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Acknowledgment

Welcome to proceeding of the 12th Global Conference on Business and Social Sciences 2021 (IN-PERSON AND ONLINE), with the theme of 'Contemporary Issues in Business and Social Sciences Research ".

It was pleasure to edit the conference proceeding which contains all accepted abstracts that were presented and considered for publication at the 12th GCBSS, held on 8th and 9th October, 2021 in Parkroyal Penang Resort (5 Star Resort) Penang, Malaysia in cooperation with international and national universities, institutes and publishers, namely, University of Prešov, (Slovakia) University of Kelaniya, (SriLanka) Czestochowa University of Technology (Poland), Cairo University (Egypt), Kalasalingam University (India), Universitas Sriwijaya (Indonesia), University of Dhaka (Bangladesh), Universitas Negeri Malang (Indonesia), Tanjungpura University (Indonesia), University of Antique (Philippines), Trisakti School of Management (Indonesia), Independent University (Bangladesh), Brawijaya University (Indonesia), Asia Pacific Institute of Dispute Management (Australia), Elsevier (UK), Inderscience (Switzerland) and UPM Press (Malaysia).

12th GCBSS received a great number of abstracts for presentation, many of which high-quality scholarly works. As a result, the selection panel had to make decisions with considerable care. We are highly grateful to the authors for their enthusiasm, and to the reviewers for their painstaking work. Some of the accepted papers were selected for publishing in the Polish Journal of Management Studies (WoS & Scopus), Entrepreneurship and Sustainability Issues: (WOS & Scopus), Journal of Security and Sustainability Issues (Scopus), African Journal of Hospitality, Tourism and Leisure (Scopus), Pertanika Journal of Social Sciences and Humanities (WoS & Scopus), TEM JournalL (WOS & Scopus), International Journal of Economics and Management (Scopus), and in GATR Journals: Global Journal of Business Social Sciences Review (GATR-GJBSSR), Accounting and Finance Review (AFR), Journal of Business and Economics Review (JBER), Journal of Finance and Banking Review (JFBR), and Journal of Management and Marketing Review (JMMR) and all full paper publications are sponsored by Global Academy of Training & Research (GATR), the leading organizer of this conference.

The conference provided a platform for sharing novel ideas and inspiring research outcomes of the academics from different countries, including the USA, UK, Australia, UAE, Poland, Latvia, Hong Kong, Newzeland, South Africa, Malaysia, Iran, India, Indonesia, Iraq, Georgia, Pakistan, Philippine, Sri Lanka, Saudi Arabia, Kazakhstan, Thailand, Vietnam, Hungary, China, Taiwan, Nigeria, Italy, Norway, Ecuador, Slovakia, Japan and Czech Republic. It was also attended by four prominent keynote speakers: Emeritus Professor Dr. Gabriël A. Moens, The University of Queensland, Australia, Professor Dr. Kamran Ahmed, La Trobe University, Australia, Professor Dr. Danture Wickramasinghe, University of Glasgow, United Kingdom and Asst. Professor Dr. Kashan Pirzada, Universiti Utara Malaysia, we are grateful to them for their invaluable contribution.

We hope this conference will contribute to meaningful paradigm shifts in business and social sciences research, in general, and the delegates' career development, in particular. Finally, we would like to thank everybody who contributed in many ways to the success of the conference, especially to session chairs and the members on organizing committee.

We wish to see you all in 12th GCBSS in Parkroyal (5 Star Resort), Penang, Malaysia.

Guest Editors:

Professor Dr. Gabriël A Moens, The University of Queensland, Australia

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Asst. Professor Dr. Kashan Pirzada, University Utara Malaysia, Malaysia

Professor Dr. Gabriël A Moens

Emeritus Professor at the University of Queensland, Australia.

Gabriël A Moens is Professor of Law and Director of Research, Curtin Law School. He is also Emeritus Professor of Law at the University of Queensland. Prior to his current positions he served as Pro Vice Chancellor (Law, Business and Information Technology) and as a long-serving Dean and Professor of Law at Murdoch University. He also served as Professor of Law and Head, Graduate School of Law, University of Notre Dame Australia and as Garrick Professor of Law and Director, The Australian Institute of Foreign and Comparative Law, The University of Queensland. He undertakes teaching and research in Constitutional Law, Banking Law, European Union Law, International Commercial Law, International Arbitration Law and Comparative Law. He also teaches International Business Law and European Union Law at the University of Notre Dame, London Law Centre. Professor Moens is a past winner of a University of Queensland Excellence in Teaching Award. In 1999, he received the Australian Award for University Teaching in Law and Legal Studies. He is the Editor-in-Chief of International Trade and Business Law Review. In 2003, the Prime Minister of Australia awarded him the Australian Centenary Medal for services to education. In 1995-1996 he was a Visiting Professor of Law at J. Reuben Clark Law School, Brigham Young University, Utah. He served as a Visiting Professor of Law at Loyola University, New Orleans School of Law in 2002-2003. In 1997 and 2000 he successfully coached the T C Beirne School of Law (The University of Queensland) team to win the prestigious Willem C Vis International Commercial Arbitration Moot in Vienna, Austria. He also co-coached the winning City University of Hong Kong team in the Ninth Willem C Vis (East) Moot in 2012 and the 20th Willem C Vis Moot in Vienna in 2013. He is a Fellow (FCIArb) and Chartered Arbitrator (CArb) of the Chartered Institute of Arbitrators, London and Fellow and Deputy Secretary General of the Australian Centre for International Commercial Arbitration (ACICA). He is also the Editor-in-Chief of the ACICA Review and is the co-author of a Commentary to the ACICA Arbitration Rules. Professor Moens is a MembreTitulaire, International Academy of Comparative Law, Paris, a Fellow of the Australian Institute of Management (AIM WA) and a Director of the College of Law Western Australia. In 1998, the Asian Development Bank, Manila retained him to train officials of the Ministry of Law and Justice of his Majesty's Government of Nepal. He has taught extensively in the United Kingdom, Germany, Belgium, Italy, Austria, Australia, Indonesia, Thailand, Singapore, Hong Kong, Japan and the United States. He is co-author of The Constitution of the Commonwealth of Australia Annotated (8th ed, 2012), Jurisprudence of Liberty (2nd. ed. 2011), Commercial Law of the European Union, 2010, and International Trade and Business: Law, Policy and Ethics (2nd ed, 2006).

Professor Dr. Danture Wickramasinghe

University of Glasgow, United Kingdom

Danture Wickramasinghe is professor of management accounting at the University of Glasgow. He has joined Glasgow after 19 years of research and teaching at the University of Manchester and a 1 and ½ years at the University of Hull as Professor of Management Accounting and the Director of the Centre for Accounting and Accountability Research. Previously, he has taught management accounting and related subjects at the University of Colombo (Sri Lanka) and the University of Ruhuna (Sri Lanka) and had a visiting appointment at Paris-Dauphine University, France. Formerly, he was the Dean of the Faculty of Management and Finance and the Head of the Department of Commerce at the University of Colombo, and the Head of the Department of Business Administration at the University of Ruhuna. At Manchester, he was the Programme Director of M.Sc. (Accounting & Finance) programme and the Coordinator of the Management Accounting Module on the MBA-worldwide programme. He has produced a number of research papers out of a large project funded by CIMA and has publications in international journals including Accountability, Auditing, and Accountability Journal, Critical Perspectives on Accounting, Advances in Public Interest in Accounting, Qualitative Research in Accounting and Management, International Journal of Entrepreneurial Behavioral & Research and Journal of Accounting and Organizational Change. He is the co-author of Management Accounting Change: Approaches and Perspectives (2007), a social theory based management accounting text, a guest editor of the special issue on Management Accounting in Less-developed Countries (2007) at Accounting and Organizational Change and the co-editor of Handbook of Accounting and Development (2012). He continues researching on management accounting issues in both advanced capitalist countries and emerging/ less-developed countries. Professor Wickramasinghe has over 25 years of experience as an enthusiastic and talented university teacher at undergraduate, postgraduate and MBS levels, has produced a number of PhDs, supervised 100s of Master's dissertations, and acted as internal and external examiner for over 10 PhD candidates. He is a regular speaker at research and professional forums, including the workshops organized by CIMA. Currently, he is the Chief External Examiner at Manchester Metropolitan University and the External Examiner at the University of Aberdeen and continues PhD supervision at Manchester.

Professor Dr. Kamran Ahmed

La Trobe University, Australia

Professor Dr. Kamran Ahmed who is from La Trobe University, Australia. Professor Ahmed is a Professor of Accounting at La Trobe Business School, Australia. He was Head of School of Accounting for four years (2007-2011) and joined La Trobe University after 10 years of research and teaching at the Australian National University, Victoria University of Wellington and University of New England. He had visiting academic positions at the University of British Columbia, the University of Houston and Monash University. He has published more than 80 research papers in reputed journals and currently, he is on the editorial board of several journals including the International Journal of Accounting, International Journal of Accounting and Information Management, Journal of Accounting and Organizational Change, and Research in Accounting in Emerging Economies, and an Associate Editor of International Journal of Accounting, Auditing, and Performance Evaluation and Editor of GATR Accounting and Finance Review.

Asst. Prof. Dr. Kashan Pirzada

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Kashan Pirzada is an Assistant Professor of Accounting at the Tunku Puteri Intan Safinaz School of Accountancy, Universiti Utara Malaysia. He has joined TISSA-UUM after 13 years of research and teaching at the University of Malaya, Institute of Business Management, SMI University and PAF-KIET University. Dr. Pirzada working experience includes an extraordinarily diverse range of University programmes and conferences, editorial activities, international study, and professional internships. He is the founding editor of the Global Journal of Business and Social Science Review, Accounting and Finance Review, Journal of Business and Economics Review and Journal of Finance and Banking Review that are indexed in several prestigious databases.

Dr. Pirzada research interests focus on corporate governance; corporate disclosure and consequences; corporate social responsibility and sustainability and Institutional Ownership and Capital Structure effects and has published in International academic journals, such as Elsevier Journal of Social and Behavioural Sciences, British Accounting and Finance; Polish Journal of Management Studies; Pertanika Journal of Social Sciences and Humanities, Entrepreneurship and Sustainability Issues, and International Journal of Economics and Management.

Dr. Pirzada has supervised a number of Master and Ph.D. candidate and act as an external examiner. He has been a lead guest editor for Elsevier Procedia of Social and Behavioural Sciences, Pertanika of Social Sciences and Humanities, and International Journal of Economics and Management. He is currently on the editorial board of several journals, including Polish Journal of Management Studies, International Trade and Business Law Review and International Journal of Ethics and Systems. He is a regular speaker at research and professional forums, including the workshops.

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No	Paper ID	Title
1.	CIBSSR-00508	Theory of Planned Behaviour Approach to Analyse Intention of Cash Waqf Contribution Among Muslims in Malaysia: Application of Extended and Moderator Variable
2.	CIBSSR-00448	Impact of Human Capital and Innovation Towards Total Factor Productivity (TFP): A Case of Manufacturing Sector in Palm Oil Industry in Malaysia
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4.	CIBSSR-00273	Implementation of Service Learning Method Approach in Commercial Space Interior Design Case Study: UMKM Tiara Handicraft in Surabaya, Indonesia
5.	CIBSSR-00332	The importance of quality language preparation as an inseparable part of education of the Police Force members in favour of not only troublefree carrying out their job
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Theory of Planned Behaviour Approach to Analyse Intention of Cash Waqf Contribution among Muslims in Malaysia: Application of Extended and Moderator Variable

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ABSTRACT

Cash waqf plays a big role in economy and society in the country, and also play a vital role in the advancement of socio economic wellbeing of the Muslim community. Scholars believe that contribution of waqf by using cash is much important and more relevant due to its flexibility than waqf properties in the present day. In Malaysia, cash waqf is one of the alternative instruments that can overall improve the social welfare and reduce the poverty rate and at the same time, lessen the burden of the government. Many ways have been proposed to encourage the society to contribute cash waqf for the benefits of the ummah. Therefore, this paper aims to identify the behaviour that influences the contribution of cash waqf in Malaysia using the Theory of Planned Behaviour (TPB). In line with technology advancement, it is expected that technology adoption in the method of collection cash waqf could be a steppingstone to increase the amount of fund. With this reason, technology usage will be proposed to enhance the contribution of cash waqf. In addition, perception on performance of cash waqf proposed as moderator variable in this theory. This study used 284 respondents who were employed Muslims to identify the factor influence contribution of cash waqf. The Partial Least Squares Structural Equation Modeling (PLS-SEM) was used to analyse data through correlation analysis. Referring to the correlation analysis, the finding discovered that there is a positive and strong relationship between Theory of Planned Behaviour and technology usage with contribution of cash waqf, hence it can be summarized that, technology usage could increase intention of Muslims to contibute cash waqf as technology advancement implemented in the method of collection. However, perception on performance of cash waqf is not significant in this research.

Keywords: Cash waqf, technology advancement, technology usage, Theory of Planned behaviour (TPB), perception.

1. Introduction

The collection of cash waqf fund in Malaysia is very low because the total amount collected did not reflect the total amount of Muslim population in Malaysia (Mat Doa, 2020). Based on report by Yayasan Wakaf Malaysia (YWM) calculation, (Mat Doa, 2020), the average cash waqf per employed Muslim for 2019 was only RM0.28 per employed person. Fuadah Johari, the Deputy Director Islamic Finance Wealth

Management Institution (Johari, 2020), highlighted RM0.28 per employed Muslim is just a small fraction of cash waqf contribution. Though cash waqf has been gazetted 13 years ago in the 77th Majlis Fatwa Kebangsaan Muzakarah in 2007, the collection is still low due to the lack of awareness among the Muslims in Malaysia (Jalil et al., 2017; Allah Pitchay et al., 2018; Ab Fatah et al., 2017; Adeyemi et al., 2016). This could be an obstacle to the development of the country because cash waqf plays a big role in the country's economy and society and plays a vital role in the advancement of socio economic wellbeing of the Muslim community (Ali, 2017).

In order to overcome the situation, this study proposed a theoretical framework in enhancing the intention of cash waqf contribution. Theories such as The Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB) is deliberated in this proposed framework. Technology usage could be a relevant strategy to use in order to evaluate the importance of technology in enhancing contribution of cash waqf among the Muslims. Hence, this study aims to identify the relationship between TPB and technology usage as extended variable toward intention to cash waqf contribution. Furthermore, perception on performance of cash waqf used as moderator variable in investigates the relationship between TPB moderate with perception on performance.

1.2 Problem Statement

In Malaysia, the low cash waqf collection level indirectly indicates the awareness about cash waqf is not at a good level. This is parallel to Nasiri et al., (2019) and Ab Fatah et al., (2017) findings that there was still lack of awareness of cash waqf among Muslims. Besides that, Jalil et al., (2017) agreed that cash waqf collectors should be focused on the types of payment methods that could obtain high priority rates to meet donor's expectation. Therefore, improving cash waqf collection method could be one of the ways to increase the collection of cash waqf. To achieve this objective, it is crucial to firstly investigate the behavior of cash waqf contributors and researchers normally use Theory of Planned Behavior (TPB). In this study, Theory of Planned Behavior (TPB) is deemed to the best theory to identify behaviors that influence the collection of cash waqf as it is a popular theory in the field of social psychology which investigates the behavior of certain action.

However, Zabri & Mohammed (2018); Mat Isa, (2017); Anwar et al. (2015) suggested future research to extend the TPB model by adding explanatory variables on identifying factors influencing the behavioral intention of Muslim employees to contribute to cash waqf to explore the behaviour intention of cash waqf contributors.

Technology is expected to be one of the best potential factors to use in extending TPB because the advancement of technology may encourage Muslims to contribute to cash waqf. This is in line with Hasanah & Pranata, (2019); Fauzi, Yahya, Haron, et al. (2019) and Adeyemi et al. (2016) contention that applying technology advancement in cash waqf makes the waqf collection more efficient and effective. Sargeant & Woodliffe (2005) concurs that payment methods are the attraction for the donors to retain their contribution. However, there is still limited study covering the payment methods of cash waqf in Malaysia (Jalil et al., 2017).

With the suggestion by with Hasanah & Pranata, (2019); Fauzi et al. (2019) and Adeyemi et al. (2016) proposed that applying technology advancement in cash waqf makes the waqf collection more efficient and effective. Therefore, thorough research should be performed to analyse the effect of technology towards the intention of individual to contribute to cash waqf. Furthermore, Qurrata et al., (2021) emphasized that effectiveness in management is important as it will create society's perception on cash

waqf. In their study, they highlighted the society perception of waqf is one of the threats as they use SWOT analysis in analyzing the effectivess of waqf management. Thus, perception on performance used as moderator in the theory to identify its significance to the research.

2. Literature Review

An intention is the foundation of every action. Intention in the language is a type of purpose (qasd) and desire (iradah). Intention in the view of the scholars can be explain in two meanings; first, to distinguish different types of worship, one from the other. For example, intention (niyyah) can differentiate between dhuhr and asr prayer; or distinguish between actions of worship and actions of habit such as differentiate between bath from impurity and bath simply to get clean. Second is to differentiate the intended object of the action, for example the deeds is for Allah only or for Allah and other than him (sunnahonline.com, 2019).

Fishben and Ajzen (1975) defined intention as a relationship between probability dimensions and his or her action. A behavioural intention is referring to an individual subjective probability either he will perform some behaviour or not perform. Yusoff et, al. (2017) explain that intention captured the motivational factors that influence individual's behaviour. Ajzen (1991) said that intention is an indication of how people trying hard to do something an put an effort of it in order to perform the behaviour. It can be said that, the higher the level of intention of someone to perform behaviour, the higher potential of an individuals to perform the behaviour.

Anwar et. al. (2015) mentioned that Islam enhance the importance of intention as intention lead someone's to do something and influence decision making of the action. It can be most important for the decision making for voluntary in nature which it is come sincerely from someone's heart. As in hadith narrated by Umar Ibn Khattab relates that he heard the Messenger of Allah, the Prophet Muhammad S.AW said; "Verily actions are by intentions, and for every person is what the intended. So the one whose hijrah was to Allah and His Messeger, then his Hijrah was to Allah and His Messerger. And the one whose hijrah was for the world to gain from it, or a woman to marry her, then his hijrah was to what he made hijrah for" (Sahih Bukhari).

The hadith above emphasize that every action is related to intention. It can be said that, intention is play an important role to determine the actions. Anwar et, al (2015) demonstrates that The Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB) is extremely useful since it is commonly used by contemporary researchers to examine the intention of individual towards an action equally acknowledge the important role of intention. This research used attitude, subjective norms, perceived behaviorial control as independent variables that influences the intention to contribute cash waqf as exemplified by Figure 1.

Figure 1: Relationship between TPB and intention.

Hasanah, Pranata (2019) mentioned that there is a lack of awareness regarding the value of creating successful endowments. As a result, specific stimulus should be provided so that waqf management can be developed productively and supported by financial technology.

Therefore, in line with the mission to encourage Muslim to contribute to Cash Waqf, technology usage could be one of the solutions for it. Technology is a key channel in the financial sector, and it will be an opportunity for them to increase their efficiency in achieving their objectives. Technology can also provide a better experience and convenience for users (Devadevan, 2013). Mardziyah (2014); Hanudin et. al (2014); Nasiri et. al (2019); Magda (2019) study on the acceptance of online Cash Waqf which adoption of technology in the Cash Waqf collection system. Thus, technology usage would be extended variable and will be added in the theory.

