

QUALITY

For Sustainable Future

Standardization
One of the Key Driving Tools of the
Economy *Sri Lanka Standards Institution*

Pg.14

LIVING
balanced
& quality life

Pg.78

Quality

PRACTICES TO
Elevate the Stature of

SERVICE
ORGANIZATIONS

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Department of Industrial Quality Management
Faculty of Built Environment & Spatial Sciences
General Sir John Kotelawala Defence University

A 3D word cloud centered on the word "QUALITY" in a blue circular grid. The words are rendered in white, three-dimensional block letters. The background features concentric blue circles and radial lines, creating a grid-like pattern. The words are scattered around the central "QUALITY", with some appearing larger and more prominent than others.

QUALITY

assurance optimal
verification and engineering
customer analysis
warranty requirements
price
Zero Defects
improvement
satisfaction
testing
management
branding
control
design
chandise
merchandise
branding
control
design
chandise
merchandise




***“Quality must be
managed; it does not
just happen.”***

John S. Oakland


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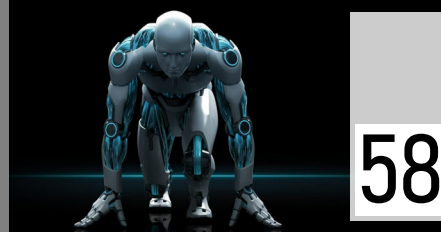
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The Founding Dean of the Faculty of Built Environment & Spatial Sciences



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Consultant/Lecturer/Auditor



Quality of persons and groups involved in Spirituality

Dr. Kumara Hirimburegama
Former Vice Chancellor, University of Colombo & Former Dean, Faculty of Management and Humanities, Kotalawela Defence University



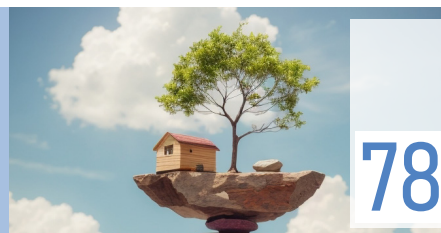
Quality in Higher Education: Nurturing Minds, Enriching Futures

Prof. K A S Dhammika
Deputy Vice-Chancellor (Academic) General Sir John Kotelawala Defence University (KDU)



Increase our value by living a balanced and quality life

Mr. Linton Fernando
President, IQPM



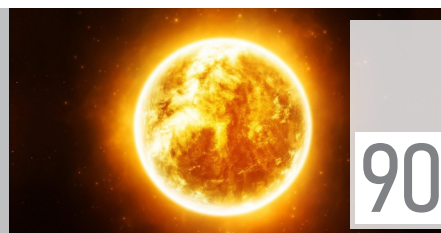
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Ms. Nishadi Rajapakshe
Secretary, IQPM



Quality of Starlight

Dr. Nuwanthi Fernando
Research Software Engineer Australian Astronomical Optics Macquarie University, Sydney



EDITOR'S NOTE



Dr. S D Jayasooriya

Warmly welcome to the very first volume of our esteemed QUALITY magazine under the theme of “*For a Sustainable Future*”. In this issue, we bring you a diverse range of articles, insights, and analyses from the ever-evolving world of industrial quality management. Our team of experts has worked diligently to curate a collection of valuable content that aims to educate, inspire, and empower professionals and scholars in this field.

Quality management plays a vital role in the success of any organization, ensuring the delivery of products and services that meet or exceed customer expectations. In this fast-paced and competitive business environment, staying abreast of the latest advancements and best practices in quality management is essential for sustained growth and excellence. In this maiden issue, we have curated a selection of articles that cover a wide range of topics related to quality management and industrial quality. From the fundamental principles of quality management to the implementation of quality control strategies, our goal is to provide you with a comprehensive understanding of this crucial discipline. Throughout the magazine, you will find thought-provoking articles by industry experts and specialized academics, who share their experiences, challenges, and success stories. They offer practical insights on building a quality-centric culture, establishing robust quality management systems, and driving continuous improvement throughout an organization.

As advocates for a sustainable future, we invite you to share your thoughts, experiences, and innovative approaches that contribute to both quality and sustainability. Together, let us foster a collaborative platform that encourages dialogue and the exchange of ideas. Lastly, I extend my deepest gratitude to our contributors, whose expertise and passion have made this very first issue possible. Their dedication to quality and sustainability shines through their articles, offering valuable insights and guidance for our readership.

I hope you find this first edition of our “QUALITY – *For Sustainable Future*” magazine thought-provoking, inspiring, and informative. May it empower you to embrace the opportunities and challenges that lie ahead, and together, let us strive for a future where quality and sustainability go hand in hand.

Thank you for your continued support, and happy reading!

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General Sir John Kotelawala Defence University



ABOUT KDU

General Sir John Kotelawala Defence University (KDU) was initially established as General Sir John Kotelawala Defence Academy by the Parliamentary Act No. 68 of 1981. The Academy was elevated to university status by the Sir John Kotelawala Defence Academy (Amendment) Act No. 27 of 1988, and it was renamed as General Sir John Kotelawala Defence University on 11 October 2007. Degrees awarded by the University are recognized by the University Grants Commission (UGC) in Sri Lanka, and the University is also a member of the Association of Commonwealth Universities (United Kingdom) and the International Association of Universities (IAU).

The University is situated in Ratmalana on a 48-acre plot of land that was formerly the residence of the late General Sir John Kotelawala, Sri Lanka's third prime minister. This stunning estate is enhanced by a magnificent lake, its natural surroundings, and a variety of rare and unusual species of fauna and flora that have been meticulously maintained to preserve the antiquity of the premises.

Throughout its 41-year history, KDU has made every effort to meet the needs of the services, producing more than 3500 graduates for the Tri-services of Sri Lanka. This is because the university's primary objective is to produce highly qualified graduates for the Tri-services in Sri Lanka. Additionally, KDU has improved the overall quality of higher education for Service personnel as a result of its association with other regional military training institutes, which has also boosted the number of graduates it produces each year.

KDU has just started offering degree programmes for Day Scholars on a fee-levying basis, giving many deserving young people in Sri Lanka the chance to pursue a university education of the highest quality. By doing this, KDU aims to create a learning atmosphere where both Day-Scholars and Officer Cadets can benefit. Whereas Day-Scholars are given the chance to learn in a disciplined atmosphere and establish themselves as highly acceptable in modern society. Together with Officer Cadets, Day Scholars have the chance to participate in extracurricular activities including athletics, club activities, field study programmes, etc., giving them the chance to hone their leadership and soft skills and gain a competitive edge in the job market.

