

DEVELOPING PROJECT, OPERATIONS AND PROGRAMME MANAGEMENT METHODOLOGIES FOR SUSTAINABLE INDUSTRIALISATION IN SOUTH AFRICA

Prof. Pule Kholopane and Thakaramahlaha Lehohla

Faculty of Engineering and the Built Environment, University of Johannesburg
South Africa

ABSTRACT

In South Africa, the Industrial Policy Action Plan serves as a blueprint for the envisaged industrial development in South Africa. It is therefore critical that infrastructure, manufacturing, and special economic zone incentive programmes is designed and developed on the basis of sustainable project management entailing that there is a logical relationship between project time, scope, schedule and quality management. The study is based on the role that project, programme and operations management methodologies can play in terms of creating a climate conducive towards sustainable industrialisation in South Africa. It focusses on industrial development funding, the soft and hard manufacturing and critical infrastructure projects as well as special economic zones. It examines the efficiency and effectiveness of the investment reimbursement programmes within **the dti** and Industrial Development Corporation; to which project and programme management is applied during the life of the programmes, looking at the synchronisation between project budget, schedule, scope and quality of processing project for funding, as well as the application of programme management at a high-level entailing the leading, creating, implementing and improving of portfolios of project and business management processes delivering goods and services in the organisational value chain, aiming to achieving benefits of strategic importance, Steyn(2009).

INTRODUCTION

South Africa and African continent at large is on a growth and development trajectory. Industrialisation via manufacturing, mineral beneficiation, telecommunications, process improvement, green technology and other forms of conversion of natural resources from primary state to tertiary state, has been prioritised. Governments have developed industrial development policies and incentive programmes via their departments of trade and industry, economic development, science and technology, development finance institutions and various other body's responsible for driving industrialisation process. In South Africa, the Industrial Policy Action Plan (IPAP) and the National Industrial Policy Framework (NIPF) serve as a blueprint for the envisaged industrial development in South Africa. These developments enhance the Africa Free Trade Agreement (AFCTA), which emphasises the importance of producing and trading value added goods in the continent contributing meaningfully to the continents prosperity, (DTI, 2015;2016: **Online**).

In support of the above mentioned industrial development trajectory, Lanz & Maurer (2015) allude advances in international transport such as containerised shipping, information and communication technologies greatly reduced the cost of shipping goods and managing complex production networks. Together these developments led to two significant structural changes in global trade: (a) the vertical and spatial crossborder fragmentation of manufacturing into highly integrated 'global production networks' or 'global value chains' (GVCs); and (b) (to a lesser extent) the rise of services trade.

Taking the above into cognisance it is critical that critical infrastructure, manufacturing, and special economic zone incentive programmes should be designed and developed on the basis of sustainable project management entailing that there is a logical relationship between project time, scope, schedule and quality management. Furthermore, as to ensure beneficial change is prioritised and that there should be continuous monitoring and control on projects so as to ensuring that the economics of social cost benefit analysis are factored.

It is essential that programmes incentives focussing on the industrialisation of the continent should in their operational strategy incorporate project and programme and operational management methodologies and models. These models should clearly factor the state of the country's economy and the intended benefits realisation post investment into industrial projects.

Project Management at the implementation phase should factor the National Industrial Policy Framework of the country, in terms of the set targets, critical infrastructure projects and manufacturing projects and these should not take place in isolation from industrial policy framework, there should be a two-way engagement. The implementation of the hard project should also be aligned to the project constraints, (Burke,2013;2018). The model for project implementation should integrate the standard project practice in alignment with National Industrial Policy Framework. It is also important that developed models should be able to be derived from a value chain analysis whereby project management, incentive programmes, industrial development programmes, economic impact analysis and benefits realisation are collaborative or integrated into a system, (Allen, 2014) and (Newton,2013).

The researcher has been employed under industrial and economic development programmes and has studied in the field of project/programme management and commercial studies. During years of professional and academic development, he noticed the paralysis between industrial development programmes, project management and economics of cost benefit analysis and realised that the three subject matters should be integrated as to enable sustainable industrialisation through management by projects.

