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Barriers to the Application of Quality Management System (QMS) in South African Manufacturing Organizations

Festus Uche Uwadia, Emmanuel Innocents Edoun, Anup Pradhan and Charles Mbohwa
Faculty of Engineering and Built Environment
Department of Quality & Operation Management
University of Johannesburg, South Africa
55 Beit St, Doornfontein, Johannesburg, 2028, South Africa
festus_u@yahoo.com, edounsen@hotmail.com, anupp@uj.ac.za, c.mbohwa@uj.ac.za

Abstract

The implementation of quality management system (QMS) helps manufacturing organization ensure compliance with good manufacturing practices. However, the lack of a QMS will affect the manufacturing sector and lead to a complete failure because there will be a lot of wastage, rework, time wastage and loss of money. To ensure QMS is incorporated into the manufacturing sector, this study is focused on assessing the barriers facing the application of QMS in South African manufacturing organisations. This was achieved by employing a quantitative research methodology with the distribution of questionnaire to professionals in the manufacturing organisations across South Africa. The retrieved data was analysed using descriptive statistics and the findings revealed that the top five barriers to QMS application by manufacturing organisations in South Africa are top management low commitment, lack of required finance, shortage of experts, lack of training, and lack of the QMS process understanding during training sessions. It was concluded that QMS contributes largely to the success of manufacturing industry in South Africa and there is a need to make necessary provisions for its incorporation into the industry process. It was recommended that organisations need to pay attention to the identified barriers of this study with top management making adequate commitment to the application of QMS in the manufacturing industry of South Africa. This will help promote QMS adoption.

Keywords

Manufacturing Industry, Organisations, Quality Management, Quality Systems

1. Introduction

Through the consolidation process of employees and organizational performance, a company's effective capabilities and efficiency can attain peak performance to enhance the firm's capacity for long-term growth, sustainability and improve the quality of customers and stakeholders *(Evans and Lindsay, 2013). Mehrotra (2018)* argues that the implementation of quality management system helps manufacturing organization ensure compliance with good manufacturing practices while continuing to effectively implement quality processes that will advance quality performance of the employees as a key factor to providing customer's satisfaction. The lack of a QMS will affect the manufacturing sector and lead to a complete failure because there will be a lot of wastage, rework, time wastage and loss of money *(Abbie et al., 2015).* Manufacturing firms focus primarily on customer satisfaction. Customers' positive responses to manufactured goods are what will ensure the company's continued existence and growth in profit. The processes of a quality management system cannot indicate how capable or limited a staff member is. Businesses can maximize the benefits of employee performance by implementing quality control measures like these *(Aquilano and Chase 1991).* Companies can accurately apply cost-effective control procedures to the accurate development of goods and services. The reason is not to ask whether the work is correct, but the first prudent

question to ask is: can we complete the work accurately *(Oakland, 2014).* According to *Douglas and Connor (2003)* who stated that the quality of performance provided by any organization with regard to customers' understanding by determining the QMS that differentiates the customer understanding when compared to the organization viewpoint and the link between the QMS process and its performance on employees and organization by scholars, *(Douglas and Connor 2003).* An organization without any quality structure lacks factual basis, that is, it needs to speed up the preparation method of proof work based on decision-making.
According to *Mosadeghrad (2013)*, if the implementation of quality management system is incorrect, the company's operating discipline will be insufficient, systemic technology will be lacking, qualitative improvement indicators will be insufficient, and with the improvement of manufacturing and management procedures, and also with the growth of the global market and the development of the rescue local economy, it is usually necessary to increase revenue and reduce costs, which requires quality and efficient operations for the organisation. Appropriate QMS performance helps to reduce the value of the process, thereby reducing the quantity rate or cost of the goods, thereby sequentially improving and restoring equity and helping the company to keep business *normal (Pavadavardini, Vivek and Devadasan, 2015).*

1.1 Research Objectives
The objective of this research is to identify the barriers to the application of QMS in South African manufacturing organizations.

2. Literature Review
This section discusses the strategic implementation of quality management, implementation of continuous improvement of quality management system, as well as identifying the barriers to the application of QMS in South African manufacturing organizations in this chapter.