Besides that, there have been limited evidence on the moderating effect to the intention of cash waqf contribution. Hence, in order to overcome the methodological flaw in the research, a thorough examination of the moderating effect can further prove whether the moderation occur by chance or not. This significantly contributes in filling the methodological gap in this research.

2.1 Conceptual Framework

Cash Waqf collection in Malaysia is not very impressive because the total collection of Cash Waqf looks not relevant with the amount of Muslim's population in Malaysia (Source: Yayasan Waqf Malaysia, 2020). It is because total cash waqf per employed Muslim in 2019 based on collection from YWM is only RM 0.28 per employed person. It is just a small amount of contribution to Cash Waqf (Johari, 2020). The value of RM 0.28 per employed Muslim calculated based on Yayasan Waqf Malaysia (YWM). According to Mat Isa (2017), Cash Waqf has been gazette 13 years ago in Majlis Fatwa Kebangsaan in Muzakarah ke-77 in 2007, however, even though it was a long time ago, the collection and awareness of Muslims is below satisfactory level (Adewale, 2016; Jalil et. al, 2017).

Besides that, Cash Waqf having a problem when individual as well as group take an opportunity to collect Cash Waqf without permission and some of them collect for self-purpose. This was highlighted in news Berita Harian (2017) where there is syndicate of Cash Waqf collection.

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In Malaysia, due to less amount of collection in Cash Waqf, it is indirectly show that awareness of Cash Waqf is not at a good level. According to Nasiri et. al (2019), there is still lack of awareness of Cash Waqf among Muslims. To the researcher's knowledge, there is limited study on the intention of waqif in performing waqf, particularly cash waqf giving behaviour even though it has been suggested as a key in determining one's behaviour (Osman et al., 2014). A popular theory in the field of social psychology which investigate the behaviour of certain action is the theory of planned behaviour (TPB).

This study is similar to previous studies such as Azizi et, al (2019); Salem Al-Harethi (2019), Zabri & Mohammed, 2018 (2018); Kashif et al.,(2015); Osman et al., (2015); Osman et al., (2014) that have , who employed TPB and Extended Theory of Planned Behaviour (ETPB) to examine the intention of Muslims towards Cash Waqf contribution. As such, the framework of this study was based on ETPB to investigate an intention of Muslims towards Cash Waqf contribution.

It is also important to note that Mardziyah et. al, (2014) highlighted that acceptance of online waqf contribution among the public is still at infancy level. It was support by Ahmad and Muhamed, (2011); Muhammad et., al., (2014), who found that age of people influences the acceptance of technology used for waqf collection. It means that not all ages are accepted to use technology for waqf purpose. Shukor et, al (2017) mentioned that, convenience in contributing in Cash Waqf is vital in order to encourage contribution of Cash Waqf. It can be achieved by provide greater access to online facilities which it can reach young, increasingly IT literate, generation to promote online Waqf. It shows that young generation is the target for acceptance of technology used in Cash Waqf system. Therefore, age factor might be issue of acceptance of technology, thus the research needs to be conduct in order to encourage all ages to use technology for the purpose of easier way to contribute in Cash Waqf.

According Mat Isa (2017) currently present study in Malaysia starting to investigate the factors that influence charitable giving from the perspective of one of the strongest influential theory established for predicting human behaviour which is TPB. But, even though TPB has received large experimental support with strong predictive utility, many studies have already attempted to extend the model by adding explanatory variables. In brief, numerous studies have employed the TPB and ETPB as shown by Table 1.

Author (s)	Extended Variables from TPB
Azizi et, al (2019)	Past Behaviour
Salem Al-Harethi (2019)	Religiosity
Zabri & Mohammed, 2018	Perceived Cost Advantages
Kashif et al., 2015	Descriptive Norm, Moral Norm,
Osman et al., 2015	TPB Extended: Trust, Religiosity, Service Control
Osman et al., 2014	Religiosity

Table 1: Past studies of TPB

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Therefore, this study aims to apply the Extended Theory of Planned Behaviour (ETPB) as a based model which consist of Attitude, Subjective Norm and Perceived Behavioural Control as three components in TPB and adopt technology usage as extended variables from TPB. The purpose of this study is to fill the gap from the literature that limited study of behaviour intention towards Cash Waqf with technology technology usage as extended variable. Besides that, perception on performance cash waqf used as moderator in order to identify its significance to the theory. It is as shows in Figure 2 below.
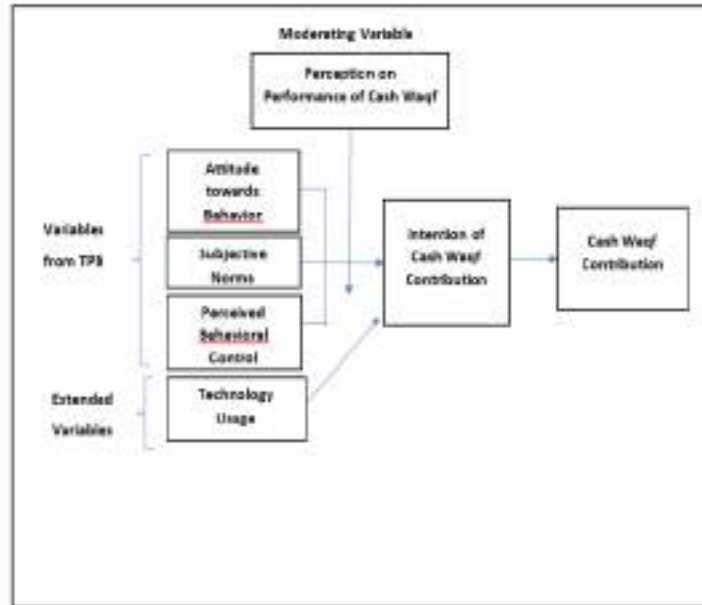

Figure 2: Conceptual Framework

3. Research Methodology

This study employs quantitative research methodology. Since the objective of this study is to determine the factors that influence individual's intention of cash waqf contribution using developed theory of planned behavior, therefore the best method to employ is a quantitative method. It involves investigation into social or human problems and based on theoretical model tests.

Besides, this study is using descriptive method because it would be able to illustrate the factors that motivate individual contributors to contribute cash waqf based on the data collected using questionnaires.

This study intends to investigate factors of Muslims to contribute to cash waqf including their attitude, subjective norms, perceived behavioral control and technology aspects. Thus, in order to fulfil all the criteria mentioned, the targeted respondents would be working Muslims in public or private sector or self-employed. The respondents must be Muslim and employed person similar to the research of Pitchay et al. (2015) that investigated factors that influence the behavioral intentions of Muslim employees to contribute to cash waqf through employed Muslims.

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In this study, 284 questionnaires were distributed. The answer from the respondents would be the findings of this study.

4. Results

Data was analysed through PLS-SEM. All the 284 data were used to get the findings. In PLS-SEM, the data go through two asssessment model which are first, measurement model and structural model.

4.1 Assessment of Measurement Model

In evaluating the measurement model, there are several measures that need to be evaluated such like indicator reliability, internal consistency reliability, convergent validity and discriminant validity. The researcher may proceed to structural model after achieved all the benchmark of the requirement in the first measurement model. The evaluation of measurement model used to assess the value of the outer loadings, Composite Reliability (CR), Average Variance Extracted (AVE), and convergent validity (HTMT). While the evaluation of structural model used to assess R square, path coefficient, Variance Inflation Factor (VIF), confidence interval bias correlated and Q square value.

All indicators have outer loadings of more than 0.708 except for eight indicators, however, only seven indicators were removed while the other indicators were retained because it is allowed to remove only 20% from the total indicators. Thus, indicators with outer loading below than 0.5 were deleted (Hair et al., 2014).

The indicator of the reliability of the item needs the loading to be at least 0.70 for each item in the construct to indicate adequate convergence or internal consistency between the items (Thurasamy et al., 2018). The composite reliability in this study reported in table 2 and the result shows that all constructs under this research have CR value more than the threshold value of 0.7. Hence, the internal consistency reliability is fulfilled.

Constructs	Composite reliability
Attitude	0.910
Subjective Norm	0.882
Perceived Behaviour Control	0.915
Behaviour Intention-BI	0.969
Technology Usage-TU	0.940

Table 2: Value of Composite Reliability

AVE with values of more than 0.50 exhibits the ability of the constructs to explain more than half of the variance of its indicators (Hair et al., 2014). The results in this study indicate that the AVE for all the constructs had achieved a value of more than 0.50 with a range of 0.651 to 0.887 after deleting seven items as mentioned previously, thus it shows that all the items fulfil the requirement for achieving the

minimum indicator (Fornell & Larcker, 1981). The results are presented in Table 4.10 demonstrates the value of AVE for each item and it were achieved minimum of 0.5. (Hair et. al., 2014).

First Order Constructs	Average Variance Extract (AVE)
Attitude	0.671
Subjective Norm	0.651
Perceived Behaviour Control	0.683
Behaviour Intention-BI	0.887
Technology Usage-TU	0.797

Table 3: Value of Average Extract Variance (AVE)

In this research, discriminant validity in the measurement model was tested based on the Heterotrait-monotrait ratio (HTMT) criteria (Hair et al., 2014;2017). In order for the construct to achieve discriminant validity based on the HTMT ration, the value of HTMT obtained must not exceed the threshold value of 0.85. Referring to the threshold value of 0.85 for HTMT.85, the results indicate that the discriminant validity has been established and meets the threshold range of below 0.85 (Hair et al., 2014).

	ATT	BI	PBC	SN	TU
ATT					
BI	0.487				
PBC	0.566	0.545			
SN	0.738	0442	0.53		
TU	0.536	0.496	0.615	0.527	

Table 4: Heterotrait- Monotrait (HTMT) in Assessing Discriminant Validity

Overall, the results obtained in all the tests were satisfactory. Specifically, the indicator loadings for the indicator reliability test and internal consistency had achieved a value of more than 0.708 with AVE for convergent validity tests achieving more than 0.50. For the discriminant validity test, the values obtained in HTMT ratio are satisfactory (at below 0.85 of HTMT.85) to establish the discriminant validity in the measurement model. Thus, the researcher could proceed to the next step; structural model.itle of sub-heading must be in Times New Roman, font size 12, Italic, Line spacing must be1.5 pt. Spacing must be 12 pt. before and after.

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4.2 Assessment of Structural Model

The validity of the structural model is assessed using the coefficient of determination (R2) and path coefficients.

The results in Table 5 indicate the values of VIF (Variance Inflation Factor) for components of TPB and technology usage as predictors of behaviour intention ranging from 1.805 to 2.298 which are less than the threshold values of 5. Therefore, the collinearity between the constructs is not an issue in the structural model (Hair et al., 2014) and this indicates there is no relationships existed among independent variables.

	VIF
TPB	1.805
TU	2.298

Table 5: Result of Collinearity Between Constructs

The R2 value indicates the amount of variance in dependent variables that is explained by the independent variables. Thus, a larger R2 value increases the predictive ability of the structural model. It shows in Table 6 below.

Endogenous Constructs	R^2
Behavioural Intention	0.334

Table 6: Assessment of R^2 value

According to scholarly research focusing on marketing issues, R2 values of 0.75, 0.50, or 0.25 for endogenous latent variables can be defined as major, moderate, or poor, respectively (Hair et al., 2014). Thus, the R2 values of 33.4% obtained for firm output as an endogenous construct are moderate.

Each path connecting two latent variables in the structural model represented a hypothesis. The structural model analysis helps the researcher to confirm or disconfirm each hypothesis as well as determine the strength of the relationship between dependent and independent variables.

The SmartPLS bootstrapping feature is used to produce t-statistics for all directions in order to measure the significant level. The significance level of each relationship is calculated using the t-statistics output. For each hypothesised path, Table 7 lists the path coefficients, observed t-statistics, and significance level. The acceptance or rejection of the suggested hypotheses is decided using the route evaluation findings. The next section goes into how to test the theories that have been formulated.

	Original Sample (O) Path	Standard Deviation (STDEV)	T-Statistics (IO/STDEVI)	Significant level/ P Values	Result

	Coefficient/β				
TPB -> BI	0.375	0.071	5.307	0.000	Significant
TU -> BI	0.144	0.069	2.1	0.036	Significant

Table 7: Path Coefficients, Observed T-Statistics, and Significance Level for all Hypothesis Tested

In this measurement, if the Q_2 is greater than 0, the structural model is considered to be predictive relevance. Table 8 shows the result of Q_2 obtained from the blindfolding procedure as 0.298.

	SSO	SSE	$Q^2 (=1-SSE/SSO)$
BI	1136	797.034	0.298

Table 8: Assessment of Predictive Relevance Q

4.3 Assessment of Moderator Variable

To analyse the moderating role of perception on performance of cash waqf, several steps are followed namely: (1) assessing the value of T-statistic, (2) assessing the value of R2 Change, (3) running significant test using bootstrapping. Table 9 illustrates the summary of the assessment of the moderating role.

	Original Sample (O)/Path Coefficient(β)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	R2 Change	Findings
TPB*PERCEPTION -> BI	0.269	0.019	0.312	0.861	0.195	6%	Not Supported

Table 9: Result for Moderator Variable

As illustrated in Table 9, it is evident that perception on performance of cash waqf not supported as a moderator to the intention of Cash waqf contribution. This research shows that perception on performance of cash waqf would not plays the moderating role. A negative significant relationship of perception on performance of cash waqf contribution as a moderator is present in the relationship between theory of planned behaviour components and intention to cash waqf contribution.

5. Conclusion

Based on the analysis in this research, all the components of TPB are significant to influence intention of cash waqf. In addition, technology usage is significant to the research. However, perception on performance of cash waqf is not significant because of P values is more than 0.05. Thus, perception on

performance of cash waqf would not act as a moderator in this relationship. It can be conclude that attitude, subjective norms and perceived behaviour control are the factors that influence the contribution of Cash Waqf. It is becasue individual himself will influence by environment, religion thought, family, financial condition and other's perception to lead their intention to contribute to Cash Waqf.

For the extended variables, the technology used created and used for collection cash waqf is important because it will determined the accessibility, convenience and user friendly of the method used by the Muslims. In other words, acceptance of technolgy by individu could be developed if the method of technology used is good and excellent. To summarize insignificant of the moderator, it might not significant to the this research because in order to have intention to contribute cash waqf, it is regardless the performance of cash waqf itself. It is influence directly by other factors such as attitude, subjective norms and perceived behaviour control to influence Muslims to contribute cash waqf.ype your paragraphs here. For all formatting structure refer to previous guidelines

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Impact of Human Capital and Innovation Towards Total Factor Productivity (TFP): A Case of Manufacturing Sector in Palm Oil Industry in Malaysia

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ABSTRACT

Although palm oil-based industries in Malaysia depend on inputs, especially human capital and technology to determine the overall performance and productivity, the sector is yet to use technology that depends on low-skilled workers. Thus, to improve the industries, the study was conducted to analyze the effects of the workers skills and technology on the total factor productivity (TFP). Two stages of analysis were performed. The first was to analyze the overall TFP which was estimated by the Malmquist productivity index (MPI) using data envelopment analysis (DEA). Second, the change in TFP of ranking first as the dependent variable and dependent on the analysis of panel data. The results indicated that the estimated regression discovered fixed effect (FE) that was the best of both model with similar existing model and the results were consistent for both models. Model 1 and 2 showed that the variables that affected the growth of TFP is the ratio of capital-labor, the ratio of employee professional and management to the number of employees, the ratio of expenditure to the RND, management to the number of employees expenses for the ICT, and expenses on the ICT for the food Dummy*ln ICT.

Keywords: Human Capital, Productivity, Palm Oil, Data Envelopment Analysis, Panel Data

1. Introduction

Coconut oil is the primary agricultural commodity in Malaysia and the rapid development of industrial palm oil began three decades ago. In line with that, the palm oil sector belongs to the twelve National Key Economic Areas (NKEA) of Malaysia (EPU, 2010). Malaysia is the second largest producer of palm oil, contributing almost 30% to the global production of palm oil and the largest exporter for palm oil with 35% of exports (MPIC, 2016). The palm oil industries have significantly contributed to the economy of Malaysia from various aspects. The hectarage of oil palm planted by commodity plantations and smallholders has significantly increased from 1 million hectares in 1980 to 2 million hectares in 1990, and

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5.1 million hectares in 2015 (MPIC, 2016). Thus, the palm oil industries have grown by a significant amount that palm oil now is recognized at the international level.

In addition to that, the Malaysian oil palm sector has contributed to the growth of gross domestic product (KDNK) by 37.9%, of manpower by a total of 40%, and of the total employment of agriculture sector by 22.1 million people in 2018 (DOSM, 2019). Furthermore, the exports performance shows that the palm oil production has increased from 180 thousand tons metric in 1965 to 27.86 million tons metric in 2019 (MPOB, 2019). The major importers of Malaysian palm oil include India, China, Pakistan, and the Netherlands. In 2016, India was the biggest importer (19.9 %), followed by China (10.1 %), Pakistan (6.4%) and Netherlands (5.5%). In addition to that, many oils are categorized according to the sources of oil and fat saturation which is produced globally (OWA, 2016). Palm oil register percent high by 28.0% compared with the oil other like oil bean soy (24.0 %), oil rapeseed (13.0 %) and spring sun (7.0 %), even more than the oils and fats from sources animals that only 25.0% only (OA, 2016).

In line with the rapid development of the Malaysian palm oil-based industry, the supply chain aspect is very important to support this industry. Therefore, the activities involved in the downstream process are based on the input from the upstream activities. An upstream activity involves planting oil palm trees, production of oil fruit bunches, processing fresh fruit batch (FFB) in an oil mill plant to produce crude palm oil, namely crude palm oil (CPO) and palm oil kernel oil (PKE), in addition to production of refined palm oil (RPO), namely olein liquid, liquid stearin and oleo chemical products (Choo, 2012). The downstream activities of the palm oil industry involve the use of palm oil-based inputs in the food and non-food products, in addition to bio-fuels such as biodiesel and oleo chemicals (Sime Darby, 2014).

Both the agricultural and manufacturing sectors based on oil palm are important for the Malaysian economy. Consequently, the accomplishments and performance of the industry are always scrutinized, and in need of empirical researches. The researches can be observed in various aspects and dimensions. For example, the aspects of technique efficiency on the level of oil production in Indonesia were analyzed (Alwarritzi et al. 2015; Defrizal et al. 2016), and Abdulsalam et al. (2014) determined the efficiency of the technique in processing palm oil in Nigeria. Meanwhile, Said and Said (2004) and Solomon (2012) studied the growth of total factor productivity (TFP) in the manufacturing sector. Furthermore, Sulaiman & Rashid (2013) have continued the study by analyzing the growth of TFP in the manufacturing sector in Malaysia. There are also studies that focus on the efficiency techniques in the manufacturing industry (Fahmy-Abdullah et al., 2017; Fahmy-Abdullah et al., 2018; Hamdan et al., 2019; Latif et al., 2019).