METHODOLOGY & FINDINGS

A developed research questionnaire was distributed among twenty-one staff members serving under the Industrial Development Incentive Administration Division. Some within the division participants in the survey have responsibility in the following sectors, Black Industrialist Scheme, Manufacturing Competitiveness Enhancement Programme, Special Economic Zones, Agro processing, Capital Projects & Feasibility Studies, Export Marketing Incentive Administration, Critical Infrastructure Programme and the Automotive Incentive Programme. The number of 21 questionnaires issued to the participants were returned and completed in full. The questionnaire was designed and structured based on the following four investigative questions and the table below provides an overall overview of the descriptive data resulting from the investigative questions. In terms of the findings the study concluded that project / programme life cycle of the incentive programme is essential; additionally, conducting benefits realisation and impact assessment is also critical, as to determine the extent of global competitiveness and export-driven economy unlocking economic opportunities leading to employment creation and process improvement measurement.

DESCRIPTIVE STATISTICS FOR THE INVESTIGATIVE AREAS. (Source: Own).

		PPMP	PPMME	ESMA	ESCA
N	Valid	21	21	21	21
	Missing	0	0	0	0
Mean		2.86	2.90	2.90	2.67
Std. Deviation		.573	.70	.477	.577
Skewness		-.498	.808	-.705	-.547
Std. Error of Skewness		.524	.524	.524	.524
Range		4.00	3.00	4.00	3.00
Minimum		0.00	1.00	0.00	1.00
Maximum		4.00	4.00	4.00	4.00

FINDINGS ON PROJECT AND PROGRAMME MANAGEMENT PRINCIPLES

In figure 1 below the distribution of the data was evenly distributed along the mean towards the right, from the population of 21 participants, the average mean is 2.86, and the standard deviation is 0.573 in this regard the respondents clearly indicated the importance of integrating project, operations and programme management methodologies with South Africa's industrial development strategy and industrial funding model. This entails studying the overall IPAP strategy and master planning system facilitated by the industrial development programmes and funding model; this should be accompanied by application of project constraints (schedule, budgetary, quality and scoping, risk analysis; this should further be enhanced by operations management techniques comprising of demand management, master scheduling and capacity planning.