2.1 Strategic Implementation of Quality Management
Strategic administration is a technique to identify the business goals, to evolve business's policies, to regulate the system in accomplishing the goals, and to control assets for policies and scheme or system development *(Mohammed, 2015). Rahman and Raju (2020)* described strategic development as a way of company development, hiring, consolidating and integrating structured organisations, standard operations and concepts to bring considerable benefits and ideal production. Company should assign duty and purpose to the workers and explain how this duty and purpose should be fulfilled to enhance productivity, better quality, and consumer's satisfaction. For a good strategic implementation, managers must provide workers with the proper preparation (prospect of communicating and implementing strategies), resources, and equipment by buying the materials required for strategies implementation, a strategy-motivating approach, and also working climate in all areas of the organisation to accomplish the assigned task. If the strategy is not formulated properly, then the carefully constructed strategy will fail. It is necessary to observe that implementing strategy is not reliable unless there is durability between strategy, and each company measurements such as enabling structural organization, benefit or profit system, materials-issuance systems among others. Strategic administration is a continuous procedure that evaluates or assesses the work and convolution in a company, evaluate its contenders, and secure objectives to link-up the current and subsequent contenders and to reconsider each strategic *plan (Rahman et al. 2018).* According to *Baroniene and Neverauskas (2005)*, the implementation of QMS make organizations become more align to a selected benchmark, move effectively to the substituting interior and exterior situations and become more unfolded to restructuring. He also added that the implementing of restructuring quality management procedure grants the chance to redesign preferable situations. The purpose of using QMS to set strategies is to communicate the selected plan to the administration, thereby improving the strategic goals and objectives of the organisation *(Baroniene and Neverauskas, 2005).* Before even the implementation of QMS the company should have its own strategies to which QMS will align to. Thus, management should also focus on the organisation's strategies because they might promote success or failure of the QMS implementation.

2.2 Implementation of Continuous Improvement of Quality Management System
Continuous implementation of efficient QMS on employees and organizational performance enhances the satisfying customer's expectation and improves business output. According to *Oakland (2014),* continual improvement guaranties the consumer's satisfaction by obtaining goods or system that reach their demand or precondition, and that conveys appropriate performance. Essentially, the company will benefit from a higher level of business, enhanced teamwork, and enhanced operational results (reducing dispersion and increasing productivity), while

meeting legalization, and the government's needs for the community. Continuous improvement of employees and organizations is an important provision of practices or procedures that can help companies improve quality performance *(Maletič et al., 2013).* According to *Evans and Lindsay (2013),* continual improvement must be a part of the management of all organisations and operating institutions. *Li et al. (2018)* noted that in the industries considering continuous implementation of improvements is the most beneficial or serviceable function that maximizes profit, productivity, standards, and achievements, respectively *(Li et al., 2018).* Effective continual improvement of QMS plays an essential part in securing or establishing that recognizing or associating with consumer-converged companies are preferable and consign or dispatch main consumer's expectation. Organisations are dependent on their consumers for their subsistence and protection or welfare and should also acknowledge all subsisting and capable consumer's expectations, reach consumer's demand or preconditions and try to exceed consumer's needs by ensuring QMS operation across the company. According to *Munizu (2013),* enhancing performance has proven difficult, particularly when aiming to enhance customer-centric, adaptable, and high-quality business operations. Quality-related activities have a significant impact on whether or not a company succeeds or fails, as pointed out by *Conti (1993).* Consequently, businesses that need to stay competitive in their respective markets will require a system for developing its QM strategy, methods, and procedures *(Wilford, 2007).*

2.3 Identifying the Barriers to the Application of Quality Management System in South African Manufacturing Organizations

Quality is the key to customer's satisfaction which is executed through the products or services provided to them. The achievement of this quality in the South African manufacturing company (SAMC) induces difficulties such as money shortage, support program shortage, lack of customer focus, lack of documentation, non-assistance from top management, quality cost misunderstanding among *others (Abbie et al., 2015).*Furthermore, *Tamimi (2003)* stated that lack of standard arrangements, insufficient materials, lack of administrative operation management, lack of authority to implement standard concepts, and lack of customer attractiveness or attitude are also among the most encountered challenges of quality management application.