With the opening of KDU degree programmes for Day-Scholars in 2010, KDU also commenced attracting foreign students for its degree programmes from SAARC and other friendly countries on fee-levying basis. It has currently enrolled nearly two hundred and sixty foreign students in its degree programmes and the increase in numbers is an indication of the recognition KDU has earned internationally for its degree programmes. Further, this venture has enabled KDU to contribute to the national economy by earning a considerable amount of foreign exchange through its high quality degree programmes in all disciplines.

KDU VISION

To be a university nationally and internationally known for its unique ability to engage both undergraduate and graduate students in distinctive and interdisciplinary defence related higher education that best serves the tri-services, the state sector and society at large.

KDU MISSION

To ensure a high-quality, learner-centered educational experience through undergraduate, graduate, and professional programmes along with high quality research across many disciplines in the field of defence, in both residential and non-residential settings in the campus.

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**General Sir John Kotelawala
Defence University**

- For the Motherland Forever -

MESSAGE

from the Vice Chancellor

Major General Milinda Peiris RWP RSP VSV USP ndc psc
MPhil (Ind)



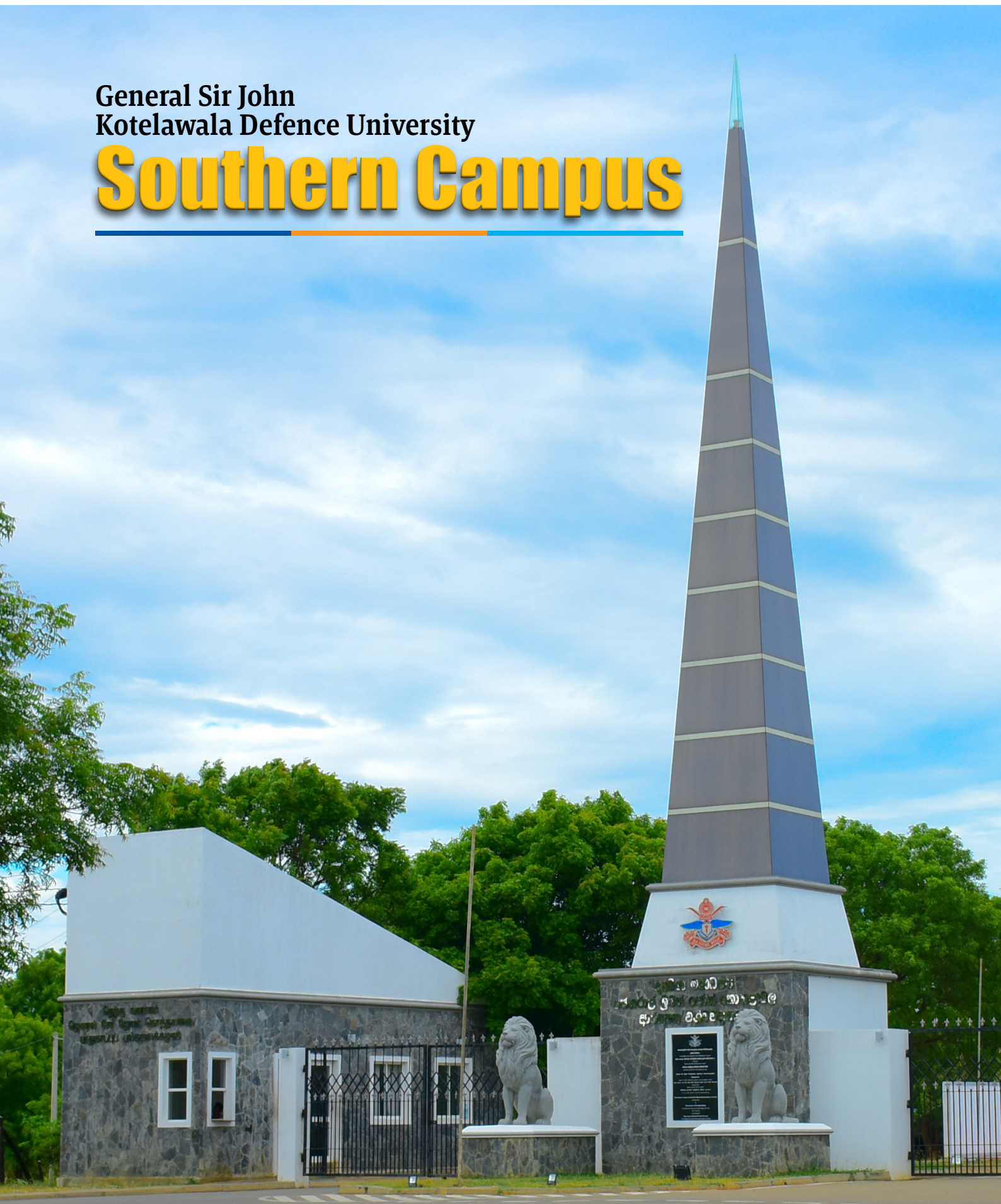
It is with great pleasure that I write this congratulatory message to the very first publication of this important magazine, “QUALITY – *For Sustainable Future*”, which is an outstanding initiative of the recently established Department of Industrial Quality Management of the Faculty of Built Environment and Spatial Sciences in the Southern Campus of KDU. I firmly believe that this magazine will develop into a pivotal source of information in the field of industrial quality management in Sri Lanka and elsewhere in the world.

Quality is one of the crucial attributes in all industries and economic activities, and it is not just a kind of feature that could be contained in final products or outcomes. It is something beyond, and it is a diligent sort of application that must be addressed along the industrial decision-making processes. After realizing the huge vacuum in quality-related education in Sri Lanka, KDU came forward to offer the B.Sc. (Hons) in Industrial and Service Quality Management degree with the intention of generating versatile graduates with sound capabilities to serve as specialists of quality management in Sri Lanka. In this context, I suppose that this magazine will open doors for all interested in quality management by providing updated and valued insights of national and international significance into the field of quality management.

As the Vice-Chancellor, I am proud that the academics and students of the Industrial Quality Management Department have relentlessly worked towards raising the bar in terms of Quality Management education in Sri Lanka. I would like to thank the editor in chief, editorial committee, resource persons and all the contributors who support the success of this valuable publication. Finally, I extend my warmest congratulations to the editor in chief and editorial committee of the very first publication of “QUALITY – *For Sustainable Future*” and wish them all the very best for their future publications of next volumes.