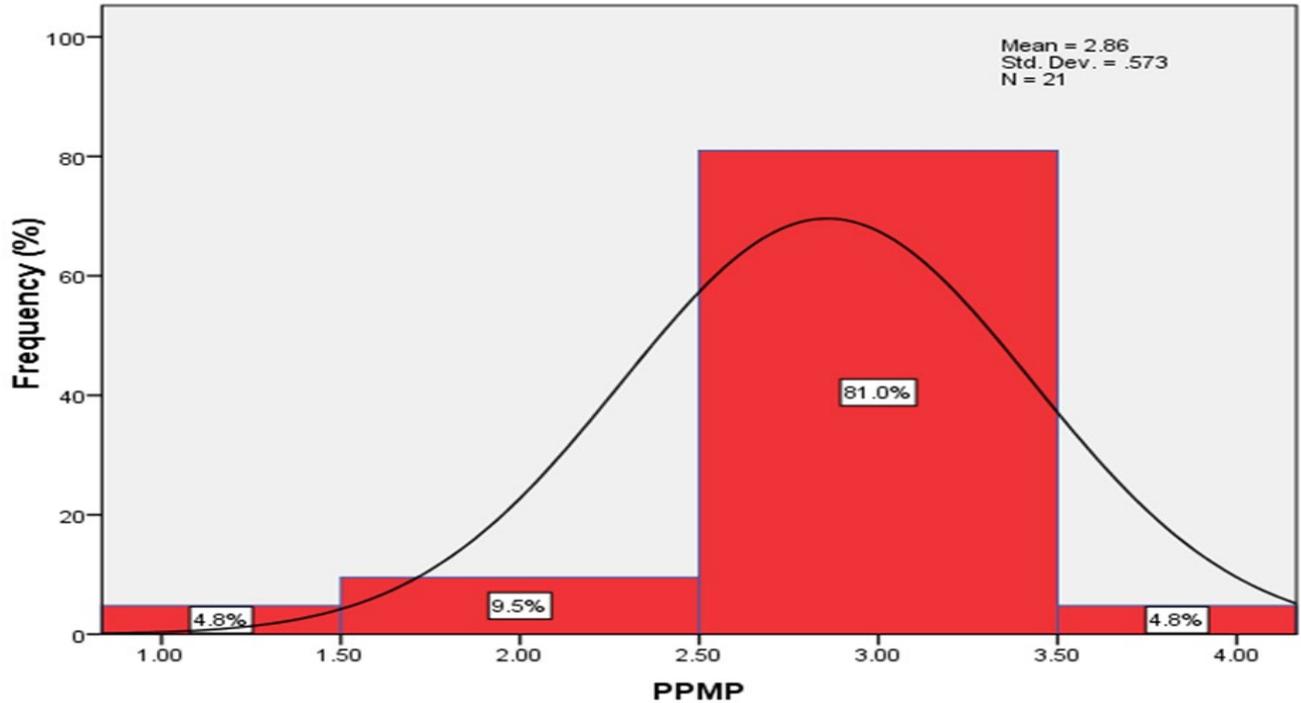


Figure 1: Histogram for PPMP. (Source: Own).

Based on the findings from the research, in relation to the investigative question, the following is recommended:

The DTI should implement a programme office specifically for the industrial and economic development programmes.

A project and programme management culture should be adopted. This should be reflected in terms of the incorporation and integration of project, operation and programme management tools and techniques, methodology and principles into the operational and structural plans of the Industrial Development Administration Incentive Division.

FINDINGS ON PROJECT AND PROGRAMME MANAGEMENT METHODOLOGY ENHANCEMENT

In figure 2 below the data was distribution was normal, the total participants were 21, the mean was 2.90 when rounded of is 3 and the standard deviation was 0.70; overall this indicates clearly that project and programme methodologies are essential for industrial development programmes, and it can be deduced that the challenges that are operational and structural in nature are bound to surface, as there is a poor project culture within the division. Fundamentally, this addresses the research question enquiring how to successfully manage, monitor, measure and appraise the success of the Industrial Development master plan and funding model.

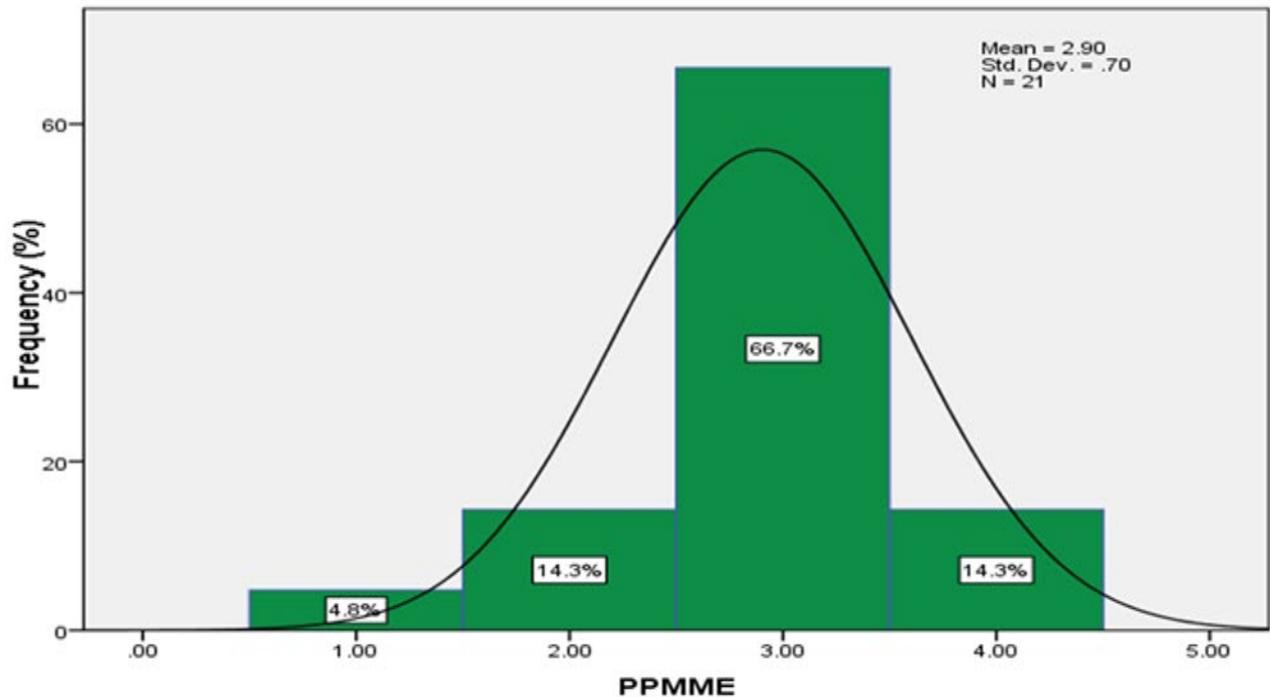


Figure 2: Histogram for PPMME. (Source: Own).