The preliminary studies on food industry in the country only focused on the analysis of technical efficiency (Kalirajan & Tse, 1989; Radam, 2007). Furthermore, a similar study was conducted by Mad Nasir et al. (2013), but the focus was on the food industry and enterprises, especially the small and medium-sized enterprises (SMEs). Another study looked into the processing of food for large-scale enterprise (Yodfiatfinda et al., 2012). Ahmed (2012) and Mohamed and Said (2010) researched the determinant of food production and the sources of productivity growth for the food industry in the country. In addition to that, Jalil et al. (2008) analyzed the relationship between the global price and exports for palm oil, including the role of technology to the TFP of palm oil. The research by Ramasamy et al. (2005) on the performance of the palm oil industry was more specific to the size of the firm and

company holdings. Meanwhile, Krishnasamy & Ahmed (2006) examined specifically the changes in the productivity of vegetable oil in the country, including coconut oil, palm oil, palm oil kernel oil and oil stated.

Distinct to the earlier studies, the study aimed to measure the level of TFP in oil palm-based industry by focusing on the industrial food and non-food outputs. Furthermore, the study analyzed the factors that determined the immediate potential in influencing the growth and achievement of the TFP on oil palm-based industry in Malaysia. Since the performance of an industry is usually measured through the levels of efficiency, productivity or TFP to indicate the power of competition (European Commission, 2009), the study chose TFP as the dependent variable. The factors that affected TFP included incoming capital, labor, expenses for training, expenses for the use of technology, communication and information technology (ICT), expenses for the research and development, and level of workers skills, namely skilled and medium-skilled. This review contributed to the body of literature in terms of the measurement of TFP growth in the palm oil-based manufacture industry. The scope of the study was on categorizing industries based on the industrial food and non-food output. Next, the research also analyzed the specific contribution of the level of workers skills. In addition to that, the studies would recommend effective strategy in order to increase the competitiveness of the palm oil-based industry. The second section of this paper reviews the previous studies related to the total factor productivity (TFP) of the palm oil-based industry in Malaysia. The third section discusses the research methodology, data sources, and model specification. The fourth section analyzes the results, and the fifth section provides the conclusions and the implications of this study.

2. Literature Review

Total Factor Productivity, (TFP) is a measure of overall optimum efficiency in the use of inputs to produce outputs or minimizing the use of inputs to produce a quantity of output that is similar. The input quality when generating the quantity of output is high when the input is used efficiently and effectively. The high contribution of TFP to the growth of the economy is a condition that leads to improve the standard of living of the people of a country (Reporting Productivity, 2009). TFP plays an important role to the growth of the economy and the differences of income per capita between countries. In business, TFP is closely associated with the production and period of work hours (Fahmy-Abdullah, 2017). TFP measures synergy and efficiency in the use of capital and human resources. TFP can also be considered as a measure of technological progress in relation to economic growth. The high growth of TFP points to the efficiency of use and management of resources, materials and inputs necessary for the production of goods, showing that the quality and service are excellent. TFP also reflects the increase in production through increased efficiency which is produced by increasing the training, skills and expertise of employees, procurement procedures, techniques of management, progress of the organization, benefits of specialization, introduction of technology for innovation or improvement of readily available technologies, progress of technology, information and communication (ICT), and value added from processing and industry. Productivity will produce better returns if the intensity of capital increases in line with the growth of TFP.

There are five determining factors of TFP outlined by the Malaysian Productivity Corporation (2002). The first determining factor of TFP is the intensity of demand which is a factor that indicates the level of

productive capacity of the national economy. The slowdown in the intensity of demand will result in unrealized potential of capacity, consequently reducing the use of available equipment and machinery. Demand intensity can be seen through sales performance. The second is education and training for the workforce aimed at improving the skills and knowledge of employees. With high level of skill and science knowledge, employees will be more efficient and able to produce better quality products and services. Investment in the development of human point of emphasis is given to education and training. The third determining factor is the restructuring of the economy, which shows the movements of the economy in the less productive sectors in comparison to the more productive ones. The experience of developed countries proves that the resources of the more productive sectors are used more efficiently compared to that of the less productive sectors. The fourth factor is the structure of the capital which shows the extent to which the investment is made in the input capital. Investments for equipment and machinery are deemed as the investment for productive capital, resulting in the short duration of production compared to the investments in the infrastructure, buildings and plants which require a long period of time to produce results. The next determining factor is the technological progress associated with the use of technology that is effective and efficient, innovation, positive attitude at work, and management and organization. With high level of technology, employees are motivated and energetic at work, leading to efficient management and high added value to products and services at cost-competitive prices.

According to a recent study, TFP was analyzed using various data including cross-section and time-series data of firms and industries. Previous studies also used various methodologies to analyze data, such as data enhancement analysis (DEA) using the Malmquist index or Divisia index, and Stochastic Frontier Analysis (SFA) using the residual method by Solow. The scope of the study also varied, including studies on the growth of TFP, determining factors in the growth of TFP, and the contribution of TFP to the output growth. A study by Idris (2007) showed that the growth rate of Malaysian TFP was low due to the negative contribution of TFP component, namely technical efficiency (TE). In addition to that, the contributor to TFP such as innovation can yield change in the economy. Furthermore, the focus on the economy requires increased capabilities based on productivity, particularly the effective use of human being in the market labor to increase the number of skilled workers to handle the advanced and recent technology. Heshmati and Kumbhakar (2010) used panel data of China provinces known for a number of transition technologies to study the effect on the technical change and TFPG. The results showed that heterogeneity was significant in the provinces in China. On average, the trend of the technical change model was 13.7 percent, between 4.2 percent to 22.3 percent. It is a major contributor to TFP growth. Meanwhile, the model index of technology also showed that all of the dependent variables had a significantly increasing growth but at a decreasing rate. Furthermore, the correlation of the technology index was also significant. Technical change was due to the economic corridors which consisted of two indices of the capital recruitment and changes in the economy influenced by the significant purchases of infrastructure, attractions and acquisition of technology, transfer of technology, and ability of the region to learn something new.

Suphannachart and Peter (2010) studied the TFP in the agriculture sector in Thailand based on the time-series data in the period of 1970 to 2006 by using the error correction model (ECM) estimator. TFP was calculated for crops and livestock separately while the data sets obtained from plants and livestock were for individuals. In particular, the average annual growth rate of TFP in the crop sector was estimated

at 0.68 percent, which was 20.82 percent of the crop growth output. The TFP growth was estimated at 0.67 percent, which was 17.49 percent of the livestock production growth. The results of the study showed that all of the dependent variables used in models of determinants of TFP was significant. A study by Krishnasamy & Ahmed (2006) examined the extent of which the productivity changed in the four sectors of Malaysian vegetable oil: palm oil, palm kernel and other oils. The Malmquist productivity index was used to estimate the efficiency and productivity changes of each vegetable oil sector. The productivity index was calculated in the framework of Data Enhancement Analysis, which further elaborated productivity growth to the changes in technical and technological competencies. The results of the analysis showed that the TFP increased in the sector of coconut oil, palm oil, kernel palm oil and other oils while the palm oil sector noted a decrease in productivity.

In addition to that, Jalil et al (2008) evaluated the relationship between the global price of palm oil, the export of palm oil in Malaysia, and technology to the TFP of palm oil sector. The research was conducted using the secondary data in a period of 31 years starting from 1975 to 2005. The data obtained were analyzed following method by Cobb Douglas. The measurement of TFP for the Malaysian palm oil industry was assumed to follow the model produced by Cobb Douglas and index of productivity generated using Solow Residual. Overall, the results showed that the global price of palm oil, the export of palm oil and technology have positively impacted the productivity of palm oil during the period of study. There are several researches on the industrialized countries that showed that the increased demand for skilled workers was driven by advance changes in technology, and most substantially by the use of technologies of information and communication technology (ICT). The review by Tan (2000) examined the hypothesis by focusing the study in Malaysia, where researchers used panel data from the manufacturing sector for the period from 1985 to 1995. For the stage first, the relationship between the growth of TFP and demand of skills was studied to understand whether the change in technology would affect the skills, and if so, the skills of which kind of society. The model of production panel demonstrated that the use of IT increased the productivity due to the accumulated experience with the latest technology. The advantage was significantly more substantial with the training of workers. Therefore, the result supported the hypothesis that the changes in technology and skills were critical and essential for skilled workers in the field of IT in Malaysia.

The study by hurray and Shumway (2014) examined the factors that drove the technical changes, efficiency of technical changes and scale, and incorporated the changes in the efficiency of which components affected the TFP by focusing on the agriculture sectors in America. The results showed that changes in technique were mainly from an increase in innovation through research and improvements in the skills of workers. Changes in the efficiency of techniques were driven by education, development, the ratio of workers family to the whole, and some weather variables while the scale and mix changes of competence were significantly affected by the by size of farm, all variables in weather and temperature. In addition to that, the results indicated that some previously neglected factors such as access to healthcare played an important role in the growth of productivity. The review by Che & Zhang (2017) focused on the energy business colleges in China from 2003 to determine the effects of skilled workers to productivity. By using the strategy estimates that vary differences, the researchers found that the industry that used more technology and intensively skilled workers experienced a more substantial increase in the TFP after 2003 compared to past years. By increasing the skills of workers to the growth of TFP, the researchers

found that the industries also accelerated the use of new technology, importation of advanced goods capital, spending on research and development (RND), intensity of the capital, and recruitment of more highly skilled individuals. The gains in productivity were weaker for private domestic firms than foreign firms. However, researchers found that such studies, especially those that discussed the relationships between TFP growth, employee skills and technology were still under-studied in Malaysia. Based on the results of the literature review of the previous studies, there are various factors that affect the growth of TFP including human capital, the growth of the economy, RND and ICT.

3. Research Methodology

Two data approaches were conducted, first the analysis of Malmquist index to obtain the change in TFP by using the data enhancement analysis (DEA) and to observe the pattern of TFP growth for the chosen sectors in the palm oil-based industry and secondly, analysis of panel data statistics by using the estimation of Power Two Smallest or Pooled Ordinary Least Square (POLS), and the fixed and random effect to study the factors that determine TFP particularly in the variable of skilled workers and technology for the chosen sectors in the palm oil-based industry in Malaysia.

The analysis in this study used panel data that combined both cross-sectional and time-series data. The data included a period of 12 years starting from 2000 until 2012, but the data for the year 2011 were interpolated because they were not included in the obtained data. This review selected 11 sub-sectors of the industry based on coconut oil. The database in the study was derived from the Survey of Industrial Manufacturing issued by the Department of Statistics, Malaysia (JPM) (Refer to Table 4). The dependent variable in the study was the total factor productivity (TFP). The independent variables were the ratio of total capital-labor (K/L), of workers to professionals, of management to a number of employees (pro/TL) and of technical and professional workers to the number of employees (TEK/TL), spending on technology, information and communications (ICT), expenditure on research and development (RND), and expenses to the training of workers (TRN) as referenced in the original equation 4. The growth of TFP was calculated based on the data enhancement analysis (DEA) and subsequently used as an enabler change leaning in equations 4 and 5.

Prior to that, the data obtained from JPM were reviewed and scrutinized. Then, they were prepared and processed. Each sub-sector had in the aggregate from 18 sub-sectors based on the 2008 standard MSIC (Standard Classification of Industry Malaysia 2008) to 11 sub-sectors cited in the 2000 standard MSIC (Standard Classification of Industry Malaysia 2000). In this study, the data such as the output, value of assets, value of the input, and expenditure on ICT, RND and training of workers (TRN) were converted to the right to use the consumer price index (CPI), in which the year 2000 was used as the base, 2000 = 100. The data obtained were analyzed by using quantitative methods. Once the performance values were calculated and obtained, then the multiple analyses to study the impact of human capital and innovation on TFP were conducted.

Table 1: Type of Sub-Sector

No.	5 Digit Sub-Sector		Type of Sub-Sector
	MSIC 2000	MSIC 2008	
1.	15142	10401	Manufacture of crude palm oil
2.	15143	10402	Manufacture of refined oil
3.	15144	10403	Manufacture of kernel oil
4.	15201	10501	Making ice cream and other ice that can be eaten like sorbet
5.	15202	10502	Manufacture of condensed, flour and evaporated milk.
6.	15499p	10799	Manufacture of other food products n.e.c
7.	24111	20111	Manufacture gas industrial or medical non-organic in form of liquefied compressed
8.	24119p	20112	Manufacture of basic organic chemicals
		20113	Preparation of compounds not organic
		20119	Manufacture of other basic chemicals n.e.c
9.	24240p	20231	Manufacture of soap and material washers, providing clean and shiny
10.	24290p	20232	Manufacture of perfumes and providing makeup oneself
		20299	Manufacture of other chemical products n.e.c.
11.	24230p	21001	Manufacture of active ingredients of medicines for use by pharmacology in the manufacture of medicines
		21003	Manufacture of medicines
		21007	Pharmaceutical manufacturing, biotechnology
		21009	Manufacture of pharmaceutical products, medical and botanical chemicals n.e.c.

DEA is a mathematical programming for non-parametric linear budgetary boundaries. DEA seeks to assess the performance efficiency of the decision making unit (DMU) in an organization. The method was founded by Farrell (1957), whom estimated the boundary of a production firm by using a programming method. The method was explored in more depth by Charnels et al. (1978), and Ocelli (1996) through the analysis of the technique efficiency. Charnels, Coopers and Rhodes (1978) proposed a model-oriented input of CCR model and supposed constant returns to scale (CRS). Then, Banker, Charnels and Coopers (1984) have proposed a model of variable returns to scale (VRS) which was recognized by the BCC model with a set of hypothetical alternatives. The advantage of using the DEA approach includes DEA

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Model can measure many input variables change and enabling output variables, the approach is not a hypothetical existence of a correlation function between the dependent variable input and enabling variable output in a study and the dependent input variable and enabling output variable have a different set of measurements. However, there are various methods that have been used by researchers prior to estimating the growth of TFP, for example the Border Stochastic and growth standard accounting methods.

Malmquist Index is a way to analyze the change in total productivity factor (TPF), technology (TC), efficiency of technique (TEC), efficiency of technique (TE), and efficiency of scale (SE) (Fare, Grosskopf, Norris and Zhang, 1994). The change in total productivity factor (TFPC) is related to the total output according to the inputs. This concept was created by Malmquist (1953). Non-parametric methods were used in this study. The Malmquist TFPC index is widely used in the total productivity changes. The Malmquist Index is defined using the distance function. Here, the distance of the output is used to consider the development of the maximum, which is proportional to output based on the given input (Mahadevan, 2002). More specifically, the TFP Malmquist Index measures changes in the growth of TFP between two points of data to calculate the ratio of the distance of each point of the data relative to the similar technology. Based on Fare et al. (1994), the output-oriented Malmquist TFP change index between period s and period t is given by:

$$m_0\left(y_s, x_s, y_t, x_t\right) = \left[\frac{d_0^t\left(y_t, x_t\right)}{d_0^t\left(y_s, x_s\right)} \times \frac{d_0^s\left(y_t, x_t\right)}{d_0^s\left(y_s, x_s\right)}\right] 1/2 \tag{1}$$

Where the notation represents the distance from observation period t to time technology; y represents output; and x represents input. A value greater than one indicates positive TFP growth from period s to period t while a value less than one indicates a decrease in TFP growth. The same way to write this productivity index is as follows:

$$m_0\left(y_s, x_s, y_t, x_t\right) = \frac{d_0^t\left(y_t, x_t\right)}{d_0^s\left(y_s, x_s\right)} \times \left[\frac{d_0^s\left(y_t, x_t\right)}{d_0^t\left(y_s, x_s\right)} \times \frac{d_0^s\left(y_t, x_t\right)}{d_0^t\left(y_s, x_s\right)}\right] 1/2 \tag{2}$$

Where the ratio of the outer cage measures the change-oriented output b in order to estimate the efficiency of technical Farrell between periods s and t. The change in efficiency is equal to the ratio of the efficiency of technical Farrell period t to period s. The section index in equation (2) is a measure of the technical change which is an average of geometric transition technology between the two periods, which are valued at x, y and xs. In other words, TFP growth can be decomposed as expressed by equation 3 below:

TFP Growth = Changes in Technical Efficiency × Changes in Engineering $\qquad$ (3)

Basic model can be written as follows;

$$TFPG_{it} = \beta_{0i} + \beta_{1i}\left(ln\frac{K}{L}\right)_{it} + \beta_{2i}lnICT_{it} + \beta_{3i}lnTRN_{it} + \beta_{4i}lnRND_{it} +$$
$$\beta_{5i}\left(\frac{TPRO}{TL}\right)_{it} + \beta_{6i}\left(\frac{TTEK}{TL}\right)_{it} + \mu_{it} \tag{4}$$

Dummy Model can be written as follows;

$$TFPG_{x} = \beta_{i0}ln\left(\frac{K}{L}\right)_{it} + \beta_{i2}lnICT_{it} + \beta_{22}lnTRN_{it} + \beta_{32}lnRND_{it} + \beta_{42}\left(\frac{TPRO}{TL}\right)_{it}$$
$$+ \beta_{52}\left(\frac{TTEK}{TL}\right)_{it} + \beta_{62}\left(D_{m}*lnICT\right)_{it} + \beta_{72}\left(D_{m}*\frac{TPRO}{TL}\right)_{it} + \mu_{it} \quad (5)$$

With :

$TFPG$ i_{t} = growth of overall productivity factor (TFP),

ln K/L $_{it}$ = original logarithma of capital-labor ratio,

ln ICT = logarithma natural expenditure on information and communication

technology,

ln TRN = logarithmic original expenses to the training of workers,

ln RND = logarithmic original expense to the research and development

$TPRO/TL$ = ratio of professional and management employees to overall employees and

$TTEK/TL$ = ratio of technical and professional workers to overall employees,

$Dm*$ = volume interaction where, 1 = food sector, 0 = not food sector

i is industry and t is time and, μ_{it} = error

The model estimation used in this study was a static data panel test. The three panel data analyses were constant coefficient estimator (Pooled OLS), fixed effect estimator (Fixed Effect) and random effect estimator (Random Effect). The constant coefficient estimator model is related to the estimation using Ordinary Least Squares (POLS). The fixed effect estimation model is related to the Least Square Dummy Variable Model (LSDV) which refers to a model that has a constant gradient but the constant is based on cross-sectional units. The random effect estimation model is related to the regression model with cross-sectional unit errors unrelated to the variable errors used in the model. Then, the model was selected based on the Wald test and Hausman test hypotheses.

The Wald test was used to identify which model to choose between POLS and FE. The Wald hypothesis test can be consulted in the Table 1. If F-statistics are greater than F-critical, then the null hypothesis is rejected. In other words, if the p-value of the Wald test is significant at the significance level of 5 percent; then, the model to be selected is a fixed effect model, FE. If the p-value is not significant then the model to be selected is the model POLS.

The Hausman test selects whether a fixed effect model (FE) or a random effect (RE) is the most appropriate to use. Hausman test is performed with the hypothesis as in Table 1. The test follows the distribution of chi-square statistics with a degree of freedom of k, where k is the sum of the independent variables. If Hausman statistical value is greater than the critical value, then the null hypothesis is rejected and the exact model is a fixed effect model (FE). Conversely, if the Hausman statistical value is less than the critical value, then the correct model is a random effect model (RE).

The SFA model was selected to denote the TE value. In order to obtain an accurate estimate of the value of TE, each of the assumptions and rules listed must be followed. The test was started by the translog production function to obtain the TE value. Overall, all approaches and budgeting met the objectives of the study.