General Sir John
Kotelawala Defence University

Southern Campus



RECTOR - SOUTHERN CAMPUS

Major General LCR Jayasuriya RSP ndc psc Msc. S&SS, MPhil



The concluding years of the 1970's recognised a requirement for the tri-forces to obtain not only military expertise but an academic education, too. Following this necessity, former prime minister, General Sir John Kotelawala, donated 48 acres of his personal estate in Kandawala to the tri-forces in 1980. This grew to be the dawn of General Sir John Kotelawala Defence Academy. The Academy has now matured into a fully-fledged university, consisting of nine faculties, offering both undergraduate and graduate studies.

Several decades into the future, towards this present date, the capacity of Kotelawala Defence University was deemed insufficient to meet the growing demand of students and academics, and inspiration bloomed to broaden this network. Consequently, a corporate plan was developed in 2012 that foresaw a vision to establish campuses in the North and South. Thus, when the opportunity was provided to commence a University Village in Sooriyawewa, KDU accepted the brave challenge of becoming pioneer and establishing not only the Faculty of Computing, but also initiating the Faculty of Built Environment and Spatial Sciences on 140 acres of land vested by the government, in Sooriyawewa in the Southern Province in Sri Lanka.

Due to the unremitting and steadfast commitment and contribution of the great minds behind the development of the Southern Campus, this harsh land was terra-formed and transformed into the present-day institution that is rapidly making progress towards being a global vital academic hub. Having started off from untamed land and the strength and allegiance to continue this project, this picturesque campus, surrounded by natural forests, scenic lakes, and breathtaking horizons, now comprises of two faculties and six departments, offering numerous degrees. The Southern Campus of KDU is currently home to approximately 600 undergraduate day scholars and cadets housed in living quarters provided by the university, creating an atmosphere of mutual understanding and comradeship. Furthermore, the university is now able to provide students with sports facilities, library facilities, computer labs, fully equipped architectural studios, the latest laboratory equipment, and quality tertiary education.

This progress does not stop here, as this is only the starting chapter of the book narrating the journey of General Sir John Kotelawala Defence University, Southern Campus.



Mr. Linton Fernando

President, IQPM

IQPM

The Institute of Quality & Productivity Management

President's Message

I, very humbly and proudly, wish to express my sincere congratulations to the Editorial Board of the "Quality" Magazine for their inaugural edition of the first ever magazine in Sri Lanka focused on Quality. The Institute of Quality and Productivity Management (IQPM) treats the opportunity of associating with the Department of Industrial Quality Management at the Kothalawala Defence University, Southern Campus (KDUSC) in jointly publishing the Quality Magazine as a privilege to all IQPM members. Overcoming the challenges while introducing Sri Lanka's only Degree in "Industrial & Service Quality Management", at KDUSC, we worked together to face the obstacles and now we can celebrate the commitment of the team who steered to success.

IQPM, a founder member organization of the "Organization of Professional Associations in Sri Lanka (OPA)", started its activities in 1975 as the Society of Quality Controllers (SQC). As you know, the evolution of the concept of quality changed over the years from Quality Control to Total Quality Management (TQM), No Defects (Six Sigma) and to Zero Waste concepts (LEAN) at present. Accordingly, as a dynamic organization, SQC reacted to the change by renaming it as the Institute of Quality and Productivity Management in 2014. IQPM works on every area in the industry and assists the industry to maintain the productivity by conducting workshops, seminars, study programs leading to certificates / diplomas and special training and consultancy services focused on specific issues in organizations. Further IQPM supports organizations in certification for several standards.

An Executive Committee consisting of academic and industry experts, selected by the members at an Annual General Meeting held every year, manages IQPM. In October 2022, IQPM launched the IQPM Academy to assist anyone who search knowledge in related areas.

Considering that "human" possesses the most valued system of the world, IQPM always thrives to maintain human productivity at maximum levels and make sure that there are no waste in the use of human resource. The industry uses many quality management techniques. The important thing is to find the quality management technology or systems that work for best for your organization. IPQM helps you to select the most suitable, unique solution for the organization.

Very sincerely, on behalf of IQPM, I pay my heartfelt gratitude to all those who pioneered in publishing the Quality magazine successfully and I wish that this magazine will take the leadership in making Sri Lanka as a country with "Zero Waste".

The Institute of Quality & Productivity Management (IQPM), formally known as the Sri Lanka Society for Quality Control (SLSQC) was initially established in 1974, with Mr Mallory Wijesinghe, then Chairman of Ceylon Cold Stores as the founding president. It became a member association of the country's apex body of professional associations, the Organisation of Professional Associations (OPA) in 1977. Successor to the SLSQC, the Institute of Quality & Productivity Management was formally inaugurated under the aegis of the SLSQC at the Professional Centre of the Organization of Professional Associations on 22 May 2015 in coincidence with its Annual General Meeting, and all existing members of the SLSQC were admitted to the Institute of Quality and Productivity Management.

When SLSQC was established in 1971, the main objective was to promote quality control in the industry, a methodology that was used only by few companies in Sri Lanka to provide an assurance of the quality of their products to the customers. During 1970s, with a controlled economy with heavy restrictions on imports, Sri Lankan business organizations could not work heavily on controlling quality.

Quality Control evolved to Quality Assurance, then to Quality Management, through several decades. Although Quality Management, a relatively unknown concept of management at that time, and Productivity Management, which is correlated to Quality Management are vitally needed for the growth of the industry under the present open economy, then the IQPM was established in keeping with these needs.

With humble beginnings to progressive developments over the years, IQPM now stands to be the apex professional body in the country in the fields of quality and productivity, with the objective of motivating and assisting the industry as well as academia to enhance productivity and ensure quality of products and services through effective management. For this purpose, six distinct clusters were originally formed within the association focusing on strategic planning, administration and policy, external affairs, educational activities, membership matters and special projects. Particular focus is on improving the quality of life, application of statistics in the industry for continual improvement of quality, effective use of ISO management systems to enhance productivity and effective quality management in social and educational services.

To further strengthen IQPM journey, a dedicated training unit under the name IQPM Academy was formally launched in January 2023, for the purpose of conducting a wide array of professional training and educational programmes for those who wish to advance their career or knowledge in the areas of quality, productivity, manufacturing, management, research, statistics, ISO management systems, and soft skills development. The newly formed academy also offers tailor-made training programmes to other professional organizations to supplement their Continual Professional Development (CPD) programs, since quality and productivity are important areas in any professional development activity. Additionally, the Institute avails to be of assistance to any external organisation in terms of consultancy services, to improve and make effective use of their management systems, through our resource persons, who possess wide array of qualifications and experience in multidisciplinary fields not limiting to quality, productivity, and management.