Based on the findings from the research in relation to the investigative question, the following is recommended:

The DTI should implement a programme office specifically for the industrial and economic development programmes.

A project and programme management culture should be adopted. This should be reflected in terms of the incorporation and integration of project, operations management tools and techniques, methodology and principles in the operations and structure of the incentive programmes.

The Department should adopt a policy emphasising staff enrolment in various project, operations and programme management courses. This ranges from short- to long-term programmes with a duration period of six months to a year, as well as certification programmes. Further education and training in the field should also be emphasised, such as Advanced Diploma, Postgraduate Diploma, Masters and post-Doctoral programmes.

FINDINGS ON ENDEAVOUR SUCCESS MATRIX APPLICATION

In figure 3 below the data was distributed to the right of the mean at 2.90, the population was 21 and the standard deviation was 0.447; this is a clear indication that the respondents noticed the enhancement created by the tool when measuring project performance during the project life cycle, and, furthermore, measuring performance during the operational life cycle – more so in terms of determining beneficial change, which is the core purpose that every project or programme should achieve.

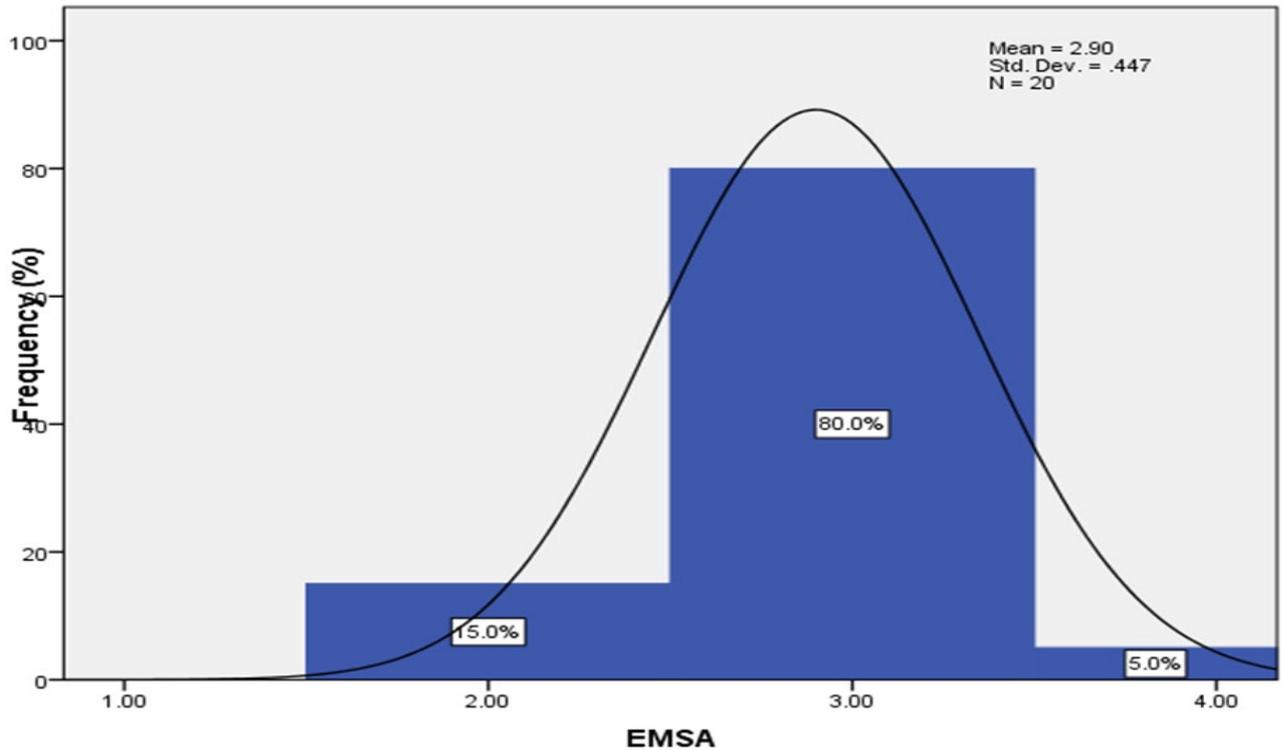


Figure 3: Histogram for ESMA. (Source: Own).