Table 2: Wald Test Hypothesis and Hausman Test

Wald test	Hausman test
H 0 = constant effect estimation (POLS)	H 0 = according to random effect (RE)
H 1 = fixed effect estimation (FE)	H 1 = according to the fixed effect (FE)

4. Result and discussion

From the statistical summary, we could identify the type of data used. In general, these statistics provided clues regarding the normal distribution of data. Table 5 presents the results of summary statistics for the data used in the model which were total factor productivity (TFP), ratio of total capital-labor (K/L), ratio of professional workers to the number of employees (pro/TL), ratio of technical workers to the number of employees (TEK/NE), true spending on information and communication technology (ICT), true expenditure on research and development (RND), and true expenses to the training of workers (TRN). Based on Table 6, a series of right-skewed, positive data for the variables K/L recorded the degree of skewness (skewness) of 3:26. Meanwhile, TFP recorded the degree of skewness to the left (negative) of -2.79. In addition to that, all series had positive kurtosis, and the value greater than three showed that the data had excess kurtosis called leptokurtic or fat-tail.

Table 3: Descriptive Statistic

	TFP	K/L	TPRO/TL	TEK.TL	ln ICT	ln TRN	ln RND
Min	0.937273	440.6631	0.119536	0.135313	8.977060	7.525782	7.705880
Median	1.009000	158.4491	0.112016	0.133929	9.082334	7.427842	8.132266
Maximum	1.352000	4305.689	0.266918	0.265647	10.86282	10.74075	10.64923
Minimum	0.000000	28.15717	0.030965	0.030282	5.670980	2.597363	-0.617345
Std. Dev	0.281576	738.5993	0.052455	0.046670	1.104212	1.464447	1.851042
Skewness	-2.794187	3.265753	0.815744	0.494172	-0.987993	-0.494993	-1.270529
Kurtosis	9.664537	14.10418	3.840953	3.089808	3.954931	3.900416	5.208752
Jarque-Bera	450.7239	988.8653	20.07333	5.868295	28.69778	10.67031	67.54107
Probability	0.000000	0.000000	0.000044	0.053176	0.000001	0.004819	0.000000
Observation	143	143	143	143	143	143	143

To identify whether the data was normally distributed, the Jarque-Bera probability was used. In addition to that, the data distribution could be identified through the mean and median values of the data. If the mean and median are equal, the data are distributed normally. For this study, the distribution of data was not normal because the mean and median of the series were not the same. Furthermore, based on the Jarque-Bera likelihood (probability), the p-value of each series was significant at the level of significance of 5 percent and 10 percent, showing that they were not distributed normally. Although the data were not distributed normally, the data were still accepted as the method used was the panel data, and the results of regression showed that the effect remained were the model chosen. On the other hand, if POLS or fixed effect was chosen, then the data had to be rejected and the result would not be valid.

Table 4 and Table 5 show the growth of TFP categorized into food and non-food sector. Based on the tables, we can produce a chart as shown by figure 5 and figure 6 to further observe the growth of TFP for the food sub-sector of the palm oil industry in Malaysia. The TFP growth for 2001 to 2012 focusing on the 11 sub-sectors is illustrated in Figures 5 and 6. In general, all sub-sectors experienced fluctuations in TFP growth. The TFP growth was calculated using the data enhancement analysis (DEA) via Ocelli software. Graphically, the fluctuations in the value of TFP for the sub-sector of palm oil manufacturing industry showed more pronounced trend in the sub-sector 15143 of refined palm oil manufacturing sub-sector. This sub-sector underwent TFP growth in 2009 by 0.624 percent most likely due to the economic crisis of 2008, leading to the growth of TFP at low levels. However, a study conducted by Mohamad & Said, (2010) found that the change in Technical Efficiency for the refined oil manufacturing sub-sector experienced the highest increase of 3.3 percent per year.

In addition to that, for the non-food sector of the palm oil industry, sub-sector 24111 (industrial gas or inorganic medicine in the form of compressed liquid manufacturing sector) has experienced a high TFP growth of 1.352 percent during the study period in 2006 (Figure 6). However, the sales value of the manufacturing sector in February 2016 declined 1.4 percent to RM51.4 billion from RM52.1 billion in 2015. Based on the data by the Department of Statistics, the sales value declined by 7.0 percent when compared on a monthly basis. Moreover, the decline was mainly due to the decline in the manufacture of industrial or inorganic medicine in liquid or compressed form (Utusan Boneo, 2016). Thus, this observation has addressed the first research objective of measuring the pattern of TFP growth for the sub-industries. The indicators for each sub-sector are shown in Table 4.

Table 4: TFP for the Food Sector

Year	15142	15143	15144	15201	15202	15499
2001	0.989	1,104	0.978	1.020	0.950	1,073
2002	1,024	1,072	0.996	0.977	0.947	1,017
2003	1,034	1,129	1,002	1,017	1,034	0.987
2004	0.985	1,095	1,037	1,093	1,024	0.965
2005	0.971	0.986	1,027	1,001	1,017	0.984
2006	1,038	1,198	0.977	1,044	1,004	0.985

2007	0.974	1.248	1.028	1.059	1.035	1.016
2008	1.028	1.026	1.009	0.891	1.017	1.047
2009	1.021	0.624	0.847	0.978	0.925	1.021
2010	0.983	1.208	1.085	1.072	1.001	1.129
2011	1.006	1.010	0.996	1.018	1.018	0.918
2012	1.006	1.010	0.996	1.020	1.016	0.892
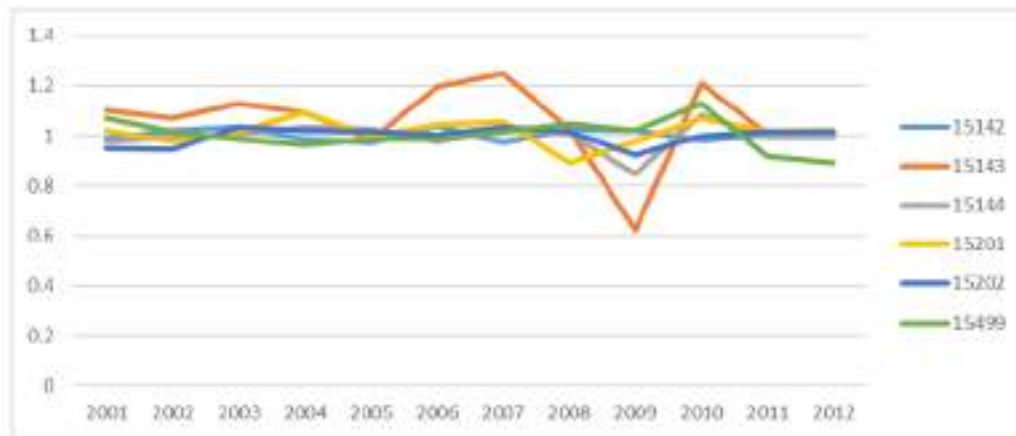
Figure 1: TFP for the Food Sector

Table 5: TFP Non-Food Sector

Year	24111	24119	24230	24240	24290
2001	1.002	0.982	1.009	0.991	0.967
2002	1.031	1.001	1.039	0.990	1.067
2003	0.989	1.060	1.034	1.047	1.007
2004	0.783	1.023	0.966	0.996	1.086
2005	1.072	1.046	1.025	0.998	1.025
2006	1.352	1.002	1.061	1.021	1.064
2007	1.021	0.967	1.000	1.016	1.133
2008	0.827	1.020	0.952	0.985	0.905
2009	1.037	0.961	0.988	0.992	1.114

2010	1,156	1.1 00	0.987	1,035	0.892
2011	0.982	1.056	1,029	0.986	1,056
2012	0.983	1.051	1,027	0.984	1,093
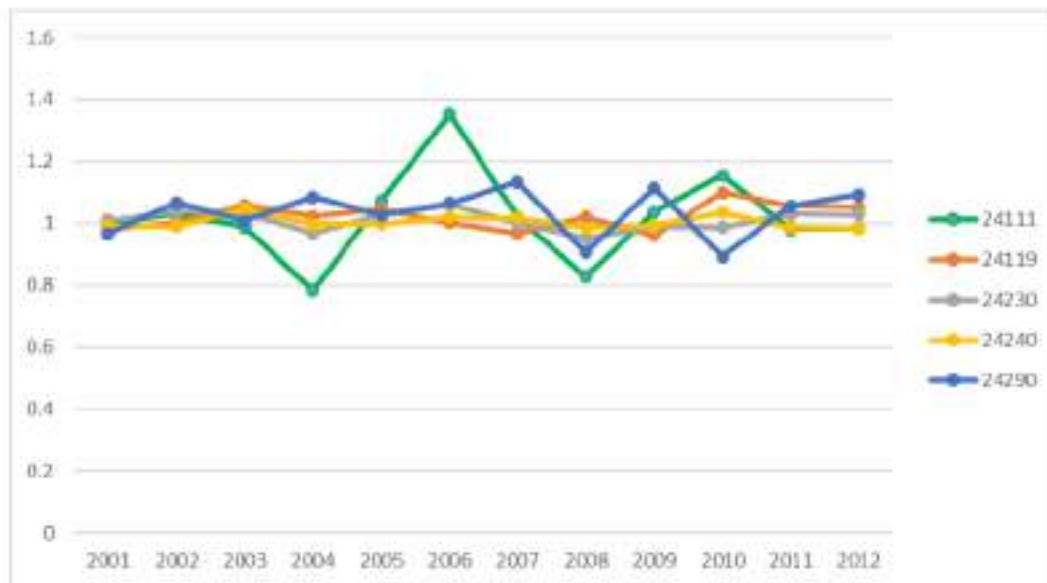
Figure 2: TFP Non-Food Sector

Table 6 shows the estimation results for Model 1 and Model 2 using three types of estimation for the panel data: the constant coefficient effect (Pooled OLS), the fixed effect (Fixed Effect), and the random effect (Random Effect). There were two models used in the study. Model 1 was the model without independent variable interactions while Model 2 included interaction variables which were the Dummy*Pro/TL and Dummy*ln ICT. In model 1, for the estimation of the POLS, the coefficient for the constant, the ratio of capital-labor (ln K/L) and the ratio of professional and management workers to total employees (TPRO/TL) were significant at the level of 1 percent. To interpret the value of the coefficient in the POLS model, we could assume that if the capital-labor ratio (ln K/L) increased by 1 percent, then the TFP growth would decrease by 0.0965 percent, and if the ratio of professional and management workers to total employees (TPRO/TL) increased by 1 percent, then TFP growth would increase by 1.5129 percent.

Next, for the estimates using fixed effects (FE) in Model 1, the coefficients for constant value, capital-labor ratio (ln K/L), ratio of professional and management workers to total employees (TPRO/TL) and expenditure on research and development (ln RND) were significant at levels of 1 and 10 percent, respectively. To interpret the value of the coefficient in the FE model, we could assume that if the capital-labor ratio (ln K/L) increased by 1 percent, then the TFP growth decreased by 0.2926 percent; if the ratio

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of professional and management workers to total employees (TPRO/NE) increased by 1 percent; the growth of TFP would increase by 2.7331 percent; and if the expenditure to the RND increased by 1 percent, the growth of TFP would increase by 0.0343 percent.

Furthermore, for estimates using random effects (RE) in Model 1, the coefficients for constant values, the ratio of capital-labor (ln K/L), and the ratio of professional and management workers to total employees (TPRO/TL) were significant at level of 1 percent. To interpret the value of the coefficient in the POLS model, we could assume that if the capital-labor ratio (ln K/L) increased by 1 percent, then the TFP growth would decrease by 0.0965 percent; and if the ratio of professional and management workers to total employees (TPRO/TL) increased by 1 percent, then TFP growth would increase by 1.5129 percent.

Based on the three methods of estimation, the fixed effect (FE) model was both based on the results of the test Regression Panel Model 1 of the Table 8. From Table 7, the Wald test was used to determine which model would be chosen between POLS and FE. Based on the test, the Wald's statistic p-value was significant at the level of 5 percent, meaning that the FE model could be selected. Moreover, the Hausman test showed that the FE model was significant at the level of 5 percent. In addition to that, the statistical R2 to model the residual effect was 0.1802, illustrating that all the dependent variables explained 18 percent of the performance of TFP in the manufacturing sectors during the study. Table 1 is a reference hypothesis for determining the results of the Wald and Hausman tests.

Furthermore, Table 6 shows the results of the estimation of Model 2 using the three types of estimation for panel data, namely the impact of the constant coefficient (POLS), fixed effects (FE) and random effects (RE), and the interaction variables, Dummy*Pro/TL and Dummy*ln ICT, were included as independent variables in Model 2. The estimation involved volume variables used to quantify the characteristics or categories of qualitative variables. The volume variable of 1 indicates the existence of a feature and of 0 indicates the absence of a feature (Gujarati, 2009). For this study, the volume variable of 1 was the food sector while the volume variable of 0 was the non-food sector. Based on the results of the FE estimation for Model 2, the coefficient Dummy*Pro/TL was negative and not significant. Meanwhile, the Dummy*ln ICT coefficient was negative and significant in influencing TFP growth for the food sector. The results of the study showed that many professionals did not affect the TFP growth for the food sectors.

Based on the three methods of estimating this model, the fixed effect was the model both based on the results of the test Regression Panel Model 2 of the Table 6. From Table 8, the Wald test was used to determine which model would be chosen among the POLS and FE. Based on the test, the Wald statistic p-test was significant at the level of 5 percent, meaning that the FE model could be selected. Furthermore, the Hausman test showed that the FE model was chosen due to the level of significance of 5 percent.

Table 6: Estimated Result of Model 1 and Model 2

Variables	MODEL 1			MODEL 2		
	Constant Effect (POLS)	Fixed Effect (FE)	Random Effect (RE)	Constant Effect (POLS)	Fixed Effect (FE)	Random Effect (RE)
C	0.7821**	1.1257***	0.7821**	0.6741**	0.8262	0.6741**

In K/L	-0.0975***	-0.2926***	-0.0975***	-0.9620*	-0.3765***	-0.9620*
TPRO/TL	1.5129***	2.7331***	1.5129***	1.9665	2.4765*	1.9665
TEK/TL	-0.1665	0.0773	-0.1665	-0.2411	-0.0820	-0.2411
In ICT	0.0738	0.1007	0.0738	0.0724	0.3556***	0.0724
In TRN	-0.0208	-0.0228	-0.0208	-0.0226	-0.001	-0.0226
In RND	0.0003	0.0343*	0.0003	0.0062	0.03995	0.0062
Dummy* InICT	-	-	-	0.0067	-0.3772**	0.0067
Dummy* (TPRO/TL)	-	-	-	0.1623	1.2904	0.1623
R2	0.0666	0.1802	0.1427	0.0769	0.2330	0.1328
F-statistic	1.62	4.62	9.71	1.40	4.71	11.16

Table 7: Regression Test for Model Panel 1

Exams	Constant Coefficient (POLS)	Fixed Impact (FE)	Random Effects (RE)
Wald Test Statistics P-value Hypohesis		POLS vs FE 1.79 (0.0684) Reject H 0	
HausmanTest Statistics P-value Hypothesis			RE vs FE 18.37 (0.0054) Reject H 0

Table 8: Regression Test For Model Panel

Exams	Constant Coefficient (POLS)	Fixed Impact (FE)	Random Effects (RE)
Wald Test		POLS vs FE	
Statistics		1.79	
P-value		(0.0684)	
Hypohesis		Reject H 0	
HausmanTest			RE vs FE
Statistics			18.37
P-value			(0.0054)
Hypothesis			Reject H 0

5. Conclusion

The study assessed the level of TFP growth for palm oil-based industries using 143 data panel. The study was carried out on the period of 2000 to 20012. Three models were used to select the best model, and fixed impact models were selected for the analysis. Based on the results of Model 1 and Model 2, the determining factors of TFP, namely ICT and RND influenced the growth of industrial TFP. The result of Model 1 showed that the independent variables that affected the growth of TFP is were the ratio of capital-labor (ln K/L), ratio of professional and management employee to the number of employees (pro/TL), and expenses for RND.

However, for the capital-labor ratios, the coefficients were negative and significant, indicating that the ratio of labor capital has had a negative impact on the growth of TFP and that the level of technology increased the performance of the industry. Meanwhile, the Model 2 included the ratio of capital-labor (ln K/L), ratio of employee professional and management to a number of employees (pro/TL), expenses for the ICT, and interaction variable of the food Dummy*ln ICT. However, the capital-labor and expenses on the ICT for the food Dummy*ln ICT variables were negative and significant while the ratio of employee professional and management to a number of employees (pro/TL) and expenses on the ICT for the food Dummy*ln ICT were positive and significant. Therefore, the skills of professional workers (Pro/TL) can improve the performance in palm oil-based industry while expenses on the ICT might directly (indirect) affect TFP industry.

The results of this study can contribute to several policy implications. First, the ratio of professional and management workers to total employees (TPRO/TL) can help the growth of the industry through the growth of TFP. Consequently, actions should be taken to increase the number of highly-skilled workers with the advancement of ICT in the food sector to enhance the growth of TFP. In addition to that, the dummy coefficient interaction, in the terms of Dummy*ICT was negative. Therefore, the expenses on the technology on ICT affect the TFP for the food sectors compared to the non-food sector. That this can be considered as ICT does not give the impression directly to the performance of the industry as ICT-related meetings with the administration are not included in the downstream activities.

As the industrial palm oil market is now sought after globally, the palm oil-based industry is a profitable business that gives the opportunities to diversify the food and non-food products. Based on the findings of the effect remains, only the dependent variable chosen to be examined in the study was significant and positively affected the growth of TFP. The dependent variables of Model 1were the ratio of professional and management workers to the number of employees (pro/TL) and expenditure on research and development (lnRND). The results obtained for Model 2 also included the independent variables such as the ratio of professional and management workers to the number of employees (pro/TL) and expenses to the ICT.

Malaysia has become among one of the countries that lead the trade in coconut oil, thus the resulting change that is selective, significant, and positive based on this research can be used as an indicator of the palm oil-based industry. The relationship between the workers skills, and spending on the ICT and RND, and the upstream and downstream activities in the palm oil-based industry can improve the performance of the industry, namely TFP. In other words, if we focus on the factors that positively contribute to the TFP of the industry, then the industry will increasingly develop and impact country's economy. Furthermore, the supportive relationship between the upstream and downstream industries based on palm oil can improve the performance of innovation through the expense on RND, and hiring of skilled workers.

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Corporate Culture as a Function in Formulating Strategic Communication

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ABSTRACT

Sub-Saharan Africa is filled with cultural diversity which creates a multicultural market. These diversities are created by the external and internal stakeholders in an organisation, allowing the emerging of unique organisational culture to describe the identity of a specific organisation. In its broader term culture describes units that provide unity amongst people hence its importance in a group situation. Organizational culture is viewed as the shared values, beliefs, or perceptions held by employees within an organization. Moreover, an organization's culture tells us a lot about how members of that specific organisation communicate with each other. Even with the above vital role, organisational culture is viewed as an aspect to influence communication rather than a key role player in developing a communication strategy that fits the intended communication objectives of the specific organisation. To many organisations, the direction of their specific communication is more dependent on current communication trends rather than the cultural aspect that determines the identity and behaviour of stakeholders of the specific organisation to achieve set objectives specifically in very diverse areas such as Africa. Whilst various authors have written about the organisational culture there is still a lack of literature developed to outline in detail the cultural patterns and norms of African cultures, which are important in understanding the communication approaches of Africans even in corporate environments. This lack of literature also deprives African organisations to understand the diversity within their stakeholders. This paper aims to explore how organisational culture and aspects of culture play a vital role in creating a communication strategy that is fit for a specific organisation to outplay the intended communication objective. This paper place focus on organisational culture and the vital function it plays in strategic communication.