Lack of Required Finance

The implementation of QMS requires large amount of money, time investment as well as considerable efforts on the SAMC's side. Financially unstable companies are still thinking on how to overcome their financial problems and cannot adopt the option of using QMS programs as they are not yet able to afford them even though having them will benefit them in terms of customer satisfaction. Thus, the lack of money prevents financially unstable manufacturing companies from adopting quality management system *(Sebastianelli and Tamimi, 2003).*

Top Management Low Commitment

The involvement of the top management will encourage all other employees to use QMS consistently and take it seriously because their leaders showed the examples and are involved *(Stanojeska et al., 2016).* Furthermore, *Stanojeska et al. (2016)* explained that non assistance or low commitment from top management represents a major challenge to the success of QMS in all industries including the SAMC's. This is justified in a sense that even if the company is interested in various types of QMS models as long as the top management is not committed, the QMS implementation will still fail. Therefore, the top management behavior will define whether the implementation of QMS will succeed or not.

Workers Behaviour and Lack of Training

According to *Schraeder (2009),* two major factors that can impede the successful implementation of QMSs are a lack of benchmarking and employee resistance to change. This employee's behaviour is caused by the fact that most employees do not know how to use QMS programs, not aware of the benefits that QMS implementation can generate, personal uncertainties, fear of losing their jobs as well as difficulty to accept change (from old system to new system). In order to address these issues a proper training and employees' attitude orientation should take place in the MI *(Schraeder, 2009).* This is not an exception for the South African manufacturing industries (SAMI).

Complicated Administrative Procedures

Sebastianelli and Tamimi (2003) acknowledged that the adoption of quality management increases complicated administrative protocols in all organisations without exception. This represents a challenge to all manufacturing companies in the world as QMS leads to the generation of large amount of paperwork related to new protocols and

procedures that have to be revised or studied which it is time consuming. Thus, SAMI's stakeholders consider QMS as an obstacle that prevent them from completing their work on time.

Organizational Culture

The success of the initiative of QMS will also depends on the supportive organizational culture. The cultural management is an aspect of quality management that is neglected during the adoption of QMS. The organizational culture involves the knowledge of employees, behavior as well as attitudes. If this aspect is not addressed employees can easily prevent continuous improvement of good quality because employees want to stick to their old knowledge (Hoonakker et al., 2010). Manufacturing company's leaders should not neglect this aspect but organize training sessions to enhance a cultural change platform and also put in place a corporate culture of quality which will help in building and promoting trust, collaboration, motivation, improved productivity, creativity, and morale through stable employment, strong teams, decentralized authority, mutual aid, and fair pay *(Stanojeska et al., 2016).* Based on the explanation above, the SAMC need to include the culture management in the management of quality for a successful QM implementation.

Shortage of Experts

All manufacturing companies around SA requires skilled personnel to help in the implementation of QMS, assessing processes in the company, gathering and analyzing data as well as problems resolution. All workers should understand that the adoption of QMS is a strategy that enables the company's growth and customer satisfaction for the good of all company. Thus, the company should either employ experts or encourage their own worker to more participate in the reengineering process, new ways of doing things, training sessions and also promote fluent communication to exchange ideas between workers and the management *(Al- Zamani, 2002).*

Unclear Implementation Process Requirement

Nonunderstanding or unclear implementation process requirement is among the several barriers to a successful implementation of QMS in the manufacturing sector in the SAMI. Managers have to make sure that employees understand all process required even if training sessions were organized. This can be verified through some short practical or shorts assignment which will help them to spot the unclarified and clarify them as soon as possible. Additionally, the workers should be reminded all the time that QMS will boost the company improvement, client's requirements and quality problems identification thus, requires continuous information collection from both outsiders and insiders *(Hoonakker, 2010).*

Quality Costs Misunderstanding

All workers in the SAMS have to be conscience of the quality cost effects or impacts on the organisation. Expenses mostly arise due to the lack of quality compliance. Many companies do not understand QMS on its own is not expensive but the non-quality compliance is very costly. Quality noncompliance lead to consequences such products prefabrication, error correction, loss of income due to unsatisfied customer as well as time wastage which have undesirable effects on the organisation *(Fons, 2012).* Thus, managers should understand that adopting QMS is better than facing the consequence of quality noncompliance.