IQPM is managed by an Executive Council annually selected by its' general membership through an Annual General Meeting, under the guidance of an approved constitution, and has its offices located at 1st Floor, 275/75, Organisation of Professional Associations, Prof. Stanley Wijesundara Mawatha, Colombo 07, and can be reached via email iqpm@slsqa.com, and website www.iqpm.net.



Standardization; One of the Key Driving Tools of the Economy

Dr. Siddhika Senaratne
DIRECTOR GENERAL OF SRI LANKA STANDARDS INSTITUTION

If an organization aspires to thrive in the evolving fast paced global competition, it requires correspond to certain unique prerequisites. This includes being customer-oriented, sensitively prioritizing all stakeholder's expectations, and in successfully managing unexpected market changes. Accordingly, providing high-quality products to its customers is of foremost importance where quality of goods and services attributes to one of the key means of continuous growth. In view of above, standardization is one of the major tools that can be applied to ensure quality measures while achieving the organisation's

continuous improvements. Simply a standard refers to a predetermined set of requirements introduced by a regulatory authority as a rule for measuring the acceptance of a particular product. However, standardization is an endless process. Once a particular standard is established, the new standard becomes the flagship for further development, and so on. Therefore, it finally contributes to minimizing the variations and wastage in the organizational processes while improving the quality of products and processes. Ultimately, standardization leads all kinds of business entities to ensure quality dimensions and

achieve continuous improvements day by day whilst contributing to economic sustainability through product expansions, generating new employment opportunities and foreign sector development. Reputed as the guardian of quality in Sri Lanka, the Sri Lanka Standards Institution (SLSI) is the nation's premier State institution entrusted with enriching the quality of life of the people by enforcing standardization and improvement in quality. Since its incorporation in 1964 as the Bureau of Ceylon Standards, the SLSI today is on its way to achieving greater heights in service delivery with new aims for future development and enhancement. Our actions always lie under the vision of "To be the premier national organization providing leadership to uplift the quality of life of the nation, through standardization and quality improvement in all sectors of the economy. The organization shall be a model of excellence, having a self-motivating organisational culture fulfilling the aspirations of the beneficiaries of its services as well as its employees". Formulation of national standards, ensuring the quality of products and services by way of certification, quality assurance of import and export products, promoting and disseminating valid measurements practices and calibration services, providing testing services and developing national test capability, conformity assessment of management systems and capacity building on standard, standardization, quality, and management systems are the core values which direct our strategy and are

"Standardization is an endless process. Once a particular standard is established, the new standard becomes the flagship for further development, and so on."

reflected in every service we deliver, shaping our interactions with our clients. The SLSI is thus strongly synced with the International Organization for Standardization (ISO), which formulates international standards with the contribution of experts from around the world, including from Sri Lanka. The SLSI is the national standard body which is a member of ISO and holds the right to maintain the memberships of the ISO technical committees and actively participates in the formulation of International Standards while voting and providing comments and feedback on draft ISO standards. Following that, the institute has the authority to adopt ISO standards as national standards. Furthermore, in terms of WTO/TBT agreements, Sri Lanka is obliged to set its national standards in alignment with the international standards where all possible manners. Formulation of national standards is a concerted effort in SLSI and includes the valued contributions of the scientific and engineering standard divisions of SLSI with the participation of all interested parties representing consumers, producers, users, public institutions, and independent technical organizations. National, regional, and international standards also may be considered as foundation documents in the standard development process subject to copyright constraints. Therefore, society must be aware that the formation of national standards is an entirely transparent and consultative process with the voluntary involvement and collaborative effort of all interested parties. The SLSI is thus strongly synced with the





International Organization for Standardization (ISO), which formulates international standards with the contribution of experts from around the world, including from Sri Lanka. The SLSI is the national standard body which is a member of ISO and holds the right to maintain the memberships of the ISO technical committees and actively participates in the formulation of International Standards while voting and providing comments and feedback on draft ISO standards. Following that, the institute has the authority to adopt ISO standards as national standards.

Furthermore, in terms of WTO/TBT agreements,

promote and implementation of standardization practices among Sri Lankan entities adhering to all possible international guidelines, still Sri Lanka is far behind in the right application of standardization which leads to massive unfavourable impacts on organisations as well as the economy when compared with other countries. I would like to elaborate on the key findings of recent research conducted by ISO with the aim of measuring the contribution of standardization towards growth.

The findings of one study revealed

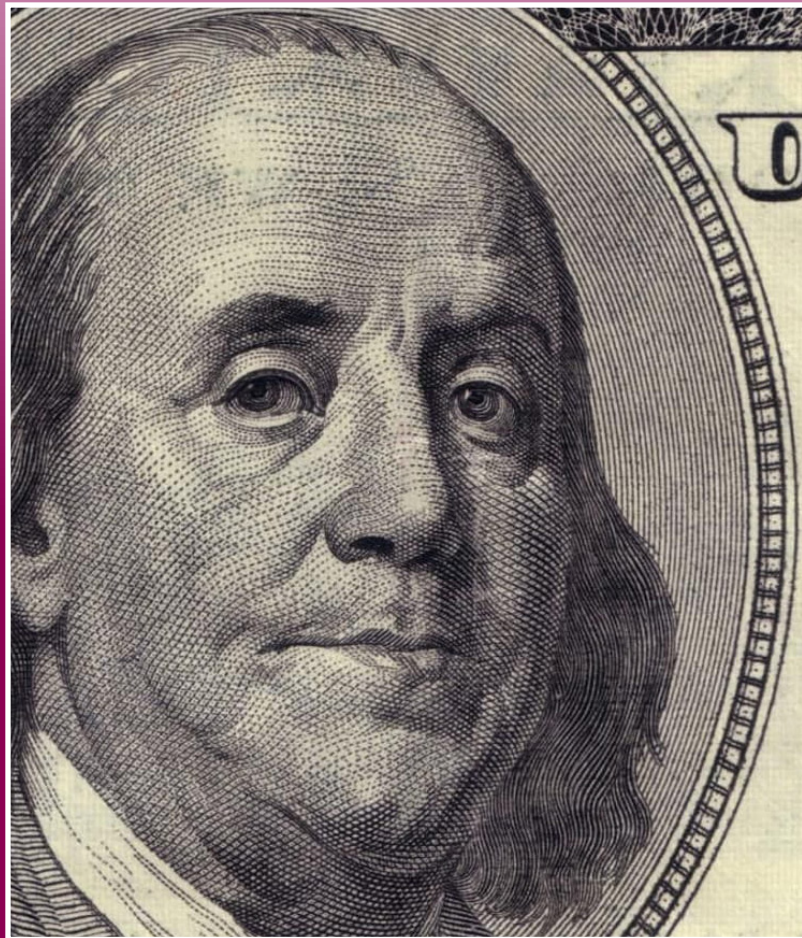
that “Standards were responsible for 28 % of the rise in GDP in Nordic countries and the UK” while another study conducted in France, showed that over 66 % of companies surveyed (including SMEs) stated that standards increase their profits and that 69 % consider standardization to have a positive impact on their business.