Keywords: Strategic communication, organizational culture, diversity, culture, communication

Introduction

Organizational objectives are essential to regulate and control operations between individuals and groups and between individuals and groups and organizations. Cancino, Larsen & StruncK (2016) further explains that an organization, whether private or public, needs methods to achieve its organizational goals. Modern organizations can no longer be sure that their customers will buy or continue to buy their products and services. Nor is it certain that investors continue to invest, or that various social actors do not intervene in their actions.

Due to such, good organisational culture and strategic communication approach need to be developed by any organisation to ensure the ultimate goal of the organisation is achieved. This is to assist in the possible risk factors as stated above.

Over the years, cultural definitions have varied. Culture can be viewed as an aspect of human life that, influences a specific ideology which is a life view constituted, values and norms, and our identity is reflected through our cultural identity. Morley (2014) describes culture to be what binds us together as a society. It is what defines our patterns of human activity. Through our different societies, cultures manifest themselves, resulting in the development of our unique sub-cultural traits. A society's culture establishes how its people live. These cultural values act as our founding principles and influence our mindset. Without culture, there would be no diversity among people.

Organizational culture has long been considered as a key factor that can influence strategic communication practices such as public relations. Under this set of definitions, organizational culture is a set of shared assumptions that guide what happens in organizations by defining appropriate behavior for various situations (Ravasi & Schultz, 2006). Organizational culture affects the way people and groups interact with each other, with clients, and with stakeholders. Also, organizational culture may influence how much employees identify with their organization (Schrodt, 2002).

Previously, an organization's primary concern was to communicate with a relatively small number of clearly defined stakeholder groups (customers, investors, suppliers, employees, etc.) on issues related to the financial and commercial aspects of its business. Currently, many organisation's strategic plans aim at including stakeholders at a local and global level. Therefore, any organisation would need a proper understanding of the environmental aspects that drive the behaviour and thinking of its global or local market.

Although several authors have written articles about organizational culture, there is still a lack of cultural models and norms describing African culture in detail in the developed literature. This is also important for understanding the way Africans communicate even in a corporate environment, as both the internal and external stakeholders. The objective of this paper is to narrate the importance of understanding African values and culture as a vital aspect to be considered in the construction of an organisation's strategic communication plan and organisational culture. Additionally, paving a way on how they can create adaptive strategies, language, and communication tasks of organisational communication against the prevailing discourse of generalisation.

Comprehension of African Culture and Values

African beliefs have inspired their worldviews and molded their culture generally. Culture is a concept that is acknowledged universally. Its phenomenal relevance varies from society to society. What is acceptable in one society may likely be an abomination in the other. Tylor (2010) explicates culture as a complex whole which includes knowledge, belief, art, morals, law, custom any other capabilities and habits acquired by man as a member of society.

African cultural heritage and sustainable development, as a living tradition, are precious treasures that must be understood for the development of Africa. Africa's cultural heritage is proving desirable in terms of inspiration and vitality, but it remains an unexplored treasure in its continued integration and relentless journey towards building an African identity. Which highlights the basic materiality and specific beliefs

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of Africans? Gyekye (2002) further explains that many of the cultural values and practices of traditional Africa discussed, however, can be considered positive features of the culture and can be accommodated in the scheme of African modernity, even if they must undergo some refinement and pruning to become fully harmonious with the spirit of modern culture and to function most satisfactorily within that culture.

African culture also explains its people's daily interactions with the physical and spiritual world. This includes the value system, the African predecessor or ancestors lived by and by which the present generation are living or supposed to live. African cultural heritage embraces all aspects of African life. It involves people's history, philosophy, poetry, psychology, medicine, and health care delivery, ecology, various arms of the traditional government, ethics, economic and social activities, education, military strategies, mathematics (especially numerology) astrology, arts in its various forms and even including science and technology (Awoniyi,2015).

Culture is passed on from generation to generation. The acquisition of culture is a result of the socialisation process. The culture of a people is what marks them out distinctively from other human societies in the family of humanity. The full study of culture in all its vastness and dimensions belongs to the discipline known as anthropology, which studies human beings and takes time to examine their characteristics and their relationship to them. Culture, as it is usually understood, entails a totality of traits and characters that are peculiar to a people to the extent that it marks them out from other peoples or societies.

Awoniyi, (2015) states that African people have various moral and societal values meant to regulate interpersonal relationships and to perpetuate the entire community. Africans have certain standards or norms to be observed. These standards or norms are meant for social cohesion and the smooth running of the community. They are to prevent members of the community from becoming rebellious and thereby endanger the welfare of society. In African society, there are a set of values that guide the behavior of every member. Specific mention could be made of values such as hospitality, chastity before marriage, truth, respect for old age, covenant-keeping, hard work, and good character. In the African community, there are proverbs, maxims used to inculcate social and moral values to regulate their interpersonal relationships.

Culture designates the entire way of life, activities, beliefs, and customs of a people, group, or society, and that it is the whole complex of distinctive spiritual, material, intellectual and emotional features that characterise a society or social group. It also includes value systems, traditional beliefs, and practices that are linked with traditions or religion. Thus, culture is a shared custom amongst community members, and any problem or challenge that arises or affects the community is commonly addressed through a certain norm, belief, and values (Schalkwyk, 2002). Many of these emanate from rituals and customs. There are specific cultural customs shared by the different cultures in Africa and South Africa to be specific. The most prominent of these are funerals, lobola, traditional healers, initiation, ancestral being the crux of all of them as it reflected in all of their custom or rituals.

Senghor (1966) regards traditional African society to be based both on the community and the person and in which, because it was founded on dialogue and reciprocity, the group had priority over the individual without crushing him but allowing him to blossom as a person. That is why they too are effectively employed in ritual actions. For instance, as Shutte (1993), cites the Xhosa proverb umuntu ngumuntu ngabantu (a person is a person through persons), writes: This (proverb) is the Xhosa expression of a notion that is common to all African languages and traditional cultures. It is concerned both with the peculiar interdependence of persons on others for the exercise, development, and fulfillment

of their powers that is recognised in African traditional thought and also with the understanding of what it is to be a person that underlies this.

The above is what is perceived by Africans as a custom or a ritual. The social dimension of rituals also expresses African ontology of communalism and social hierarchy which descends from the ultimate being, the deities, the ancestors, elders, and so on. This communism of reality is not limited to the world of man and the gods but involves even non-sentient beings, plants and animals. To Ekarika (1984), ritual is more social and religious since 'every ritual has a social-functional character that re-creates the people's solidarity and way of life and although there is a ritual for virtually every secular activity like eating, planting, harvesting, birth, death, etc., every ritual has a religious dimension and is taken seriously'.

Rituals as a symbolic act express and transmits some hidden and mysterious realities, otherwise, these realities will remain hidden and cannot be expressed. This explains why it is used primarily in the religious world as a way to bridge the gap between the sacred and the secular. Sociologically too, rituals have a communicative role between humans and the divine on the one hand and human and human on another. This is its primary function; and though metaphorical and symbolic, this representation is not unfaithful. Quite on the contrary, it translates everything essential in the relations which are to be explained; for it is an eternal truth that outside of us there exist something greater than us, with which we enter into communion (Bocock, 1974).

Even though the African philosophy is regarded by many as stagnant and directionless. Which is described by Nyasani (1997) as the new anti-African script? Which remains deeply embedded in the minds of contemporary Africans to the point that they: "have adopted and assimilated wholesale whatever the West has to offer. The result is not just a cultural betrayal but a serious case of self-dehumanization and outright self-subversion both in terms of dignity and self-esteem. Indeed, there is no race on earth that abhors its own culture and is so easily prepared to abdicate it and flirt with experimental ideas which promise no more than vanity, to a large extent, as the African race... Africa is simply overwhelmed and decisively submerged by the never-receding tide of cultural imperialism" (1997:126-128).

Shutte (1993) further argues that in European philosophy of whatever kind, the self is always envisaged as something "inside" a person, or at least as a kind of container of mental properties and powers. In African thought, it is seen as 'outside,' subsisting in relationship to what is other, the natural and social environment. The sharp distinction between self and world, a self that controls and changes the world and is in some sense 'above' it, this distinction so characteristic of European philosophy, disappears. Self and world are united and intermingle in a web of reciprocal relations (1993:46-47). Concerning the impact of foreign socioeconomic ideology, Gyekye (1988) argues that preeminent African leaders such as Senghor, Nyerere, and Nkrumah, all of whom underwent advanced Western education, incorrectly regarded Western socialism to be compatible with traditional African communalism. The consequences of their efforts to use Western socialist ideology as a framework for nation-building in Africa were devastating, he says. Gyekye argues that African communalism is 'essentially and a socio-ethical doctrine, not economic; whereas socialism, as I understand it, is primarily an economic arrangement, involving the public control of all the dynamics of the economy.... (Not) everything that can be asserted of communalism can be asserted also for socialism, and vice-versa" (1988:24-26).

Senghor (1966), in comparing Africans and Europeans, argues that there is a unique African world view focused on what he describes as "being" and "life forces." He writes that (T)he African has always and everywhere presented a concept of the world which is opposed to the traditional philosophy of Europe. The latter is essentially static, objective, dichotomous; it is, in fact, dualistic, in that it makes an

absolute distinction between body and soul, matter and spirit. It is founded on separation and opposition, on analysis and conflict. The African, on the other hand, conceives the world, beyond the diversity of its forms, as a fundamentally mobile yet unique reality that seeks synthesis. This reality is being, in the ontological sense of the word, and it is a life force. For the African, matter in the sense the Europeans understands it is only a system of signs which translates the single reality of the universe: being, which is spirit, which is life force. Thus, the whole universe appears as an infinitely small and at the same time infinitely large, network of life forces…" (1966:4).

Ritual as a symbolic act expresses and transmits some hidden and mysterious realities; otherwise, these realities will remain hidden and cannot be expressed. This explains why it is used primarily in the religious world as a way to bridge the gap between the sacred and the secular. Momoh's (2000) phrase African ritual action is based first and foremost on the belief in existential reality besides the physical world. The hierarchical structure of African characterization of giving credence to the existence of existents and reality outside the perceptible, physical world but which interact with the physical world in a kind of communal spiritualism to use.

In African culture, the cultural society interprets social categories (organizations) as language models, economic organizations, political organisations, social organizations, religious organizations. Which is the cultural composition of the cultural society? The cultural perspective on the influence of family and society on the competitive advantage of organizations and countries must be aimed at developing a theory of organizational and national performance that takes culture, family, and society into account.

Understanding Strategic Communication from an Organizational/Corporate Cultural Viewpoint

Organization should be able to develop effectively and to achieve the goals, should have a suitable approach that determines its functioning. Strunck, Larsen, Cancino (2016) defines the term strategic communication as constituted by two particularly significant keywords. The words indicate that the activities are not random and unintentional communications. Furthermore, they indicate that there is an inherent plan behind these activities as the word strategy is often related to the achievement of a goal. According to Strunck et al (20160 the term is derived from the Greek word for generalship or leading an army. Furthermore, as the art and science of planning and marshaling resources for their most efficient and effective use.

Organisational performance is confirmed through the achievement of the organisation's goals or key performance indicators (Heesen, 2015). Which measures how well the organisation is implementing its strategy into actions that grow and sustain it? It is theorised, therefore, that due to the combined nature of organisational performance and strategy execution, organisational culture is essential for strategy execution (Zheng, Yang & McLean, 2010) and should be considered as a motivation for strategy execution.

There are two schools when it comes to the effect of organizational culture in performance and strategy execution, though research is limited. The first has specific criteria for culture related to the performance of the performance and the implementation of the strategy; second, certain types of organizational culture are related to improved performance and implementation of the strategy (Ahmadi, Alamzadeh, and Duraei. & Akbari 2012). The goal is to consider the meanings behind the activities - how members make sense of strategic communication and how this sense relates to their way of implementing communication processes. To explore the importance of action, it is appropriate to study organizational culture.

Culture influences employee attitudes and behaviour as they are guided by its values, norms, and assumptions (Nayak & Barik, 2013). Management's decisions about organisational policy, which includes the implicit rules and expectations of organisational behaviour, define the culture of the organisation (Nayak & Barik, 2013). Organisational culture, therefore, allows for integration between organisation members so they know how to relate to one another and assists the organisation to adapt to its external environment (Chen, Hen & Meindl, 1998). Meaning, it helps shape the way an organization conducts its business, treats its employees, customers, and the wider community.

According to Linnenluecke & Griffiths (2010), the appropriate cultural values help organisations rapidly respond to customer needs and want, or competitor actions, therefore making it strategically relevant. Furthermore, Simmerly (1987) states that organizational values evolve from organizational culture, and in his view, organizational values evolve from modes of conduct, communication styles, and decision-making styles within an organization. While values statements have been a part of strategic management. Strategic communication is defined by Dulek and Campbell (2015) and Thomas and Stephens (2015) as organizational communication directed at stakeholders for some initiator's intention. Thus, the values statement that is communicated to stakeholders with all of the above purposes qualifies the statement as strategic communication. As such, this creates a view of the values statement as a device for eliciting internal stakeholder behavior while communicating organizational values to all stakeholders.

The speed of globalization allows you to maintain a competitive advantage for organizational life. Strong organizational culture almost became as important as a business strategy for maintaining this competitive advantage.

According to Botan (1997), strategic communication is very often applied to planned communication campaigns. Strategic communication campaigns are conducted under many labels including public relations, community relations, constituent relations, crisis management, health promotion, issues management, investor relations, membership relations, outreach, public affairs, public health, public information, risk communication, strategic advertising, strategic marketing. (Falkheimer & Heide 2014: 132) further argue that strategic communication permeates the entire organisation, thus affecting not only the traditional function that handles communication issues but also those that handle marketing. A fundamental starting point in strategic communication is that communication is not a simple tool for transmitting information and knowledge between people in an objectified world, but the very means for producing and a resource that produces the social world

The strategy offers a proper logic for the company's goals and orients societies around them. Culture expresses goals through values and beliefs and guides activity through shared assumptions and cluster norms. The strategy provides clarity and focuses on collective action and call making.

Symbolic Interaction Theory

A researcher can focus on processes by studying culture from a symbolic interactionism perspective. Socialization is the process by which an organization is formed, maintained, and transformed. Culture evolves into a means for individuals to construct and share meanings. With this emphasis on meaning for the individual and meaning construction through interaction for an organization, it is time to move forward. Symbolic interactionism as depicted by Blumer (1969) is grounded in "root images", which refer to and depict the nature of several crucial things: human groups or societies, social interaction, objects, the human being as an actor, human action, and the interconnection of the lines of action. If we put together

Swidler's (1986) view on culture and the grounds of symbolic interactionism defined by Blumer (1969) with main IMP concepts we can depict business interaction and relationships in the form.

The most important consideration, however, is not which level of culture the symbolic vehicles belong to, but how these symbolic vehicles are interpreted and understood. By reinforcing the idea of symbolic interactionists in attempting to comprehend society, Turnbull, Ford, and Cunningham (1996) explain that understanding of business relations for any participant in those relationships depends on being able to understand the definition of the situation and the expectations of the other party in a relationship. Definition of the situation and the expectations of the other party is rooted in culture, as what and how we see is always embedded in a cultural context (Kloos & Lojen 2011). Symbols are of particular value in understanding one's actions and their connection with cultural background. As one cannot directly access the internal thoughts of another person, he should rely on and interpret the use of verbal and nonverbal symbols to represent those thoughts (Samovar, Porter & McDaniel 2009).

Symbolic interaction is one of many social science theories. According to this theory, facts are founded on and directed by symbols. Meanings are the foundation of this theory. Symbolic interaction investigates the meanings that emerge from the reciprocal interaction of individuals in a social environment with other individuals, with a focus on the question of 'which symbols and meanings emerge from the interaction between people. There are three core principles in symbolic interaction in Blumer's (1969) perspective of, Meaning, language (language provides means [symbols] for debating meaning), and thinking principle. Symbolic interaction theory acknowledges the principle of meaning as the center of human behavior. Language provides meaning to humans utilizing symbols. It is symbols that differentiate the social relations of humans from the level of communication of animals. Human beings give meaning to symbols and they express these things employing language. Consequently, symbols form the basis of communication. In other words, symbols are indispensable elements for the formation of any kind of communication activity. As the last principle in the symbolic interaction, perspective thinking changes the interpretation of individuals about symbols (Nelson, 1998). Organizational culture should be studied by focusing on symbols and using a dialectical analysis (Smircich, 1985).

A symbol requires interpretation and attainment of meaning. As one actor enters into a social situation, others make rapid interpretations of their words, expressions, actions, and appearance (Flint 2006). Branding, organizational culture and is linked with organizational symbolism. Organizational culture mainly describes the way things are done within the organization. Nevertheless, the conceptualization of culture within organization theory has largely ignored the organization's relationship with its environments. Business culture on contrary seems to link the organization with the outward society, characterized as a loose complex of symbols said to define how people from a given nation do business (Moore 2004).

Socialization is described as a process in which the individual learns, through interaction with others, how to be privileged information. The person brings past experiences, the desire to learn, and a personality that influences the socialization process. What is evident from the above, is that culture influences a specific ideology that is a vision of constituted life, values, and standards and our identity is reflected through our cultural identity. Culture through symbols influences the importance of social management methods and preferable behavior methods. Swidler (1986) further adds that culture consists of symbolic vehicles of meaning, including beliefs, ritual practices, art forms, and ceremonies, as well as informal cultural practices such as language, gossip, stories, and rituals of daily life.

In Summary, Blumer (1969) states that what is central to symbolic interactionist thought are the idea that individuals use language and significant symbols in their communication with others. Blumer (1969), further explains the basic views of symbolic interactionism are: individuals act based on the meaning objects have for them. Interaction occurs within a particular social and cultural context in which physical and social objects (persons), as well as situations, must be defined or categorized based on individual meanings. Meanings emerge from interactions with other individuals and with society, and, meanings are continuously created and recreated through interpreting processes during interaction with others.

Incorporating African Culture into Any Organizational Culture.

Culture is a hazy concept that is frequently an undefined aspect of an organization. Although there is a large body of academic literature on the subject of organizational culture, there is no universally accepted definition of culture. Instead, the literature expresses a variety of perspectives on what organizational culture is. Eldridge and Crombie (1974) define the culture of an organisation refers to the unique configuration of norms, values, beliefs, and ways of behaving that characterize how groups and individuals combine to get things done.

The values and norms are the basis of culture and are formed by the leaders in the organisation, especially those who have molded it in the past. Schein (1990) indicates that people identify with visionary leaders, how they behave, and what they expect. They note what such leaders pay attention to and treat them as role models. Second, as Schein also points out, culture is formed around critical incidents, important events from which lessons are learned about desirable or undesirable behaviour. Culture develops from the need to maintain effective working relationships among organization members, and this establishes values and expectations. Additionally, culture is influenced by the organisation's environment. The external environment may be relatively dynamic or unchanging (Furnham and Gunter 1993).