Absence of Costumer Focus

Knowles (2011) explained that meeting customers' expectations should the motivation of the South African manufacturing industry. More attention need to be given to costumers because they are the reason why the company is still operating and the level of the company's focus on clients will determine whether the company will succeed or not. Additionally, if the company's main objective is not to satisfy customer then the adoption of QMS will have no sense. Thus, a low customer focus level will lead to the QMS adoption failure and vice versa.

Lack People's Recognition

Motivation and encouragement are very significant to South African manufacturing industry's employees. This is supported by *Deming (1982)* who stressed that good performance during the production of goods need to be acknowledge as well as encouraged via constant communication among stakeholders. One of the factors that lead to QMS implementation failure is lack of recognition of people because for a company to be successful it should consider both business success and employee growth. The top management need to appreciate the efforts that employees put for the good of the company. As long as there is recognition (gift, rewards, promotion, prime etc.), workers will do their best to be involved in the implementation of QMS.

3. Research Methodology

A research design is a blueprint that specifies how one will go about collecting data and from where *(Cooper & Schindler, 2011).* The researcher's plan to collect data and answer research questions is called the research design, and it should be as detailed and well-defined as possible *(Saunders, Lewis & Thomhil, 2012).* The purpose of this quantitative study was to investigate the challenges that South African manufacturers face when trying to implement a quality management system. Due to its large population and concentration of manufacturing organizations, Johannesburg, Gauteng served as the study's focal point for empirical testing and practical applicability of theoretical concepts of QMS in the manufacturing industry. Participants in the study came from a wide range of occupational backgrounds, including those holding titles such as assemblers, general laborers, processing workers, material handlers, supervisors, managers, and QM directors. The selection of respondents from the total population was accomplished through the use of the methods of stratified random sampling and two-stage sampling. The sample size for management respondents was 150, with 90 managers and 60 employees, while the second stage of the study focused on employee respondents to improve the accuracy of the responses. The sample size for management respondents was 90 managers and 60 employees. Data and information that had already been published were used to compile the secondary data set. These sources included relevant journals, newsletters, circulars, manuals, and other documents that were published by manufacturing industries. The questionnaire was used to collect primary data, which consisted of two segments: A and B. Section A covered the background information of the participants, while Section B covered the barriers to the application of QMS in South African manufacturing organizations. A pilot study was carried out in order to locate and eliminate any ambiguous variables that might have been present in the research questionnaire. The results of the study's data analysis were compiled and interpreted using version 27 of the Statistical Package for Social Science (SPSS V27). The findings of the investigation were presented with the Mean Item Score (MIS) as well as the Standard deviation. The reliability test of the research instrument yielded a value of 0.916 for Cronbach's alpha, which indicates that the instrument has a high degree of internal consistency.

4. Result of Findings

4.1 Section A: Demographic Information Result

The questions contained in this section of the survey were designed to determine the respondents' highest level of qualification, age, job affiliation, and years of experience working in the manufacturing industry. In this section, a multiple-choice nominal scale was used, and only one response was required for each question in order to identify the demographic characteristics of the respondents. The results of the questionnaire survey that was carried out revealed that out of the 150 responses that were used for analysis, 27.6 percent of the respondents have a Bachelor's degree, 18.1 percent have a Master's degree, 16.2 percent have an Honours' degree, 14.3 percent have a Post-Matric certificate, 10.5 percent each has Doctorate and Professional degree, and Field technician, Maintenance experts, and Maintenance Officers were all tied at 1.0 percent. According to the findings, 72.4% of the respondents possess at least a Bachelor's degree in terms of their educational qualification. This is an indication that the respondents are academically sound in order to read and understand the survey research instrument and, as a result, provide the valid information necessary to achieve the objective of the study. The age group of respondents between 35 and 49 years old has the highest percentage, at 35.2%, followed by those between 25 and 34 years old and those between 50 and 70 years old, both at 26.7%. The youngest age group, 18 to 24 years old, has the lowest percentage, 11.0 percent. According to the distribution of respondents according to their job affiliation, 17.1 percent of respondents hold the position of Supervisor, 12.4 percent of respondents hold the position of Assembler and Operator, and 13.3 percent hold the position of Manager. Both general laborers and processing workers have an identically low unemployment rate of 11.4%. There are 1.9 percent of respondents who are Field Technicians, and Admin, Maintenance officer, and Self-employed collectively represent 3 percent of the total respondents, each with an equal proportion. Material handler and QM director are also tied at 8.6 percent each. According to the findings, the majority of the respondents