Sri Lanka is obliged to set its national standards in alignment with the international standards where all possible manners. Formulation of national standards is a concerted effort in SLSI and includes the valued contributions of the scientific and engineering standard divisions of SLSI with the participation of all interested parties representing consumers, producers, users, public institutions, and independent technical organizations. National, regional, and international standards also may be considered as foundation documents in the standard development process subject to copyright constraints. Therefore, society must be aware that the formation of national standards is an entirely transparent and consultative process with the voluntary involvement and collaborative effort of all interested parties. Even though SLSI is making a great effort to

So, I believe, at least now both private and public Sri Lankan business entities must focus on standardization in view of standardization being a powerful tool which would guide towards a sustainable improvement journey instead of considering the certification as just an advertising tool. History taught enough lessons about how the lack of quality and non-compliance with international standards and regulations losing the markets for locally manufactured products and services. Therefore, Sri Lanka’s prospects for development must reset with its walk along the path to quality and standardization. With the aspiration of becoming a prosperous nation at least by 2048, right now Sri Lanka needs to adopt a highly competitive economy built on a diversity of quality products and services for local requirements and the export market.

QUALITY MANTRA

“The bitterness of poor quality remains long after the sweetness of low price is forgotten.”



Benjamin Franklin



Adopting Quality Practices to Elevate the Stature of Sri Lankan Service Organizations

Prof. Saman T W S Yapa
DEPARTMENT OF DECISION SCIENCES,
UNIVERSITY OF SRI JAYAWARDENEPURA

Q1

First, can you give us a brief overview of your career and background?

I am Professor Saman Yapa, currently working attached to the Department of Decision Sciences, University of Sri Jayewardenepura. I obtained my BSc degree in Industrial Management from the University of Kelaniya in 1990. Then completed an MBA with a merit pass at Postgraduate Institute in Management in the year 1994. In the year 2006, I earned my PhD from the Materials and Engineering Research Institute, Sheffield Hallam University, United Kingdom.

Now, I have nearly 35 years of academic experience in several higher educational institutions. I'm teaching operation management, statistics, quality management and some other management-related disciplines for undergraduate and postgraduate students and my keen research interests include quality management, Supply chain management, knowledge management and industrial-related disciplines. Further, I worked as an international quality reviewer for three universities in Bangladesh.

Q2

To approach the discussion, can you briefly describe quality in service and how it differs from manufacturing?

In theoretical sight, the key determinants of manufacturing quality are associated more with engineering and technical aspects while the human aspect is the foundation of service quality. Sound knowledge regarding the dissimilarities of goods and services is essential to realize how service quality differs from the quality of manufacturing or physical goods. As we all know, the core difference between goods and services is associated with tangibility. Simply, goods are tangible, and services are intangible. Further, the other key difference of service in comparison to physical goods is that the production and consumption of service happen simultaneously but the production and consumption of goods occur separately in different phases. If we take physical goods, all the units are mostly homogeneous in terms of features, shape, performance, options, basic requirements etc. But if we consider a particular kind of service obtained from a few different service providers, usually we feel many differences. Therefore, goods are relatively homogeneous, and services are heterogeneous.

Measuring the quality of physical goods is rather easy when compared to measuring service quality. First, let's look at how we can measure the quality of physical goods. Measuring the quality of physical goods is more objective due to the availability of several accepted standards to measure goods' quality. Just think about how to measure the quality of a car. We can apply several criteria based on our objective such as fuel efficiency, minimum time taken to speed up from 0 to 60 Km/h, safeguard options etc. But the service quality can't be measured accurately by applying the same kind of quantitative criteria. Instead, the best tool for measuring service quality is customers' feedback and perceptions which are more qualitative. Therefore, many difficulties occur when measuring service quality because the expectations and the level of satisfaction of consuming a particular service differ from one person to another. Therefore, service quality is more subjective in nature.

Normally, in service organizations, customers should intentionally go to the service provider to obtain the service. Even in virtual services, somehow the customers should connect by themselves with the service provider to complete a transaction. Suppose a patient wants to get medical service, he or she should go to the hospital. If a student wants to complete a higher educational qualification, that student should go to a particular university etc. Accordingly, the critical factor in the service sector is that the customer has full freedom to choose the service provider and it therefore is worth focusing on the factors which attract more customers towards service organizations. As emphasized above, human-related factors are the key quality determinants of the service sector. Therefore, the leaders of service organizations must be concerned about maintaining foremost human-related aspects such as good courtesy, high responsiveness, empathy etc so that the organization enables to attract more customers and retain them by building up lifelong relationships.

However, the service providers should not misunderstand that the physical or tangible aspects are not essential to ensure service quality. Even though the services are intangible in nature, customers tend to measure the quality of services by considering tangible or physical factors as well. Just suppose that there is a hospital located in an urban area where the well expertized medical consultants regularly visit for appointments.

“Human-Related Factors are the key quality determinants of the Service Sector.

Therefore, the leaders of service organizations must be concerned about maintaining foremost human-related aspects such as good courtesy, high responsiveness, empathy etc so that the organization enables to attract more customers and retain them by building up lifelong relationships.”

But what would be the possibility of attracting more customers towards it if the hospital environment and other infrastructures are very dirty and unpleasant? Therefore, service organizations must consider the quality of the physical environment and other tangible factors such as building layouts, uniforms, interiors, exteriors, and many more physical aspects which are essential to provide a satisfactory service. Another dimension of service quality is the accessibility and convenience of the service place to the customer. Some supermarket chains have established three or four outlets within the same town for the convenience of the customers. Providing services at a time to convenient to customers is also important to improve quality. For example, now some banks are open 365 days till late afternoon and restaurants like Mcdonalds opens early every day. Another important dimension of service quality is how long it will take to get the service. Queues are common in most service organizations. No one likes to be in a queue to get the service. Finally, I prefer to conclude my answer by elaborating that product quality is more objective since it can be measured using standard criteria even in a laboratory. However, measuring service quality is more subjective and complex than good's quality. The ideal scale to measure service quality is customer feedbacks and service providers should not forget the quality of physical factors as well.