Kotter and Heskett (1992) have established that corporate culture has a significant effect on an organisation's long-term sustainability and economic performance. They found, over 11 years, that organisations with an embedded culture had greater revenue increases, larger workforce expansions, greater increases in share price, and larger improvements in net income than their counterparts with weaker cultures.

With the above literature noted, a strong culture is perceived as a common thread among the most successful businesses. All have top-level agreement on cultural priorities and have values centered on the organisation and its goals rather than on individuals. In contrast, an ineffective culture can bring the organization and its leadership to their knees. Hence, Makgoba (1997) stated that African culture has a crucial and practical role to play in African socioeconomic development. Which must be to identify particular and general themes and patterns of cultural adaptation and their attendant psychological processes throughout sub-Saharan Africa? The first step in expanding what are acceptable social science areas of inquiry is to look at what scholars in the lesser developed societies such as those in Africa are focusing on.

The sensible reason for the above is that the cultural perspective of the influence of family and society on the competitive advantage of organisations and countries, which aims to develop the theory of organisation and state performance. This concept considers the culture of families and society views of family, organisation, and diverse levels of different systems and how they interact with each other. Nyasani (1997) identifies the traditional African family as a setting wherein the vertical power structure of

the society is introduced and sustained as predominant over the freedom of individuals. For Nyasani there is a "fundamental difference between the traditional African child and a child in the Western culture. The child in Africa was muzzled right from the outset and was thereby drilled into submission to authority from above" (1997:129). Furthermore, the African, Asian and European minds are products of unique 'cultural edifices' and 'cultural streams" that arose from environmental conditioning and long-standing cultural traditions. Within the African cultural stream, Nyasani claims, are psychological and moral characteristics of African identity, personality, and dignity (Nyasani ,1997).

If an organisation's culture is to improve overall performance, it must provide a strategic competitive advantage, and beliefs and values must be widely shared and firmly upheld. A strong culture can result in increased trust and cooperation, fewer disagreements, and more efficient decision-making. Any organisation must first have a thorough understanding of what culture is in general and what culture is unique to their organisation. At the most fundamental level, an organization's culture is founded on values derived from fundamental assumptions of the internal and external stakeholders of the company, including their diversity to enable the approach of an inclusive organisational culture and success plan.

Conclusion

Culture is the soul of an enterprise; it is the essence of a successful business. So far, as the organizational culture develops, everyone has universally recognised that it is the way of thinking and behaving shared by all members of the organization. Successful experience tells us, organizational culture is an immortal pillar for the development of the organization, cultural development also has the potential force of cohesion, it brought not only a spirit to employees, but also inspire them a sense of pride and responsibility, cultivating teamwork spirit of the organization, thus, to improve the overall effectiveness of the enterprise. (Pumpin, 1987). In other words, organizational culture plays an important role in the success or an aspect that determines organizational success.

Organisational culture is perceived as the gathering of habits and beliefs. Robbins (2018) describes organisational culture as the shared values, beliefs, or perceptions held by employees within an organization or organizational unit.

Furthermore, from the word organisational culture, the term values are associated with the attitudes, beliefs, behaviors, and actions that are treasured and acceptable standards of behavior that each society expects its members to follow. However, values differ from person to person and from society to society. This is because some cultural beliefs, practices, and institutions that are regarded as cultural values may be regarded as cultural disvalues by others. Or even some aspects of what one regards as cultural values may require some refinement. Nevertheless, however, traditions need to be evaluated. The main reason for focusing on cultural values here is that some of these cultural values require appropriate and necessary amendment and refinement to be relevant to African modernity (Gyekye ,2002).

Throughout history, there have been a variety of democratic practices that have cut across traditional African institutions. African culture's 'social values' These include core African cultural values and themes, as well as what scholars believe are common African responses to social life demands and external cultural influences. Reality is a social product that is built through communication.

On the other hand, strategic communication aims to examine how the organizations create and exchange meaning with others: customers, employees, investors, and government officials, and media representatives. Strategic communication also investigates how the organization presents itself in society as a social actor in terms of creating the public culture and in the discussion concerning the public issues

(Hallahan et al., 2007:27). Meaning, strategic communication place emphases on how an organisation promotes itself through intentional activities of its stakeholders as a whole.

Africans have an assortment of ethical and societal values that are planning to control interpersonal connections and support the complete community. Africans have certain guidelines or standards that must be taken after. These benchmarks or standards are expecting to advance social cohesion and the smooth operation of the community. In African cultures, most symbols have an inherent sacredness to them, primarily because they are such powerful communicators. This common knowledge and understanding lead to a mystical aura surrounding common symbols. Cultural symbols are critical to the interpretation of social reality; they are people to assign meaning to the world. These common symbols allow individuals to believe their interpretation of reality is consistent with that of others (Solomon, 1983).

Old and advanced history appears that the closed culture unavoidably leads to stagnation of the society and open-culture will lead to the success of society and advancement. This is the same for companies, to enable them to reinforce the integration of the organisational culture is the correct choice for corporate survival and feasible advancement

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Implementation of Service Learning Method Approach in Commercial Space Interior Design Case Study: UMKM Tiara Handicraft in Surabaya, Indonesia

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ABSTRACT

The learning methods is a systemic and organized process carried out by lecturers in delivering material to students. There are plenty learning methods that are used in a study process, one of which is Service Learning. Service Learning is a form of constructive learning method that connects between material and theory obtained in the classroom to apply it into a concrete and useful actions for the surrounding community. Creative and innovative idea is needed in commercial space interior design. This is very appropriate with the purpose of Service Learning, where the highs and lows of learning outcomes can be influenced by internal and external factors. This research use Design Thinking to design the interior for a commercial space for UMKM Tiara Handicraft. With using the Design Thinking approach students can progress to understand user, challenge assumption, and redefined problems in effort to identify alternative strategies and solutions that might not be directly apparent with initial level of understanding. UMKM Tiara Handicraft has its specialty, their workers are disabled. This will be a special problem for the students in designing the interior for a commercial space. It is hoped that the end result that are obtained can answer the problem with the solution of commercial space interior design that are manifested in a form of display product area design styling that are suitable for people with disabilities. Hopefully this research can be useful for the lecturers and students. With using Service Learning method it can increase students interest in learning about commercial space interior design effectively.

Keywords: Service Learning Methods, Design Thinking, Interior Design for Commercial Space, UMKM (Micro Small and Medium Enterprise)

1. Introduction

In previous studies, researchers have discussed Indonesian culture, The Tenganan Traditional Village on the island of Bali (Nilasari, 2019). Currently, researchers will try to discuss the Service Learning method in UMKM (Micro Small and Medium Enterprise) Tiara Handicraft Design Design. Service Learning methods have been carried out often in the teaching and learning process. The method is also known as "Learning by Doing", where students can thrive not only to get the material/theory in the classroom, but the material/theory can be directly applied, practiced and solved the problem from the people who are involved in the study case that they're facing. In this study case that the students are working on is designing the interior space for Tiara Handicraft MSMEs.

Service learning method used in design study is considered to be very effective for the students, because students can be involved in two things at once. Students will get the material / theory up first in class and then subsequently applied to exploration on the Tiara Handicraft MSMEs. Service Learning Method is expected to create useful and positive results in the end for the students. From this learning method the students can form their character as an individual, citizen and also their career later on. Opportunities to grow in a community can also be seen from a spiritual and social perspective that are directly attributed by the students in real life (Kuntjara, 2013).

When students take an initial approach to Tiara Handicraft MSMEs, students will learn to think critically in dealing with a problem that is being faced. Where most of Tiara Handicraft's employees are people with special needs (disability). The right placement of students in a case study will provide opportunities to communicate to solve real problems, analyze and provide solutions for people who have different backgrounds with these students. Because the experience gained in the field (community) will strengthen the teaching-learning process.

The Service Learning method also teaches students to do services, what is meant by service here is to apply the knowledge they get while in class according to the needs of the community. By serving the community, students will learn to care about marginalized groups, even for the local government. The knowledge that students get in class is not only stored, but they can apply and share it with the community so that the it gets the new knowledge that has been taught by the students.

2. Literature Review

According to Robert Sigmon (1994) in "Panduan Pelaksanaan Service Learning Universitas Kristen Petra" the term Service Learning means:

"Service-LEARNING: Learning goals primary; service outcomes secondary."

"SERVICE-Learning: Service outcomes primary; learning goals secondary."

"service learning: Service and learning goals completely separate."

"SERVICE-LEARNING: Service and learning goals of equal weight and each enhances the other for all participants."

From the definition above it can be underlined that the Service Learning method will emphasize services that are not based on a particular religious teaching, but are more related to "SCIENCE and FAITH". With this meaning it is clear that not all students will be able to carry out the philosophy of the Service Learning method in their daily lives. Only students whose hearts are called can practice this method humbly and voluntarily to serve marginalized communities.

2.1 Type of Service Learning Methods

In general, there are 2 types of learning models with Service Learning teaching methods, including (Kuntjara, 2013):

- Mono-discipline Service Learning: This type of learning is a type of discipline that can be given to the community.
- Multi-disciplinary Service Learning: This type of learning combines not only one type of discipline, but also combines various disciplines that support each other to solve problems that occur in society.

2.2 Main Requirements of Service Learning Methods

In addition to the 2 types of Service Learning models, there are 7 main requirements in the method, namely (Kuntjara, 2013):

- Link to Curriculum: Certainly the Service Learning method will be closely related to the existing learning curriculum, so that students will be able to provide not only 1 discipline but several disciplines in solving problems that occur in society.
- Meaningful Service Learning: Firstly, lecturers are required to give directions in the form of theory in class, so that students will get an idea of what they have to do in the field with the community.
- Reflection: Both lecturers, students and the community are expected to provide reflection (feedback) on the Service Learning method that is being carried out. Because through reflection, it will also train the ability to create a good and structured way of thinking, writing and even speaking. In addition, it also provides time to service the community.
- Diversity: Students will learn to understand various communities and be able to approach and think from various perspectives without just doing social work.
- Partnership: In this case, students are asked to cooperate intensively, not just a one-time visit. This is done so that there is collaboration and good relations between the lecturer, the students involved and the community.
- Progress Monitoring: lecturers are required to conduct monitoring during Service Learning, so that the final results are in line with what was planned together at the beginning.
- Duration and Intensity: The Service Learning method is usually carried out for longer period of time (1 semester), because students must proceed according to the design thinking stages (field exploration, problem identification, preparation, work, monitoring to reflection).

3. Research Methodology

The implementation of learning using the Service Learning method approach is very suitable for designing the interior of a commercial space. The methodology used in Service Learning studies is Design Thinking (Cross, 2011). The Design Thinking method is considered suitable for Service Learning for students who will design Tiara Handicraft MSMEs. The stages of Design Thinking are as follows (picture 1):

Picture 1: Design Thinking Process

(Illustration: Idus, Source: www.medum.com)

In the Emphatize stage, students will make direct observations at Tiara Handicraft MSMEs. Students will learn to ask questions in the form of interviews, discuss the problems that exist there, field measurements, documentation and analyze local conditions. Next, students will enter the Define stage, where at this stage students re-analyze the existing and compare it with the literature on commercial space. After analyzing, the students will make a conclusions about the existing problems and provide solutions that are in accordance with the conditions in Tiara Handicraft MSMEs. At the Emphasize and Define (Lawson, 2005) stages students do not do it alone, students will be in groups and accompanied by the lecturer. Because at this stage, students are communicating with the community for the first time, which they have never faced before.

The next stage is the Ideate stage, students will provide conceptual ideas that match the solutions to the problems that exist there. At this stage students are also asked to provide alternative design sketches and their reasons. However, before students present to Tiara Handicraft MSMEs, students will be asked to show it to the lecturer first. After the design sketches and presentations have been done by the students, the next step is the Prototype stage. Where at this stage students will create 3D animations from the selected designs and which will be realized in Tiara Handicraft MSMEs. The last stage of Design Thinking is the Test stage (Suprobo, 2018). At this stage students will directly execute in the field. Students will design at MSME Tiara Handicraft and the design will be directly tested by owners and employees of MSME Tiara Handicraft, besides that it will also be felt by customers from MSME Tiara Handicraft.

4. Results and Discussion

Tiara Handicraft MSMEs became the object of Service Learning in the Interior Design and Styling for Commercial and Retail Space course. This MSMEs was chosen because the employees who work in the MSMEs are people with disabilities (Bonda, 2007). This will make the students learn to solve problems in an interior design of commercial spaces that have special needs. However, before the students conduct field observations, students will be given instructions first in class (Pressman, 2019). Students were asked to discuss in groups in order to have an idea of what it would be like if they later communicate directly with the Tiara Handicraft MSMEs. Due to the current pandemic, discussions can be held directly or indirectly (as shown in picture 2).


Picture 2: Dicussion in studio or online with student's group and lecturer (Source: Rhea)

After students got the direction from the lecturer, students will do a field observations in the empathize stage as shown in picture 3. At this stage students will see, feel and talk to the Tiara Handicraft MSMEs.

Picture 3: Students conduct field observations, interviews and discussions in the early stage of Service Learning
(Source: Rhea)

Students will also take notes (picture 4), record and document everything they see and discuss with Tiara Handicraft MSMEs. It can be seen that their main problem is communication, because the owners of Tiara Handicraft MSMEs are normal people and their workers are people with disabilities, where not all people with disabilities can communicate with sign language. In addition, the disabilities suffered also varies, not only physical disabilities, but also mental disabilities. At this stage students are also asked to make initial sketches in solving problems faced by Tiara Handicraft MSMEs.
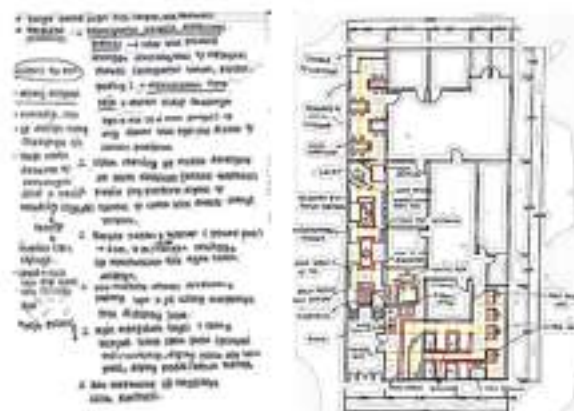
Picture 4: Discussion notes and preliminary sketches that students must solve in an interior design of a commercial space (Source: Rhea)

After conducting field observations, students will discuss with groups and teachers to solve problems and determine the concepts that will be applied in the design in various alternative designs and sketches (picture 5).

Picture 5: Design concepts to be applied and alternative design sketches (Source: Bernadeth and Rhea)

After students make several alternative designs and the designs that will be realized have been able to answer the problems that exist in Tiara Handicraft MSMEs, then the next step is for students to make design prototypes in 2D and 3D, as shown in picture 6.

Picture 6: 2D and 3D Drawings of Selected Designs (Source: Bernadeth and Rhea)

The last stage to complete Service Learning according to the Design Thinking method is the Test stage. At this stage students, teachers and owners and employees of Tiara Handicraft MSMEs will test designs that have been made by students (picture 7).

Picture 7: Styling Design on Tiara Handicraft MSMEs (Source: Bernadeth)

5. Conclusion

The end result of the Service Learning method is self-reflection, with self-reflection, students and the community will get new mutual knowledge. When viewed from the results of the reflection of the interior design students, the Service Learning teaching method provides many positive aspects for students' personal development, namely personal and interpersonal development; understanding and applying knowledge; engagement, curiosity, and reflective practice; perspective transformation, and citizenship. In addition to this, the Service Learning teaching method will have an impact on the development of soft skills for the students involved, such as Caring, Creative and Critical Thinking, Leadership, Teamwork, and Communication skills.

In the case study of Tiara Handicraft MSMEs, it can be seen that in addition to students being able to solve the problems being faced by MSMEs, students can also communicate and provide services according to the field they take, which is interior design.

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The importance of quality language preparation as an inseparable part of education of the Police Force members in favour of not only troublefree carrying out their job

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ABSTRACT

The necessity of having a good command of a foreign language is at the present time emphasized by the membership of Slovakia within the European Union. This fact is reflected both in advantages and in disadvantages following from the mentioned membership. Foreign languages represent not only an inseparable part of economic and legal processes, but in connection with law also the need for solving criminality following from various commitments within the EU. Learning of how to communicate in a foreign language should not consist in unreasonable duty of memorizing some phrases leading to the effect of their minimal or no using in practice. Communication skill, however, necessitates competent teachers having a good command of a particular foreign language, mother tongue (not only being possessor of a degree certificate) and translating techniques (not only being possessor of the so-called certified translator stamp).

Keywords: Type keywords, separated by semicolons; a minimum of five keywords and maximum not more than ten.

1. Introduction

The Police Force of the Slovak Republic represents an armed force fulfilling tasks relating to domestic order, safety and security, fight against crime, including its organized forms and international forms, and tasks following from international commitments of the Slovak Republic (Zákon o PZ č. 171/1993 Z. z. – Police Force Act No. 171/1993 Coll.). Tasks of the mentioned act are specified in section 2, however, they can be simplified and described in a lay way through citing the inscription on police vehicles, namely helping and protecting (pomáhať a chrániť). The verb help represents providing help or offering help to somebody/something, whereas the verb protect stresses the fact of protecting somebody or something, namely from a harmful influence, danger etc. (JÚĽŠ – Linguistic Institute of Ľudovít Štúr, Slovakia). (Júľš,2000)May the definition of tasks carried out by the Police Force be generalized in any way, the substance of each of the tasks to be carried out is communication. By means of communication one can get and provide information, and thanks to this the Police Force can carry out all tasks as provided by law, and can so contribute to the substance of the motto helping and protecting.

2. Backround

Each of the Slovak Police Force members has been obliged to get basic police education providing knowledge necessary for carrying out this kind of occupation. Focal point of the mentioned kind of education is a sufficient familiarization with the respective laws and, on the basis of the skill gained in such a way, the ability of implementing the gained knowledge in practice. Focusing on a particular law depends on the specialization of the future Police Force members, e.g. public order police, traffic police, border police or alien police. Eucating future police officers include also other, not less important subjects, that provide information necessary for carrying out this occupation. May schools in general tend to providing any quality education, no school is perfect just like people are not, in this case students and teachers. The effort of every school is to approach the attribute "perfect" as much as possible. This is a process that in the "dialogue" teacher vs. student depends on teachers themselves representing a particular school. Education success is crowned by gaining a particular certificate and is conditioned by cooperation of both participants of the "dialogue", i.e. teachers and students.

2.1 Membership of Slovakia in the European Union

Position of Slovakia as a member of the European Union makes it possible for our country to gain not only advantages following from such a membership, but also various disadvantages, namely starting from food of poor quality imported from some member countries, and finishing in the presence of a large number of foreigners (not only from the EU countries); all this as a result of resolutions of the EU parliament and subsequent passing such resolutions by the Slovak government. The membership of Slovakia in the EU does not bring only "advantages" in the form of various grants that are conditioned by following extremly strong rules, the membership in the EU makes possible free movement of persons within the EU, and at the present time also free movement of persons outside the EU, as a result of which the EU countries are flooded in a number of inadaptable people who are not willing to respect rules of the individual EU countries. The bahaviour of such people has negative influence on not only the life of citizens of the EU countries, but represents a large amount of work for employees of the security body, namely police, as the mentioned inadaptable people from countries outside the EU commit various crimes and administrative violations that need to be solved by means of police. The Slovak police also have to solve cases in the opposite order of "role division", namely, when foreigns are victims of crimes committed by citizens of the Slovak Republic. However, such cases are disproportionately fewer. Whether victims of crimes committed by foreigners are Slovaks or vice versa (Slovaks are offenders of particular crimes committed on foreigners), so both the cases need in favour of their solution (crimes or administrative infractions) police officers' knowledge of a particular foreign language.

