has to be met for the consumer to avail of the discount. Lee and Ariely (2006) examined the effectiveness of conditional promotions where the condition is under the control of the consumer and find that these promotions are most effective when consumers have less concrete shopping goals.

Table 7. Strategic Success Factors in terms of Location

No.	Location	Weighted Mean	Verbal Description
1.	The location is accessible for distributors and customers	5.00	Strongly Agree
2.	The location has security measures that keep the premises safe.	4.67	Strongly Agree
3.	The area already has a ripe market that could be the ideal way to pick up customers very quickly and establish a presence in a new area in a relatively short time frame.	5.00	Strongly Agree
4.	The company premises are able to accommodate business growth or a spike in demand.	4.67	Strongly Agree
5.	The location has a good road network, constant power supply, etc.	5.00	Strongly Agree
6.	The location is near to a hospital.	4.00	Agree
Average Weighted Mean		**4.72**	**Strongly Agree**

It can be observed that all the respondents strongly agreed that when the location is accessible for distributors and customers, the location has security measures that keep the premises safe, the area already has a ripe market that could be the ideal way to pick up customers very quickly and establish a presence in a new area in a relatively short time frame, the company premises are able to accommodate business growth or a spike in demand and the location has good road network, constant power supply, etc. these are all major contributors for the company to be successful. On the other hand, it has been agreed by the respondents that the proximity to the hospital of the location of a drug store is a factor for success.Location is inclined by the target market and the availability of resources. Although a prime location is not an assurance for success, a poor location strategy certainly leads to failure (Njoroge, 2008).

Table 8. Competitive Profile Matrix of Drug Stores

Critical Success Factor	Company A			Company B			Company C		
	Weight	Rating	Score	Weight	Rating	Score	Weight	Rating	Score
Company reputation	0.15	2	0.30	0.20	4	0.80	0.15	2	0.30
Products offering	0.15	2	0.30	0.15	3	0.45	0.20	3	0.60
Employee motivation	0.10	1	0.10	0.15	3	0.45	0.15	2	0.30
Promotional strategy	0.10	1	0.10	0.15	3	0.45	0.05	1	0.05
Financial strategy	0.30	4	1.20	0.10	2	0.20	0.20	3	0.60

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Location	0.20	3	0.60	0.25	4	1.00	0.25	4	1.00
Total	**1.00**		**2.60**	**1.00**		**3.35**	**1.00**		**2.85**

It can be gleaned from the data above that Company B has the highest total score. The Competitive Profile Matrix (CPM) displays the basis of an organization's strategy and is a useful instrument to communicate those strategic attributes to all in the organization (Bygrave and Zacharakis, 2010). It is very apparent from the data above that Company B believes that location and company reputation are the two most competitive advantages they have over the other drug stores in the same municipality and they believe that these two are their major strengths. Location isperhaps the most important factor because ones a location decision is made, it is expensive to change (Cox and Brittan, 2000).

Since the CPM features each Critical Success Factors (CSF) and displays the organizations' strengths and weaknesses in the significantly important areas of business, it is a tool that businesses should adopt. Analyzing the organization in this manner is an effective way to evaluate many competitors in one framework to support an effective strategic plan (Fleisher and Bensoussan, 2003). This strategic tool is very beneficial in analyzing the company's position in the market thus giving the owner the baseline in working for the best game plan to have its competitive edge over its competitors.

IV. CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of this study, it can be concluded that the drug store business is one of the most profitable in this era as medicine becomes an essential product for the consumers. However, just like every retail business, the drug store industry must also give attention to the factors that could contribute to their success. It is important that they know the strengths they have to sustain and the weaknesses they have to polish in order to satisfy their customers.

It is therefore suggested by the researcher that the drugstore companies should focus more on improving and acquiring competencies on the identified critical success factors as this will enable to improve their competitive position, emphasizing on the location of the drugstore business as it gets the highest weighted score in the established Competitive Profile Matrix (CPM).It is also recommended that market research should continuously be conducted regularly with the intent of establishing what factors would influence success in business in order to give them intensive consideration.The senior management of the drugstore companies must constantly assess their critical success factors and Competitive Profile Matrix (CPM) as the foundation, so as to respond to the changes in the operating environment and clearly understand which ones have emerged as a result of this and address them as necessary.Lastly, the goal of these companies should be to design a strategy aimed at stacking up well on all of the industry's future success factors and be distinctively better than competition on one or possibly more of the critical success factors. This can be a route to have above-average profits in the industry.

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