Q3

There should be specific methods to measure service quality following various criteria. Can you elaborate on this?

In the previous question, I explained that customers' responses are the key measurement of service quality. Therefore, here I would like to elaborate on what kind of tools can be utilized to trace customers' feedback more accurately and especially what are the key indicators of feedback evaluations. Nowadays, many organizations use online platforms to get customers' feedback. Questionnaire surveys, review options, social media comments, suggestions and complaint portals are some examples of consumer feedback tracing methods. Most of them are informal methods and some methods are formal. Service quality refers is defined as the difference between

customers' expectations and perceptions of a particular service. If organizations can critically evaluate the customers' feedback using the above different modes, they can clearly understand the difference between the customer's perception and expectations regarding the service. Service organisations must encourage customers to complain. Customer complaints provide an organisation's feedback. Otherwise, the organization will have to pay someone to do a market survey.

Let's take an example. Suppose you have planned to visit a commercial bank to get a financial service. Before you go there, you have at least expected a few basic things from the bank such as politeness, timely responses, supportive staff, precise guidance, and a convenient environment etc. Then after visiting the bank, you evaluate the service provided by the bank compared with your expectations. If the customer expectations are higher than their perception of the service, we can conclude that as poor service quality. If the customer expectations are equal to the perception of the service, the service quality is capable to satisfy the customers. Finally, if the customer perception of the service is higher than expectations, it reveals a high service quality which leads to delighted customers. The strategy of customer feedback evaluation is not only for the service sector. It can also be successfully adapted to the manufacturing sector as a tool for measuring quality.



Q4

Can you speak about the benefits that would be generated towards service sector industries in return for well-managing service quality?

Yes, in my opinion, quality is kind of a wealth-creating source for an organization. Why I'm saying that is, if an organization ensures the quality of a product in all aspects, it helps to attract more customers through the most effective promotional tool that a business can adopt only with their hard work called 'good word of mouth'. Even if an organization spends millions of rupees to implement different kinds of promotional campaigns, it would not be easy to acquire better spreading of good word of mouth via customers. It can only be achieved by offering quality products. Let's consider that a particular service organization provides high-quality service, and most of its customers become delighted. Then, those customers spread good words about the organization and its service among their companions by highly recommending the product to them. As a result, the organization can attract more customers and most of them become lifelong loyal customers. Following that, the market share of the organization goes up significantly. Not only that, the well-maintained quality of products also leads to earning high profits. Customers are willing to pay a premium price for quality goods and it enables the businesses to earn high revenue. On the other hand, high-quality products minimize the returning goods, warranty claims, customer complaints, and costs associated with those also will be reduced. Ultimately, increasing revenue and cost reductions resulting due to high-quality products take organizations to highly profitable peaks while ensuring long-term sustainability in the market.



Q5

According to your insight, what are the main gaps in service quality which cause unsuccessful service delivery?

Prof. A. "Parsu" Parasuraman, a well known marketing professor, presented a model called SERVQUAL model on service quality. According to the findings of his research, there are five main gaps in service quality. Those are the knowledge gap, standard gap, delivery gap, communication gap and perception gap. Even though the reasons for each gap are unique, some interdependencies among these gaps can be noticed. The first gap is the knowledge gap, and it leads to a deviation between customers' expectations and the company's perception of customer expectations. The main reasons for the knowledge gap are inadequate marketing research orientation, lack of upward communication, i.e. between lower-level employees and the top management, insufficient relationship focus and inadequate service recovery. The second gap is the standard gap, and it causes some deviations between the translation of perception into service quality specifications and management perception of customer expectations. Some major reasons for the standard gap are poor service design, absence of customer-defined service standards and inappropriate physical evidence and services gap. The third gap is the delivery gap, and it deviates the customer-driven service designs and standards from the real service delivery of the firm. Poor human resource policies, failure to match supply and demand, customers not fulfilling their roles and problems with service intermediaries are the reasons for the delivery gap. The next gap is the communication gap, and it mainly arises due to the reasons such as lack of integration of marketing communications, inadequate management of customer expectations, over-promising and inadequate horizontal communications. Communication gap leads to some errors in external communication to consumers. The last gap is the perception gap which finally leads to customer perception and expectations. The reasons for the perception gap are not knowing exactly what customers expect, not selecting the right service standards and designs, not delivering to service standards and not matching performance to promised.

Top management must be responsible to identify the quality gaps at the initial stages and it is required to take necessary actions to mitigate the unfavourable effects. The long-term continuity of quality gaps may cause some serious damage to the business.

Q6

What do you consider as the challenges of adopting quality management practise among Sri Lanka industries, and what steps could be taken to manage such challenges rationally?

I guess everyone has heard the quote "Make the customer king of your business" at least one time in their life. My thought is that every business must inculcate that quote into their long-term vision since it leads to many more growth potentials. We can find many successful business organizations in the world, which have prioritized customer satisfaction. Customer satisfaction and loyalty have become an attitude among business entities operating in countries like Japan. Unfortunately, in the Sri Lankan context, the attention of business organizations towards consumer satisfaction is very low. Especially the employees' behaviours in many service organizations towards their customers are not polite. Social media frequently provides many examples of rude employee behaviours in Sri Lankan entities and most citizens have at least a few unpleasant experiences attached to service organizations. It seems that nowadays many service organizations prioritize organizational convenience over the customer's convenience. I think this issue of attitudes is one of the major challenges in adopting quality to Sri Lankan entities. Employees should essentially listen to customers, and they should have a genuine willingness to support their customers at any time.

Training and development are the practical solutions to address the above issue. Providing regular employee training is essential to ensure high-quality customer service. Further, continuous counselling and motivational sessions are also required to change the employees' attitudes and mindsets. The very famous quote "Leading by example is better than giving advice" is highly recommended to

the top managers who lead business entities in terms of quality compliance. It means the top managers' focus on quality is essential to provide high-quality services to their customers. Generally, if employees feel that the CEO or general manager is highly concerned about quality, they also are more concerned about it. In addition, education bodies, professional institutes, public institutes, and national media corporations also should conduct awareness and training sessions to promote service quality, especially among SMEs, entrepreneurs, and the public.