As stated above, the future members of the Police force of the Slovak Republic have to undergo education the substance of which is familiarizing with the law of the respective specialization. Except technical subjects and those concentrating on physical fitness and shooting knowledge, part of the future police officers education is a foreign language. However, the subject foreign language is not supported by a sufficient number of lessons, that is why the content of successful mastering the subject consists in learning several specific sentences in the respective foreign language. It is true that the mentioned sentences relate to the police work field, however, students' missing the basic knowledge of the respective language predicts duty of learning the sentences by heart, namely without the knowledge of grammer of the respective language, i.e. the result is unusable. Only in case of expected (learned)

answers, there is a possibility for police officers (just like for foreigners) to make themselves understood. Unexpected (not learned) answers disturb not only the model of memorized sentences, but also the possibility of a relatively limited communication with foreigners. This fact, however, does not exclude in case of police officers (students or police officers in service) their mastering at least minimal language basics that would ensure situationally, i.e. lexically, unlimited answers. Type your paragraphs here. For all formatting structure refer to previous guidelines

2.2 Quality of having a good command of a foreign language in favour of communicating with foreigners

Quality of having a good command of any foreign language consists in the above mentioned language basics. What do the so-called good basics consist in? An explanation can be looked for in any field of human life, but we have decided for mathematics. Why just mathematics? If you want to learn how to multiply and divide, i.e. activities quite frequently used in the life of all people, the absence of mathematics basics may not be possible, or possible only in case of your learning the results of particular mathematic "operations" used every day by heart. However, what if you come across a different mathematic "operation"? In such a case you will find yourself in a similar situation like people without having even a minimum command of a foreign language, only a few sentences learned by heart. Not only the command of mathematics in the mentioned way, i.e. the absence of its basics, but also the command of a foreign language in the same way is not applicable in practice. One only loses a lot of precious time spent by memorizing, namely without any expected effect. Not to mention the fact the absence of active using any foreign language contributes to its natural forgeting which, however, may keep its minimum knowledge in one´s memory. In case of memorizing, the mentioned minimum will get even more minimized.

2.3 Linguistic basics

We realize that contents and time demandigness of police work do not make it possible to attend a language course regularly and gain at least basic foreign language knowledge, or to refresh the existing one. Not to mention that maintaining a particular linguistic standard necessitates continuous refreshing the existing knowledge.

Police work consists in communicating regardles the fact whether it is about a mother tongue or a foreign language. Though the law makes it possible to use an interpretor´s service (Section 28 and 29 Rules of Criminal Procedure – § 28 a 29 Trestného poriadku), there are, however, situations when waiting for an interpreter could endanger one´s life, e.g. traffic accidents, or waiting would rather discourage foreigners themselves, e.g. asking the way (two or three sentences concerning space instructions for foreigners do not necessitate the presence of an interpreter), and the situation is the same even in case of solving common traffic administrative violations, e.g. exceeding the speed limit, telephoning while driving etc. Having an interpreter present is in view of time not always possible or even necessary. If police officers are solving a crime that a foreigner is suspicious of, the presence of an interpreter is necessary as such a communication necessitates not only a very good command of a particular foreign language, but also a command of the respective terminology. In this field, however, classic secondary police schools do not tend to educate their students.

2.4 Familiarizing with a foreign language

Even if these days we are not limited in the choice of a foreign language we want to learn, the interest in learning foreign languages on the part of schoolchildren/students is not very high. During the first weeks of one´s learning a foreign language a potential enthisiasm predominates with many schoolchildren/students, however, in the phase of necessity to revise the already gained knowledge and revise it over and over again, or to try to understand a more complicated grammatical phenomenon, the need for studying discourages students very much. As the demandigness of particular grammatical phenomena graduates, not to mention the necessity of the previous grammatical knowledge as well that represents a basis for mastering another subject matter, many students limit themselves to mastering the "minimum of the minimum" resulting in a very poor command of the respective foreign language or its useability in practice. Such students are classified into the group of false and eternal beginners, though their even very poor knowledge represents a better springboard in favour of learning several sentences (police schools) within a considerably limited number of lessons than no knowledge of foreign language basics in case of absolute beginners.

3. Results

3.1 Absence of the expertise of foreign language teachers

As mentioned above, secondary police schools do not prepare their students within the field of foreign language terminology. It is necessary to emphasize that teaching students how to use legal terminology presupposes command of the terminology by teachers themselves. This fact requires to add that mastering legal terminology on the part of teachers does not consist in learning particular entries from a bilingual dictionary. Specialists (translators and some lawyers) in legal terminology of the respective foreign language will certainly confirm that Slovak pendants many times do not correspond with foreign language entries in dictionaries.(Dictionary,2008)As this part of our paper is devoted to competencies of foreign language teachers, in looking for foreign language equivalents on the part of teachers it is necessary to distinguish between two categories of teachers:

Teachers who approach their work responsibly are obliged to verify the particular entries on the Internet or in technical literature, if they have any. The teachers´ effort of finding an "answer" shall be based on a good command of the respective foreign language and at least partial familiarizing with the legal system and the legal terminology of the foreign langauge and mother tongue, or by means of consulting a specialist; 2. teachers who have not studied a particular foreign language are limited to taking over terminology from their colleagues, as such teachers are no table to objectively judge the equivalent relation between two terms on the basis of their definitions. Usually teachers of the second group are in responses to their students´ questions limited to answers of the type "This is possible as well". This group also includes teachers who use, e.g. the definite and indefinite articles only according to their momentary mood. Such teachers also make similar wrong decisions in differentiating of the use of, e.g. the present and the present continuous tenses, even inspite the fact they have studied the English language. Examples of the level of the command of the English language by teachers of the second group refer to the fact that such teachers not only have no tendency to, but they also can not have any tendency to teach their students how to consider in translating sentences into a foreign language, and on the basis of the

considerations to make correct decisions concerning lexis, just like, e.g. the right choice of grammatical tenses.

3.2 Competences of foreign language teachers as a presupposition of success

A necessary presupposition of communicating in a foreign language (though on the elemenatry level) and being capable of perfectoning one´s communicating (although only in the sense of enlarging one´s vocabulary) is to master at least the basics of a particular foreign language. The many times mentioned basics represent a skeleton of any foreign language without which it is not very much possible to talk about a communication, or only in case of answers expected ahead. However, such situations are not frequent, and only confirm the ineffectiveness of memorizing.

In case of a common police communication in a foreign language with foreigners, it is not necessary to attach a lot of importance to mastering a large amount of grammatical phenomena. The necessary basics are however indispensable, namely in the sense of their being used automatically. To achieve such a result, except students´ effort to study, is enormously being contributed by teachers´ expertise.

At the book market there is an enormous amount of textbooks for teaching foreign languages, practicing grammatical phenomena etc., however the large choice does not tend at all to contribute to the fact that foreign languages can be taught by anybody. Inspite the fact that in explaining a grammatical phenomenom a respective textbook offers a number of examples, sometimes it is necessary do add some more very easy examples, namely from the teachers´ production. This is possible, provided teachers are experts in the particular foreign language. Except, it is many times necessary to explain to students (as a result of their misunderstanding grammar of a particular foreign language), maybe a similar grammatical phenomenon but concerning their mother tongue. That is why foreign language teachers should be experts in their mother tongue as well. However, stress should be laid on the practical usage, not the study. Grammatical phenomena learned in context, even if in a mediated way, can be remembered in a better way. Such a combination of knowledge on the part of teachers is very useful for police school students, as they are school-leavers of various secondary schools of various education quality, and the request of memorizing sentences excludes the sufficient expertise of foreign language teachers. They should be able to even point to defects in students´ mother tongue the appearance of which, in all probability, follows from linguistic defects appearing in the mass media one is confronted with every day. Frequent appearance of particular mistakes persuades viewers/listeners about the "correctnes"of the mistake, e.g. Vidíme SA. (This sentence is very frequently used by Slovak TV editors and wrongly tends to express hope of early seeing viewers/listeners again; this is in the correct Slovak expressed by Uvidíme sa. The incorrect version, i.e. Vidíme SA. Represents the verbatime translation of the English See you.).

3.3 Foreign language teaching in favour of not only troublefree carrying out job with the Police force of the Slovak Republic

It is once again necessary to remind the difference of secondary school education with members of the Police force which enfluences not only the quality of mastering a foreign language, but also the choice of a foreign language. The most eastern parts of Slovakia prefer Russian that is mainly used with members of the border police. For members of the order police, traffic police and alien police a more important foreign language is reresented by English. This language, however, does not exclude mastering another

foreign language. On the contrary, mastering any other foreign language makes the job of police officers within communicating easier.

As regards the mentioned defects of foreign language lessons at police schools and their subsequent insufficient command, primarily with beginners, the need for active using a foreign language necessitates to complete a language course exclusively focused on police work, however with a possibility of unconditional familiarizing with the respective foreign language basics. As police practice does not require everyday using a foreign language, long pauses of its absent using supports its active knowledge in a negative way. That is why we propose repeated attending a foreign language course by police officers, namely to reacquire the forgotten knowledge and acquire the knew one as well. Such a form of learning a foreign langiage improves fixing it in one´s memory and subsequent troublefree using in practice, not to mention the possibility of another linguistic growth in compliance with the need of police officers. Repeating a foreign language course depends on work load of its participants.

A foreign language course for police officers should concentrate not only on recquiring knowledge in a foreign language, but should also point to possible mistakes concerning the mother tongue, in case of Slovakia, the Slovak language. The content of the course should be based on the need of its participant. Competences of teachers have to consist in a good command of a particular foreign language, in the ability to comment students´s notes regarding seeming synonymy and, as a matter of fact, in teachers´ good command of their mother tongue. Explanating grammatical phenomena should not be mastered without examples. A teaching technique based on a large amount of grammatical phenomena mentioned but not explained in lessons does say much for the incompetence of teachers, i.e. their inaproppriateness not only for courses of such a type, but also for teaching a foreign language in general.

The forms and methods used are an important part of education. In order to increase the effectiveness of foreign language courses for members of the Police Force, it is appropriate to prepare innovative forms and methods of education, as well as technical means. (Kováčová, Vacková, 2014; Kelemen et al, 2016; Drotárová et al.,2016, Vacková et al.2016; Homlgren,2012) Applicability by being able to find e-learning and blended-learning in the lifelong education of police officers, and to use various combinations, virtual reality in a foreign language to solve specific situations and practical examples even in cooperation with other lifebuoys. (Kováčová, Boguská, Mesároš, 2018; Hetu et al, 2018; Vacková et al.2018)

4. Discussion

The ability of police officers to make themselves understood in a foreign language makes it possible to solve a foreigner´s common questions even without interpreter´s help whose presence in situations of every day life is mostly not possible, e.g. in case of foreigners´ asking the way in a town. A command of a foreign language represents also a way of acquiring information related to police offcers´ specialization, e.g. investigating crimes which necessitates looking for information in a foreign language, communicating with foreign colleagues, a possibility of preparing a conference paper. Knowledge of the English language is essential in the context of globalization, in the investigation of international crime, in connection with terrorism, illegal migration, organized international crime, which also concern Slovakia. (Adebayo, 2021; Kováčová, Mesároš, 2016; Mesároš, Lošonczi, 2019)

A good command of a foreign language can be one of the invisible means of combatting crimes on domestic and international levels, as police officers are not limited to the help of translators in looking for necessary information; so a good command of a foreign language contributes to indirect combatting crimes. That is why police officers do not have to be limited to using material acquired at police schools

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that contains several basic sentences occuring in police practice. Police officers being able of speaking a foreign language can be used in various situations, namely without the need of previous obligatory and ineffective language education consisting in memorizing. A good command of a foreign language can be used not only in looking for necessary information, but also in communicating with colleagues from different countries; communicating relates to meetings in the form of various conferences and meetings in the sense of looking for common solutions in case of crimes.

Indispensable part of foreign language teachers should be the Slovak language (mother tongue) expertise. The attribute expertise refers to teachers really having a good command of the mother language as a degree certificate of the specialization in this (Slovak) language does not need to be, and many times is not, a guarantee of the command of the language. However, this fact holds true for any branch of study. As regards the fact that the Slovak language can not be learned from TV any more, Slovak language experts are indispensable in the process of educating not only for police officers, but also for common viewers, namely to draw their attention to the mistakes repeated over and over again. Refering to the mistakes in the Slovak language (mother tongue) during foreign language lessons positively influences the quality of paper work carried out by police officers and concerning police documents. Such a change would be recorded even more within a course focusing exclusively on police papers.

Conclusion

Not only the command of a foreign language, but also the command of the mother tongue, in our case the Slovak language, represents an important principle in communicating with Slovaks in writing troublefree documents. Moreover, police officers are not limited by the necessity of mediated communication by means of an interpreter, or by getting information from colleagues, though educated in the particular academic sphere but without any guarantee of success.

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Evaluating the sufficiency of proposed security measures in favour of building objects

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ABSTRACT

This paper deals with the possibilities of evaluating protection sufficiency of building objects focusing on the exactness and the evaluation objectivity from several viewpoints. A great attention is payed to the way of evaluating in view of the breach resistance concentrating on the effectivity of security and the balance of individual areas and routes towards a particular protected interest. Protection modeling and protection simulating a building object are represented in connection with examining the time of attack and the time of intervention in a particular building object in favour both the detection time and fulfilling the conditions of sufficient protection.

Keywords: Project, Project documentation, Attack time, Interventio time, Detection time, Resistance of a building object, Modeling, Simulating

1. Introduction

Security is understood as one of the basic life needs of people. However, it is necessary to realize that security is a natural quality of the environment where people live and is designated as a security environment. The need for security is part of implementing security measures that are created in compliance with a certain level of knowledge and needs. The content of this process can be characterized as a set of answers to primary questions (What is to be protected? – protected interest, Why to protect?, What to protect from? – threats) and secondary questions (Who will provide the protection?, How will the protection be provided?, When will the protection be provided?, By means of what will the protection be provided?, What price will the protection be provided for? etc.).

From this viewpoint it is necessary to pay attention primarily to the problems concerning property protection from intentional actions focusing on protecting a particular building onject. In case of building objects it is primarily about the protection of tangible and intangible properties that are part of a particular limited area (mostly a building object) that is in possession or administration of a particular state or a private subject.

The issues are dealt with by legal regulations, technical standards and various technical books. These usually concentrate on a particular area, kind of a building object and/or environment. However, none of them focuses on the property protection in a complex way and does not provide a satisfactory answer to the question "How to create protection systems in view of their sufficiency, complexity and balance in the technical and economic spheres?" That is why it is a social interest to search for new standardized procedures based on exact methods by means of which it will be possible, in empiric or intuitive ways, to

Exactly evaluate the effectivness of the existing or proposed property protection systems, including the formal desposition of results in project solutions [11].

2. Literature Review

Project, Security (Project) Documentation

Just like every other activity, also a proposal of, realization of and operating a particular security system for protecting building objects have to be planned ahead, i.e. particular security (project) documentation has to be created. Content and scope of the security documentation is not uniform at the present time. Various authors, regulations and standards deal with non-uniform division of the security documentation. Non-uniformity appears also in using terminology. This is first of all influenced by valid legal and technical standards in connection with the specific sphere, the specificity of the protected interest, measure of threat or other conditions. It is, however, possible, to observe that a very small attention is payed to establishing the sufficiency of the proposed measures.

Fig.1 shows the basic disposition of relations that can be based on in creating security documentation for the protection of a reference building object (protected interest) that represents the question "What is to be protected? ". A reference building object in a specified area can be affected or is affected by negative influences that the reference building object has to resist. The negative influences represent a question

"What to protect from? ". This can be achieved by qualities of the reference building object that are based on the substance of the object itself (e.g. building construction, disposition of the building object in a selected environment etc.) or qualities that can be added expediently (security measures). The qualities represent the question "How will the protection be provided?". The aim of a security project is to chieve balance between negative influences ("What to protect from") (R) and security measures ("How to protect") (O) (1). For the purpose of achieving a particular security certainty B), security measures (O) have to slighly predominate. This can be expressed by, e.g. coefficient (k) (2) .

$$R = O \qquad (1) \qquad (\text{-})$$

$$B = k \times O, \text{whereby } k > 1 \qquad (2) \qquad (\text{-})$$

The value of the coefficient (k) is primarily dependent on the importance of the protected interest. Just the access to determining individual numerical quantities of the stated relations is reflected in the objectivity and quality of dimensioning the whole system.

Fig. 1 Influences on reference object (Source: author)

Based on various sources for the purpose of creating security projects it is possible to recommend the following contents:

TEXTUAL PART CONTENTS
1. TECHNICAL SOLUTIONS
1.1. Technical report
1.2. Evaluation and security environment characteristics
1.3. Considering and treating risks
1.4. Security politics
1.5. Proposal and consideration solution variants
1.6. Final variant of the solution
1.7. Establishing sufficiency (efficiency) of security measures
2. TECHNOLOGICAL SOLUTION
2.1. Analysis of standards
2.2. Plan of organising activities
3. BUDGET
4. DOKUMENTATION, DIRECTIVES AND REGULATIONS FOR OPERATING SECURITY SYSTEMS
4.1. Operation order of building objects
4.2. Directives for carrying out physical protection
4.3. Methodologies for solving security incidents.

GRAPHICAL PART
Documentation can contain other subsidiary and detailed documentation.

In case of this paper it is necessary to pay attention to the point 1.7.Showing sufficiency (effectiveness) of protection measures. The most common ways include showing that:

a.) risk has been eliminated to the acceptable value ($Rz \leq Ra$).
b.) level of the protection corresponds with the stated risk level, e.g. [18], [19],
c.) evaluation of the protection measures by means of points fulfills the security standards, e.g. [20],
d.) time of attacking building objects or breach resistance of building objects is bigger than intervention time of a response unit.

Ad. a.) Issues of the risk analysis represent an independent sphere and are described in the respective professional literature. That is why they are not analyzed in more detail. However, description of the risk analysis can be seen in fig. 2.

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$$R_z = R - R \rightarrow R_z \leq R_a$$

Fig. 2 dealing with the security risk (Source: [13])

What follows from the information stated above is that the entire process is , in the majority of situations, influenced by many subjective factors (independent risk analysis, stating frontier of acceptable risk, efficiency of protection measure in favour of a particular risk etc.);

Ad. b.), c.) In such a situation the level of risk is based on an analysis (of small/ medium/high risk level), and in connection to a protected building object of interest, protection measures based on standards following the respective regulations [18,22] or standards [19,20] are adapted. Solution subjectivity consists in disposing

Security means within a reference building object and in professional education of the responsible person. This is frequently reflected in the unbalance of the protection of individual accesses towards a building object of interest.

A solution example of minimal equipment with a security alarm (emergency alert system) for building objects representing the medium risk level is stated in Table 1 and in fig. 3 (protection elements).