Based on the findings from the research, in relation to the investigative question, the following is recommended:

The DTI should implement a programme office specifically for the industrial and economic development programmes.

A project and programme management culture should be adopted. This should be reflected in terms of the incorporation and integration of project management tools and techniques, methodology and principles into the operations and structure of the incentive programmes.

The Department should adopt a policy emphasising staff enrolment in the various project and programme management courses, ranging from short- to long-term programmes with a duration period of six months to a year, as well as certification programmes. Further education and training in the field should also be emphasised, such as Advanced Diploma, Postgraduate Diploma, Masters and post-Doctoral programmes.

FINDINGS ON ECONOMICS OF SOCIAL COST BENEFIT ANALYSIS

In figure 4 below the data distribution was inclined to the right of the mean at 2.67, the population was and the standard deviation was 0.577 this entails that the respondents generally felt that the adoption of economics benefit analysis model would be an enabler for benefits realisation management to be determined. This reflects on how the incentive contributed towards meeting the objective of the IPAP, a labour absorbing economy is needed, via manufacturing and industrialisation, an export-driven economy, global competitiveness, critical skills development in line with the demands of the economy, growth and development, increase of black supplier development within industry and productivity value chain, black economic empowerment, improvement in the manufacturing performance index, gross national product and gross domestic product, and many more economic indicators relevant to determining economic impact analysis.

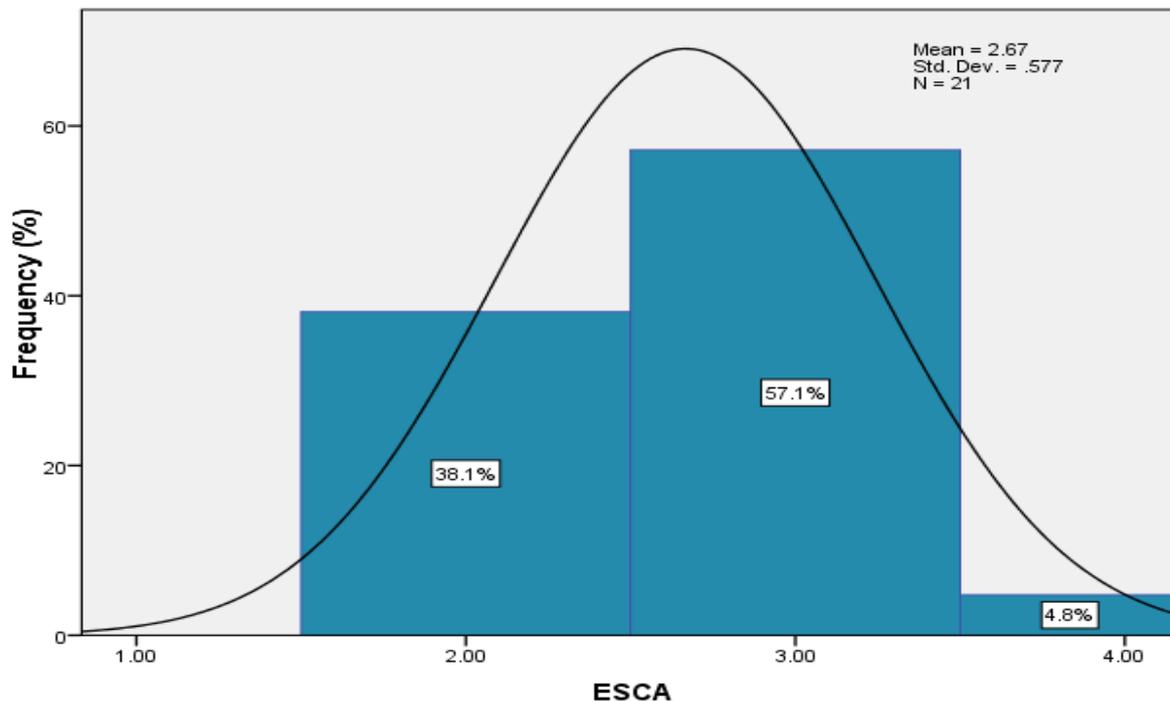


Figure 4: Histogram for ESCA. (Source: Own).