hold managerial or supervisory positions. These are the most senior managerial positions, each of which has a significant influence on the quality management process. This is a sign that the information that was provided by the respondents is valid and will help achieve the goals of the study. According to the findings, 24.8% of the respondents have between one and five years of experience working in the manufacturing industry. This information was gleaned from the categorization of the respondents' years of experience. A total of 22.9 percent of the respondents have experience ranging from 6-10 years, 21.9 percent have experience ranging from 11-15 years, 12.4 percent have experience ranging from 16-20 years, and 10.5 percent of the respondents have experience ranging from more than 20 years. The minimum requirement is less than one year of experience, which carries a 3.0 percent penalty. It is possible to infer that 67.6 percent of the respondents have worked in the manufacturing industry for a period of time equal to or greater than 11 years. This should be sufficient to supply all of the necessary information required for this investigation.

4.2 Result from analysis of the barriers to the application of quality management system in the South African manufacturing organizations

The purpose of this section was to identify the obstacles that need to be overcome in order to implement QMS in South African manufacturing organizations. A Likert scale that ranges from one to five points has been utilized as the basis for this measurement scale. Table 1 presents the respondents' opinions on the barriers to the implementation of QMS in South African manufacturing organizations, along with the mean value ranking and the standard deviation (SD) for each of those rankings. The respondents ranked the variables using a Likert scale with five points, where 1 indicates strong disagreement, 2 indicates disagreement, 3 indicates neutrality, 4 indicates agreement, and 5 indicates strong agreement. Top management low commitment was ranked first with a mean value of 4.610 and a standard deviation of 0.5280; lack of required finance was ranked second with a mean value of 4.590 and a standard deviation of 0.5316; shortage of experts was ranked third with a mean value of 4.543 and a standard deviation of 0.5552; lack of training was ranked fourth with a mean value of 4.495 and a standard deviation of 0.5212; and lack of the QMS process understanding With a mean value of 4.133 and a standard deviation of 0.4176, the criterion known as "Unclear implementation process requirement" ranked last and fourteenth overall.

Table 1. Barriers to the Application of Quality Management System in the South African Manufacturing Organizations

Barriers to the Application of Quality Management System	Mean	Std. Deviation	Rank
Top management low commitment	4.610	0.5280	1
Lack of required finance	4.590	0.5316	2
Shortage of experts	4.543	0.5552	3
Lack of training	4.495	0.5212	4
Lack of the QMS process understanding during training sessions	4.410	0.5316	5
Negligence	4.400	0.5299	6
Lack of customer attractiveness	4.362	0.6523	7
Lack of employees' attitude orientation	4.352	0.5544	8
Quality costs misunderstanding	4.333	0.5311	9
Organisational culture	4.276	0.5632	10
Workers' behaviour	4.238	0.5968	11
Top management behaviour (lack of employee motivation)	4.229	0.5236	12
Complicated administrative procedures	4.210	0.4742	13
Unclear implementation process requirement	4.133	0.4176	14

4.3 Discussion of Findings

The main aim of this research was to identify the barriers to the application of QMS in South African manufacturing organizations. Based on the analyses of the survey instrument (Questionnaire), 'top management low commitment, lack of required finance, shortage of experts, lack of training, and lack of the QMS process understanding during training sessions are the top five barriers to the application of QMS in South African manufacturing organizations. The findings of this objective reflect the submission of *Stanojeska et al. (2016)* who argued that that non-assistance or low commitment from top management represents a major challenge to the success of QMS. It is also in line with the argument of *Sebastianelli and Tamimi, (2003)* who stated that a company with a financial instability cannot afford Quality management system. This implies that falling short of top management and financial inconsistent define the failure of QMS. Other barriers in the order of hierarchy are: negligence, lack of customer attractiveness, lack of employees' attitude orientation, quality costs misunderstanding, organisational culture, workers' behaviour, top management behaviour (lack of employee motivation), complicated administrative procedures, and unclear implementation process requirement.