Table 1 Standard of securing building objects of the medium risk level (Slovak Republic) (Source: [10])

medium risk		Minimum use of safety equipment					
		Guarding			Interior protection		
		closed passage	passage	artificially created opening	By means of keys	In the respective area	Not
Entrances		✦					
connecting points	Fixed shop-windows including side windows			✦			
	Openable shop-windows including side windows	✦		✦			
	Fixed windows includingskylights		☐				
	Openable windows including skylights	✦	☐				
	Other connecting points (air shafts, solar thermal collectors etc.)		☐				
Exterior walls, ceilings, floors							
Interiors					✦	☐	
Individual objects							☐
Storage spaces	doors	☐		☐	✦	☐	
	walls			☐	✦	☐	
Protection of persons		Device should be equiped with emergency alert systems. Emergency signal must not set off local alert signaling.					

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The advantage of the above stated procedures consists in their simplicity and
Time nondimandigness of processing. The stated procedures are featured by the lower level of exactness and unbalance of the protection system as a whole. On the one hand the procedures do not use advantages of the individual elements of the protection system sufficiently; on the other hand the procedures do not eliminate possible shortcomings of the individual elements.

Ad. d.) Time of attacking building objects or breach resistance of building objects
is regarded to be the most suitable and objective way of removing the stated shortcomings of the previous procedures. The principle consists in evaluating time needed by violators (time factor of attacking a Building object), ability of the protection system to detect violators and time needed to eliminate violator's effort (time factor of physical protection). Such a way of evaluating takes into account disposition solution of a particular building object, technical qualities of the individual elements and their disposition within an area, abilities of violators, organisation of the physical protection, and regime measures within their mutual links.

3. Research Methodology.

This paper deals with the possibilities of evaluating protection sufficiency of building objects focusing on the exactness and the evaluation objectivity from several viewpoints. A great attention is payed to the way of evaluating in view of the breach resistance concentrating on the effectivity of security and the balance of individual areas and routes towards a particular protected interest.
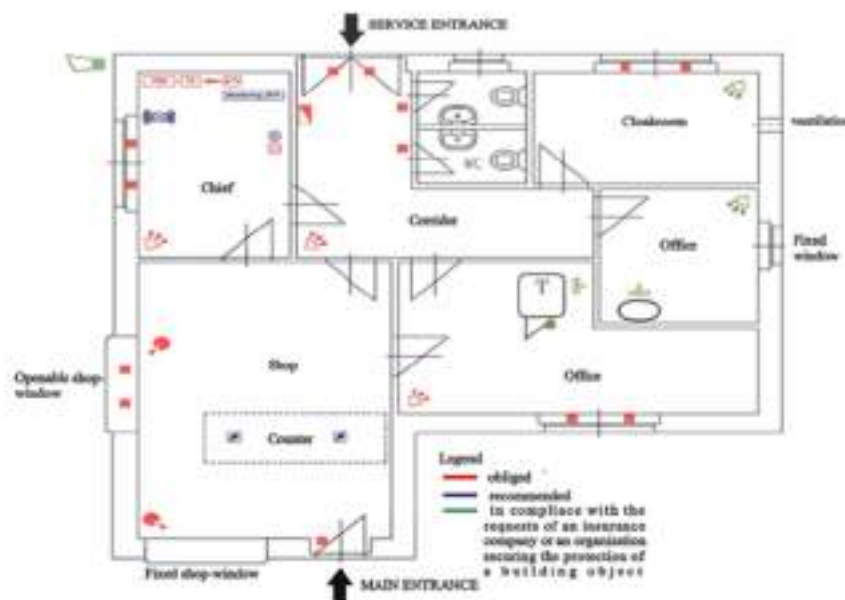

Fig. 3 disposing alert systems in a building object of the medium risk level (Source: [10])

4. Results

DIMENZIONING PROTECTION MEASURES INCLUDING BREACH RESISTANCE

The basic idea of proposing protection measures can be formulated in a way that measures have to enable eliminating the efforts of violators to achieve their goal. The idea means to implement protection measures that will discharge violators, will stop them or slow them down in a way that will detect and subsequently subdue them (in some cases it is sufficient to identify violators). A general procedure of a detailed proposal consists of the following steps:

- Proposal of mechanical means of prevention,
- Proposal of alert systems,
- Proposal of physical protection,
- Proposal of regime measures,
- Proposal of organisation measures.

The overall solution of protecting building objects includes integrating steps of he mentioned procedure. Functionality of the protection system also depends on the posibility of gaining, classifying, processing, evaluating, keeping and transmitting relevant information in the required time, area and quality. For achieving this purpose the protection system necessitates the application of information system that creats links among the individual elements. In a project documentation the mentioned steps have to be achieved according to the respective principles taking into account functioning and purpose of the individual steps within the system.

The methodology of elaborating project documents is based on these principles and on disposing the protection elements in a protected area. Procedures of elaborating a project concerning this part consists in following the individual phases of analysis, sythesis and on violators´ decision on how to move in a particular area, and in a particular time following both a specific disposition solution of a protected building object and disposition of Protection elements (fig. 4).

(Example of disposing security elements does not exclude other combinations)
Fig. 4 Movement of violators in a protected building object (Source: author)

Project documentation must show efficiency of the respective protection system, namely based on the time of attack, the time of detection and the time of interference by a response unit. The biggest problem in evaluating the individual parts influencing a solution proposal seems to be perplexity of and in most cases uncertainty of input data. The difference of procedures towards solving the problem of building objects and the difference of regulations and standards also have a negative influence. Balance of the solution proposal is based on the time of the individual possible procedures of violators, and subsequently on the time violators have to achieve the protected interest after their detection and interference by a response unit.

4.1 Time of attack

Time of attack (TN) is characterized by the movement of violators in a building object on the way to the protected interest. Fig. 5 depicts time structure of an attack.
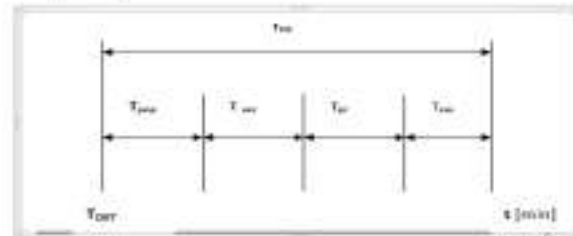

Fig. 5 Graphical depiction of time structure TN (Source: author)

Time of attack represents the overall time of the movement of violators that is measured from the time of detection (TDET) of their presence by the active elements of the protection system up to the achievement of the protected interest. Time of attack is composed from the time of overcoming the individual elements of the passive protection (means of mechanical prevention, Tp), the time necessary for overcoming the distance between the individual elements (Tpr) up to the immediate closeness of the protected interest, and the time of the attack (Tút) on the protected interest, e. g. theft. This time can, however, not be included if the protected interest was damaged or destroyed intentionally. Some authors include also the time of escape of violators, which, in the majority of cases, complicates the situation at the scene of crime. The time necessary for overcoming an element of a passive protection is called breach resistance of the element.

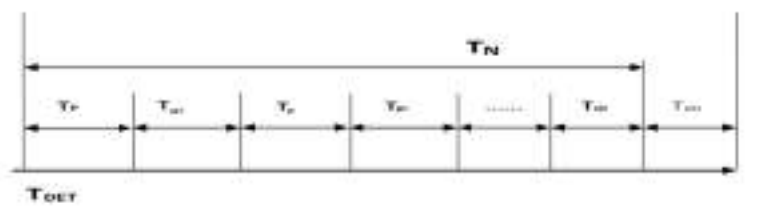### 4.2 Time of intervention

Fig. 6 Visual display of the time structure TFO (Source: [11], modified by author)

Composition of the time of intervention (TFO) is stated in fig. 6.

Time of intervention is represented by the sum of the individual times depicted in fig. 6

Tpop – time of raising alarm, i.e. time from the moment of detection of violators (TDET) to the moment of raising alarm;

Tver – time of verifying the attack, i.e. time necessary for evaluating whether it is about a real attack or a false alarm caused unitentionally or by defect of the alarm system, i.e. time necessary for making a decision about an intervention;

Tpr – time necessary for a response unit to get to the scene of intervention;

Tzas – time of intervention against violators, i.e. time necessary for an effective intervention against violators. Effective intervention can be regarded as making violators deterred, apprehended, subdued, or

as securing the protected building object of interest. In general it is about activities carried out by response units that prevent violators from achieving their goal.

4.3 Time of detection

Time of detection (TDET) represents the time when violation of or attack on a protected building object has been detected by the active protection elements (motion detectors, camera systems, physical protection and a lot of other technical means). The value of the building object depends on the disposition of protection elements in the building object. It is about a limit value including the time of attack and the time of intervention.

Mutual link of the stated time values makes it possible to identify the protection sufficiency of a reference building object (fig.7). The time of intervention must be lower or maximally the same (limit value) as the time of attack (3).

$$T_{PO} \leq T_X \,(min) \quad (3)$$

Such values are important for the disposition of detection elements within a reference building object. On principle, detection elements should be disposed as far as possible from the protected interest, which provides more time for intervention and reduces the necessity of using complicated mechanical systems of prevention.
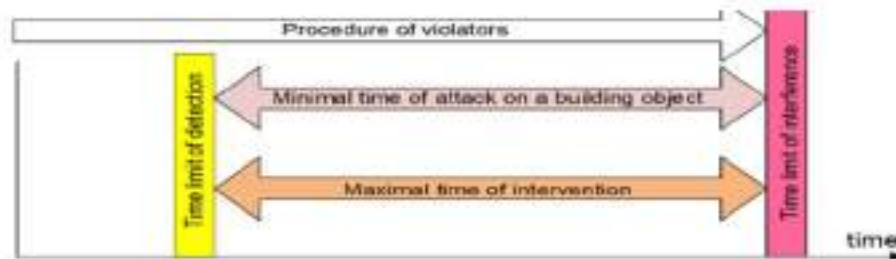

Fig. 7 Mutual link of the times of attack, detection and interference (elimination) (Source: author)

Determining and at the same time the most dimanding is the time of attack. Considered can be possibilities of attack and movement of violators in a protected building object, next the level of violators' knowing the building object and their abilities to overcome the mechanical and technical means of protection. Objectivity of the protection depends on the ability of authors of the documentation to create files containing sufficient amount of information (database) about the abilities of potential violators and about possibilities of the individual elements of the protection, and subsequently on the application of the elements in favour of protecting a particular building object.

4.4. Disposition model of a building object

This model is based on the need of evaluating the time used by violaters in attacking a building object (time factor of attack on a building object), the ability of the system to detect violators, and the time needed to eliminate the effort of violators (time factor of physical protection). Such a way of considering the quality of protection takes into account the disposition solution of a particular building object, technical qualities of the individual elements of protection, disposition of the elements in a particular building object, abilities of violators, organisation of the physical protection and regime measures in their mutual links.

Balance of the proposal depends on time of the individual possible procedures used by violators and on time they have to attack the protected building object after being detected by a response unit. For the purpose of solving and considering the individual steps it is possible to depict the stated processes by means of a network graph. Principle of creating a graph can be seen in fig. 8.
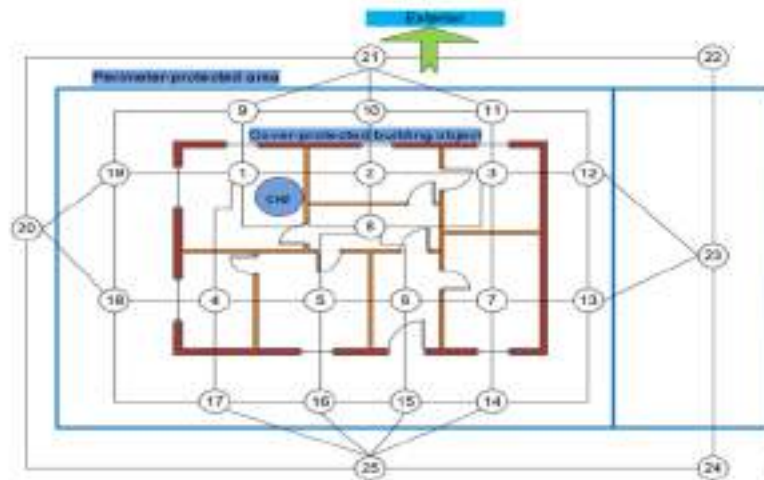

Fig. 8 Network graph of a protected building object (Source: author)

Vertexes of the graph in the individual limited areas (zones) are interconnected by edges (not indicating direction) bearing information on time (breach resistance) in "entering" one area from the other one. Evaluating the edges can be given in a deterministic way (if there are sufficient data) or a stoistic way, i.e. through taking into account

Presuppositions of violators' abilities, probabilities of their acting etc. Evaluating must be systematic (area after area). Project solution of the area with the vertex No.1 necessitates disposing the protection elements in compliance with fig. 9, namely in favour of determine necessary values of the protection elements.

Fig. 9 finding out values in a protected building object (Source: author)

Such a network is basis for a mathematical model expressing necessary values in favour of maximazing the choice of the least (or the most) demanding route in view of the movement of violators

towards a protected building object. In creating a model it is necessary to consider other possible requests of its users, e.g. information about the individual zones, about the route according to one´s choice etc. All data in the individual phases represent information about the present state or the state after applying protection measures. Expressed in a mathematical way it is about a graph containing vertexes and edges with unorienteted direction. This can be expressed in the following;

$$G = [V, H, Z] \tag{4}$$

This type of equation expresses that graph **G** is defined by three values, i.e. **V, H, z;**

$V = \{v(1), v(2)... v(n)\}$ is a set of vertexes (in the individual zones, areas) of the cardinality (n),

$H = \{h(1), h(2)... h(m)\}$ is a set of edges of the cardinality (m) recorded as:

$z: H \longrightarrow (V \times V) V (V o V)$

$V \times V$ – a set of ordered pairs of elements of the set V

$V o V$ – a set of unordered pairs of elements of the set **V**

For the purpose of solving tasks as stated above the graph quality called "travelling" is used; the quality expresses the way of movement in a graph. The way of "travelling"depends on the type of graph, e.g. a graph having either orientated or unorientated edges.If the graph has orientated adges, the kind of "travelling"is preceeded by the prefix semi.

4.5 Creating data structures

Particular solutions necessitate a suitable data structure that influences the activity of the individual algorithms, their speed, clearness and demands for the computer memory. This is connected with the question of entering initial data or their modifying. It is necessary to consider all these demands in selecting a data structure and in clear describing a graph by the data structure.

In view of the practical need of activities it is possible to consider the following data structures:
matrix of vicinity
list of theincidental (neighbouring) elements of a graph
list of vertexes and edges

Certain tasks necessitate frequent changes of a graph which is also connected with changes in the respective data structure. In this view the data strcture is static, and recording changes (adding or removing edges etc.) in a graph would mean reelaborating all the information. As it is about the graph of a particular building object, no important or frequent changes are forseen and the data structure consisting of a list of vertaxes and edges is suitable, and that is why it is used in the programme of searching for an optimal way.

The stated examples do not represent all possible data structures, but concern the frequently used ones. In many tasks based on the needs of the practice the presented structures are sufficient.

4.6 Searching for a minimal/maximal way

The task of searching for an optimal way (minimal or maximal) represents a basis of the thorie of graphs in favour of solving tasks based on model or real dispositions of a building object.

These notions are understood as finding a set of edges and vertexes following the demands evaluated by the so called purpose function (expression evaluating a respective way). The purpose function can gain maximal (critical) or minimal values. In this view, we can talk about, e.g. a way of providing a minimal protection and having maximal demands for the protection etc. The individual types of tasks in searching for an optimal way can be divided according to their character into several basic types, namely minimizing type and maximizing type on the basis of the specified extreme, and addition type, product type and extremal type according to the purpose function.

The optimal way including the addition purpose function is one of the best known ones. One can also come accros names, such as minial/maximal way and the shortest/the longest way. The method can be used in solving problems in connection with theprotection of building objects. Such a task can be formulated in a mathematical way as follows:

If there is a graph $G(V, H)$ with edges having been evaluated by a positive real number $h(i, j)$, the task consists in finding an orientated way between the initial and the terminal vertexes by the minimal/maximal evaluation addition of all the edges on the way if there is such a way [14].

4.7 Possibilities of using a simulation

At the present time, simulating systems represents one of the most progressive means of exploring activities of the complex systems that use mathematisation and cybernatisation to a large extent. Just the development of mathematisation, but first of all cybernatisation, enable to solve problems of modelling and simulating in a way usable in practice

Methodology of creatig a simulation model primarily uses the knowledge from mathematics, theorie of probability, various forms of statistics, theorie of systems, and possibilities of computing and programming.

The simulation principle consists in drawing conclusions based on the simulated system by means of experiments on a simulated model. Modelling means matching the analyzed system with a different system that is called model. The matching is caried out on the basis of similarity that can be expressed mathematically, physically, functionally etc. Such a condition can be recorded as follows:

If there is a real system created by a set of elements of the real system Mr and a set of relations (interactions, links) among them Rv, it is possible to express such a condition as follows:

$$Sr = (Mr, Rr) \qquad (5)$$

The system Sr can be modelled/modified by the system Sm.

$$Sm = (Mm, Rm) \qquad (6)$$

Acting of the real system depends on the operator Fr, and acting of the model depends on the operator Fm. Both the systems necessitate the same response to the same stimulus of the initial variable.

The model can be expressed and solved by means of a computer (computer simulation model).

The basic element of the simulation model is represented by a building object. One of the qualities of building objects is the change of conditions within a dynamic system. In this view, a building object can be regarded as a reference building object, whereas the elements are represented by protection means of a building object. Change of the condition is represented by defeating a security system. Possibilities of defeating can be researched by means of the analysis of probability. A substantional element of such a research is represented by the influence of random factors expressed by mutual events, random numbers or random functions. Through generating random numbers the method of random numbers (Monte Carlo) makes it possible to solve the question of whether a particular action has happened or not.

In case of attacking a building object there is a need for determining the scope of the attack. In such a situation it is possible to consider the attack as a random variable having a shifted probability division of the scope of the attack.

The previous general simulations are applicable to a selected model of a reference building object where based on the result of the simulation process places of a possible attack and the seriousness of an attack are determined. The process of simulation can be carried out by means of a programme. The aim of the programme does not consist only in searching for an optimal way, but also contains a lot of further functions and gives possibilities for using the programme in other spheres of processes that necessitate making decisions in favour protecting building objects.

6. Conclusion

This paper states possible approaches to evaluating the sufficiency of security measures for building objects. Advantages and shortcomings of various solutions have been analyzed. More attention is devoted to the possibilities of using the process of modelling and simulating in proposing and considering a particular security system. Such an effort consists in achieving as large effectivity of the proposed system as possible in view of the demands for quantity and quality of the security elements preserving the stated level of security. Description of the processes of modelling and simulating enables their broad using. In principle there are three possibilities of the use: 1. The possibility of using the results gained through simulating in a model network. Such data can be primarily used in preparing data for proposing security measures concerning various forms of attacks. The results can be used for effective disposing elements of the security system on the individual routes, namely in a way that the individual routes are balanced also through a possible detection border; 2. The attack of a building object is known and on the basis of the gained data it is possible to optimize the intervention by the physical protection; 3. Description of a particular model and its simulation provides more possibilities of creating algorithms in favour of proposing and considering security measures in a particular building object.

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