Based on the findings from the research, in relation to the investigative question, the following was recommended:

In-house programmes should be developed to draw the linkages between the role of project, operations and programme management and industrial and economic development. Furthermore, the DTI scenario, together with the related economic and industrial incentive programmes, should be factored in.

CONCLUSION

In light of the research question of the study, which enquired how can the application of project, programme and operations management methodology and model act as an enabler of successful implementation of South Africa’s industrial development projects and reliable benefits realisation matrix, the findings of the research ascertained that project, operations and programme management principles, along with methodologies, in collaboration with economic theories and practices, monitoring and evaluation systems be adopted by the Industrial Finance Division(IFD). This will create high efficiencies and effectiveness in the process value chains of the IFD incentives, thereby ameliorating the backlog, over-commitment, and project constraint synchronisation challenges, and, furthermore, be an enabler of improved benefits realisation management and economic impact analysis.

LIST OF REFERENCES

1. Alleman, B.G. 2014. Performance based project management: increasing the probability of project success. New York: AMACOM.
2. Burke, R. 2013. Project management techniques. 2nd edition. Hong Kong: Burke Publishing.
3. Burke, R. 2018. Fundamentals of project management. 2nd edition. Hong Kong: Burke Publishing.
4. Department of Trade and Industry. 2015. Industrial Policy Action Plan 2015. [Online]. Available from: <http://www.thedti.gov.za> [accessed 2 February 2016].
5. Department of Trade and Industry. 2016. Industrial Policy Action Plan 2016 - 2017. [Online]. Available from: <http://www.thedti.gov.za> [accessed 2 May 2016].
6. Department of Trade and Industry. 2016. Industrial Policy Action Plan 2014/15 – 2016/17. [Online]. Available from: <http://www.thedti.gov.za> [Accessed 31 October 2019].

7. Lanz, R. & Maurer, A. 2015. Services and global value chains: some evidence on servicification of manufacturing and services networks. Geneva: World Trade Organization. Economic Research and Statistics Division. (WTO Staff Working Papers ERSD-2015-03.) Page 125 of 172
8. Newton, R. 2013. The project management book. London: Pearson Education.
9. Steyn, P.G. 2009. Project management: leading, creating, implementing and improving. Pretoria: Cranefield College of Project and Programme Management.

Biographies

Thakaramahlaha Lehohla holds a Master's Degree, Post-Graduate Diploma, Advanced Diploma and Advanced Certificate in Project & Programme Management all obtained from Cranefield College of Project & Programme Management. Furthermore, holds a Bachelor of Commerce from the University of Pretoria. The Master's degree dissertation was based on the environment within the Manufacturing Competitiveness Enhancement Programme; which was a flagship programme at the Department of Trade and Industry meant to protect and develop industrialisation during turbulent economic period, as well as advance global competitiveness, skills development, export promotion and employment in the manufacturing industry. The topic of dissertation was "Applying Project and Programme Management Principles to the Manufacturing Competitiveness Enhancement Programme. The researcher has been employed by the department for the past six years, serving as a deputy director. Currently he is in pursuit for a Ph.D , enrolled with the School of Engineering and Built Environment, under the faculty of Quality and Operations Management. The researcher's topic for thesis is "Developing Project, Programme and Operations Management Methodologies for Sustainable Industrialisation In South Africa". His interests include Industrial and Economic development research, with focus of integrating the project and operations management body of knowledge.

Pule Kholopane holds Master's Degree in Industrial Engineering and Operations Management and several Diplomas from different institutions i.e. Economics (Turin; Italy), Production Management (PMI), Communications (Wits), Industrial Relations (Wits) and Management (Wits). He obtained his PhD degree in Engineering Management from the University of Johannesburg. Prof. Kholopane was a part-time lecturer at the Production Management Institute (PMI) and later joined the Vaal University of Technology as Head of Department and Senior Lecturer in the department of Industrial Engineering and Operations Management before joining the University of Johannesburg as a Senior Lecturer. He is a supervisor and coordinator of the M. Tech Quality and Operations Management program at the Institute and is currently the Head of the Department (HOD) and Associate Professor in Quality and Operations Management.