5. Conclusion and Recommendation

The main aim of this research was to identify the barriers to the application of QMS in South African manufacturing organizations. From the reviewed literatures, several barriers that limit the application of QMS were identified. Discoveries from the results received from the respondents uncovered how the barriers hierarchically limit the application in South African manufacturing organizations in the following order: top management low commitment, lack of required finance, shortage of experts, lack of training, lack of the QMS process understanding during training sessions, negligence lack of customer attractiveness, lack of employees' attitude orientation, quality costs misunderstanding, organisational culture, workers' behaviour, top management behaviour (lack of employee motivation), complicated administrative procedures and unclear implementation process requirement. The findings of this study indicated how important involvement of top managers and financial stability are to the success manufacturing industry in South Africa. Quality is the key to customer's satisfaction which is executed through the products or services provided to them. The achievement of this quality in the South African manufacturing company (SAMC) induces major difficulties such as top management low commitment, lack of required finance, shortage of experts, lack of training, and lack of the QMS process understanding during training sessions.

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Biographies

Uwadia Uche Festus is a passionate Engineer and a Researcher by profession. He is currently a Doctorate (PhD) student of Quality Engineering within the Faculty of Engineering and Built Environment, University of Johannesburg. He received a Master's Degree (M.Tech) in Operation Management from University of Johannesburg, South Africa. Holds a Bachelor of Engineering Degree (B.Eng.) in Computer Science and Engineering from Enugu State University of Science and Technology, Enugu State, Nigeria. He has several working experience in the field of Computer Science and Engineering with specific experience in networking, fibre, robotics and software designs. His research interest is in the field of engineering sustainability, industrial resource management, supply chain management and operations management. His specializations include sustainable engineering, life cycle assessment, sustainability and continuous improvement with general research interests in renewable sustainable engineering issues, cyber security management, sustainable development in industrial resource management and operations management.

Edoun E.I is an academic, he holds a PhD from the University of Witwatersrand in Johannesburg South Africa. He has travelled widely between different countries in Africa while interacting with academic institutions, policy makers, policy implementers and community members. He is industrious and has good conceptual and organizational skills, He has consulted and spearheaded projects at the African Union, NEPAD, the Pan African Parliament ; AFRODAD.I have been involved as an academic at various University is South Africa and abroad. He has supervised more than 20 PhD Students, 30 full masters and 100 MBAs students. He has attended many conferences, locally and abroad, and has published many articles in the International accredited Journals.

Anup Pradhan is an Associate Professor in the Department of Quality and Operations Management at the University of Johannesburg, South Africa. He received BSc in Agricultural Engineering from Bangladesh Agricultural University, Bangladesh, ME in Agricultural Engineering and Systems from Asian Institute of Technology, Thailand, and PhD in Biological and Agricultural Engineering from University of Idaho, USA. His research interests include life cycle assessment, renewable energy, farm mechanization, smart factory, smart grid management, applied research and optimization, organizational productivity, knowledge management. He has published several journal and conference papers. He is a NRF rated researcher in South Africa and a registered engineer with Nepal Engineering Council (NEC). He is a member of American Society of Agricultural and Biological Engineers (ASABE), Engineering Council of South Africa (ECSA), Nepal Engineer's Association (NEA), Gamma Sigma Delta, Golden Key International Honour Society.

Professor Charles Mbohwa is a Senior Research Associate at the University of Johannesburg. He was, previously the University of Zimbabwe Pro-Vice Chancellor responsible for Strategic Partnerships and Industrialisation from 1st July 2019 up to 30th June 2022. Before that he was a professor of sustainability engineering in the Faculty of Engineering and the Built Environment at the University of Johannesburg. He was a mechanical engineer in the National Railways of Zimbabwe from 1986 to 1991, and lecturer and senior lecturer at the University of Zimbabwe. He was Senior Lecturer, Associate Professor and Full Professor at the University of Johannesburg. He was Chairman and Head of Department of Mechanical Engineering at the University of Zimbabwe from 1994 to 1997; Vice-Dean of Postgraduate Studies Research and Innovation in the Faculty of Engineering and the Built

Environment at the University of Johannesburg from July 2014 to June 2017 and Acting Executive Dean in the Faculty of Engineering and the Built Environment from November 2017 to July 2018. He has published very widely. He holds a BSc Honours in Mechanical Engineering from the University of Zimbabwe in 1986; Master of Science in Operations Management and Manufacturing Systems from University of Nottingham; and a Doctor of Engineering from the Tokyo Metropolitan Institute of Technology.