“Leading by example is better than giving advice”

is highly recommended to the top managers who lead business entities in terms of quality compliance.



**“COVID-19
Pandemic
led to a revolutionary
change,
especially in the
Service Sector.
Virtual conference
facilities such as
Zoom
and
Microsoft
Teams
are widely spread
globally,
and they facilitate
many service providers
to successfully continue
their businesses with
fewer interruptions.”**

Q7

Correct information is a critical factor in service quality management. Can you briefly describe a few popular 'Service Quality Information Systems' suits for Sri Lankan service organizations?

Information systems are always emerging, and companies can develop their own quality information systems based on their needs. However, a few examples of commonly applied quality management related systems are the post-transaction surveys system, Total Market Surveys system, Mystery shopping, New, declining, and former customer surveys, Focus Groups and Employee field reporting. Let me briefly describe a few of them. Post transaction surveys system is a kind of technique to measure customer satisfaction and perceptions of service quality while a specific service experience is still fresh in the customer's mind. Total market surveys are a periodic measurement of customers' overall evaluations of service quality based on accumulated experience over a period of time. Mystery shopping is a research technique that employs individuals posing as ordinary customers in order to obtain feedback on the service environment and customer-employee interactions. Under focus groups, groups of customers sharing certain common characteristics are convened by researchers for in-depth, moderator-led discussions on specific topics. Employee field reporting is a systematic method of finding out what employees learn from their interactions with customers and their direct observation of customer behaviours. One or a few suitable information systems should be adopted by the business organization rationally based on the business nature.



Q8

What is your opinion on the applicability of technological advancements such as AI, automation, robotics, and many other digital platforms in service quality management?

In the manufacturing sector, the application of new technology such as fully automated production processes, production belts, and robotic processes is more frequent. But there is a myth that technology does nothing in the service sector and it is entirely based on human interactions. However, developed countries have applied advanced technology to enhance the efficiency and effectiveness of service production processes during the last few decades. But the recently spreading COVID-19 pandemic accelerate the adoption of new technologies in the service sector worldwide with the necessity of maintaining social distancing to prevent the spread of the virus. Technological applications improved in the service sector due to the pandemic, and more human interactive services like medical and education converted into distance services which enable customers to get the services in their homes using advanced technology. In my opinion, the Covid 19 pandemic led to a revolutionary change, especially in the service sector. Virtual conference facilities such as Zoom and MS Teams are widely spread globally, and they facilitate many service providers to successfully continue their businesses with fewer interruptions. Nowadays, more virtual platforms applied during the pandemic have become permanent modes even after fully eliminating the threat of the pandemic.

In addition, technology can apply to provide a more convenient background in service organizations while enhancing the productivity of the entire service process. As mentioned earlier, managing queues is a big challenge to most public sector service-providing institutions. Some private entities also experience the same trouble. But it can be fully eliminated through the rational implication of technology in the service processes. If we examine a particular service organization which faces the challenge of long queues, people are waiting in queues for long hours even to collect minor information, reserve a date etc.

which takes only a few minutes. If the institute can develop a good website including all required information and timely update it, people can easily observe all the required data. Further, institutions can smoothly control the issues like managing excess demand by establishing an online platform providing a pre-reservation facility. It also enables the public to enjoy an effective service. Another favourable aspect of implying technology which is not taken into consideration by institutional policymakers in the service sector is saving labour hours. You might be wondering if someone estimates the economic value of labour hours wasted daily because of waiting in long queues.

Q9

How important is the knowledge of quality management to young undergraduates who are about to enter different industries? Could you elaborate on your insights on that, as the concluding remark?

Well, I think knowledge of quality is essential for any kind of profession. Whatever the field of study, engineering, medicine, management, humanities, or any other discipline, all university students today will become employees in organizations or entrepreneurs in a few years time. All of them must provide their contribution to society ensuring high-quality service.

“Quality is essential to promote tourism and other local exports and to generate a remarkable labour force quality is one of the key-driven factors which lead a nation towards continuous growth.”

I think the main barrier to adopting technology into Sri Lankan business entities is the lack of digital and computer literacy of the public. This is one of the common problems faced by many developing countries like Sri Lanka. Especially a high percentage of the adult population in Sri Lanka doesn't have sufficient knowledge of how to use technological appliances and other virtual platforms. Even who are familiar with the technology have a hesitancy in using technology. That effect will be adjusted naturally in the next two decades with the growth of the younger generation with high computer literacy. However, it is better to incorporate new technologies to the educational sector as it helps to ensure the distribution of equal learning opportunities to all Sri Lankan children. Recently, we noticed the best technological implications in some public sector organizations such as issue of vehicle revenue licences and QR method for fuel distribution which disappear the long queues within a very short period. I can remember I went to divisional secretariat to get the revenue licence for my car. But now have the comfort of getting the licence even without going out of my room. So, the management of service organisations must be innovative.

Therefore, the knowledge of basic quality management practises would be very useful to their professions, and it is important to include a quality management module for all degree programmes. Universities can also introduce quality management post-graduate degrees and diplomas which are suitable for employees who are working in multiple disciplines. In addition, national education bodies should take necessary actions to include basic knowledge of quality management into primary and secondary school curriculums suitably. Nowadays, quality has become an essential factor in every field. But Sri Lanka is still far behind in promoting and adopting quality practices compared to other countries. In my view, now Sri Lanka should apply quality practices rationally to get rid of this prevailing economic crisis. Quality is essential to promote tourism and other local exports and to generate a remarkable labour force quality is one of the key-driven factors which lead a nation towards continuous growth. Finally, keep in your mind that “quality is a journey, not a destination”.







A glimpse of Boeing 787 Dreamliner quality issues

Boeing's 787 Dreamliner civil aircraft, after launching in 2011, gained increasing popularity among the world's airlines. But heightened scrutiny both inside and outside the company in recent years has revealed a series of production flaws that largely prevented from delivering new Dreamliner jets for nearly two years.

Boeing 787 Dreamliner became a hit in the aviation industry. The plane's largely carbon composite frame reduced fuel costs significantly, enabling airlines to launch new long haul flights, and make the airplane economical to connect more of the world's distant cities with direct flights. Also, the plane's interior boasted a better and comfortable cabin climate to reduce jet lag, comparatively larger overhead bins and large windows that darken with the touch of a button rather than a pull-down shade.

The Dreamliner also made a major shift in Boeing's manufacturing model, as it outsourced much of the production to a global network of suppliers, making it the company's first airplane to be designed and produced largely by external suppliers.

Instead of conventionally building the aircraft from the ground up, the final assembly employed 800 to 1,200 people to join completed subassemblies and integrate systems. In this approach, Boeing assigned global subcontractors to do more assembly work, delivering completed subassemblies to Boeing for final assembly. This intended for a simpler, leaner assembly line and lower inventory, with pre-installed systems reducing final assembly time by 75% to 3 days. However, subcontractors experienced early difficulties procuring needed parts and finishing subassemblies on schedule, leaving remaining assembly work for Boeing to complete as Traveled work. In commercial airplane manufacturing and assembly, Traveled work refers to jobs which are delayed and/or completed in a factory location other than what was originally planned. Traveled work takes longer to complete in terms of labor hours, and incomplete work can interfere with operators' ability to complete other planned work causing cascading delays.



However, even after overcoming initial challenges such as getting suppliers up to speed, minimising supply chain challenges, engine failures, software issues, and resolving two battery fires that led to a 3 months grounding, more serious problems started to emerge in 2019, as to how Boeing was producing the Dreamliner.

As Boeing examined its 787 production, certain defects came into focus: improperly sized shims that fill tiny gaps between sections of the airplane fuselage, fuel line defects, and variations on skin flatness in certain sections of the interior of the fuselage. Such production issues can be detected after planes enter service and fixed during maintenance.

Despite a series of improvements and changes made, in May 2021, Boeing suspended deliveries of the wide-body planes for the second time in less than a year after the FAA determined there were issues with the manufacturer's method for inspection and evaluation of the aircraft. As a result, FAA ordered a halt to deliveries of the wide body jet between May of 2021 and July of 2022 as it looked into questions about quality control during its assembly process. The FAA stated that previously the issues were related to problems with incorrect spacing in some parts of the 787 aircraft, including the fuselage, which Boeing acknowledged was a problem in 2020, sparking a 5 months stoppage on deliveries.



Dr. Samadi Withanage
Consultant/Lecturer/Auditor



The company's review of how 787s are built, made a deep look at its quality management system (QMS), and has discovered the need for improvements, both internally and at external suppliers, at every step from initial design to the final production. Improvements include a more rigorous, gated process to tackle risk areas in technology, design and build, to ensure that no aspect of the engineering design is beyond the capability of the production system to complete a part or component.

The company also identified the need for retooling its factory process and supply chain to make sure Dreamliners are built correctly the first time.

Boeing's investigation into the quality issues also found that manufacturing process capability and inspections needed to be more fully integrated into the product design. It also determined that consistent integration, lessons learned and institutional knowledge were needed to prevent a recurrence of the problems.

Boeing continued to build the 787 even while it was prevented from making deliveries in late 2021 and much of 2022.

Latest to the Boeing's 787 Dreamliner programme is, Boeing has been forced to halt deliveries of the 787 Dreamliner once again, just months after it resumed following a previous year long halt.

In this instance, the issue is during the certification process, and in reviewing certification records, Boeing discovered an analysis error by the particular supplier related to the 787 forward pressure bulkhead, referring to the portion of the plane at its nose that maintains the pressurized conditions in the cabin. Boeing conducted additional analysis of the fuselage in order to address these new quality concerns addressed by the regulator, Federal Aviation Administration.

The latest issue had paused 787 deliveries, until the required analysis and documentation is completed, and deliveries suspended until the FAA is satisfied that the issue has been addressed and resolved. However, production continued as it was not expected to increase airplane rework. Further, FAA has been working with Boeing to determine any actions that might be required for previously delivered airplanes.

Although the above issue was resolved within a relatively shorter period of time, and the deliveries resumed, as Boeing runs into one problem to another with their 787 Dreamliner programme, latest is a warning issued by the company, of a potential delay of deliveries due to a production defect associated with its horizontal stabilizer part.





William Edwards Deming (October 14, 1900 – December 20, 1993) was an American statistician, engineer, and management consultant. He is widely regarded as one of the pioneers of modern quality management and is known for his work on statistical process control, total quality management (TQM), and the Deming System of Profound Knowledge.

Deming's ideas and principles had a significant impact on the Japanese manufacturing industry after World War II, contributing to Japan's post-war economic resurgence. His teachings and methods became known as the "Deming philosophy" or the "Deming management method." Deming emphasized the importance of continuous improvement, employee engagement, and the use of statistical methods to identify and reduce variations in manufacturing and business processes.

William Edwards Deming (1900-1993)

Father of Quality Management

“

Inspection with the aim of finding the bad ones and throwing them out is too late, ineffective, and costly.

Quality comes not from inspection but from improvement of the process.

”





“Quality”

IN THE INDUSTRY



Mr. Mahinda Rathnakumara


Lean,TPM,5S' Practitioner,
Management Consultant

Maintaining Quality is an important aspect of any industry, as it ensures that products and services meet certain standards and requirements. There are various methods and techniques used in this process, such as statistical process control, quality assurance, and quality improvement. These methods aim to identify and eliminate defects or errors in the production process, improve efficiency, and ultimately enhance customer satisfaction.

Quality control and quality assurance are two related but distinct concepts in the field of quality management. Quality control refers to the set of activities that are designed to ensure that products or services meet certain quality standards. It involves monitoring and testing products or services at various stages of production to identify and correct any defects or errors. Quality control is a reactive process, as it involves identifying and correcting problems after they have occurred.

On the other hand, quality assurance refers to the set of activities that are designed to ensure that the production process itself is capable of consistently producing products or services that meet certain quality standards. It involves creating and implementing processes and procedures that are designed to prevent defects or errors from occurring in the first place. Quality assurance is a proactive process, as it involves preventing problems before they occur.

In summary, quality control focuses on identifying and correcting problems after they have occurred, while quality assurance focuses on preventing problems from occurring in the first place by implementing effective processes and procedures. Both quality control and quality assurance are important aspects of quality management, and they work together to ensure that products and services meet certain quality standards.



The implementation of quality control and assurance measures can vary across industries and companies, depending on their specific needs and requirements. Several modern methods are being used in industries today. Some of the latest ways of maintaining quality include:

1. Six Sigma: This is a data-driven approach that aims to reduce defects and improve quality by identifying and removing the causes of errors and minimizing variability in the production process. This method can help the industry reduce defects and improve quality by identifying and removing the causes of errors and minimizing variability in the production process. This can lead to increased efficiency, reduced costs, and improved customer satisfaction.

2. Lean Manufacturing: This approach focuses on minimizing waste and maximizing efficiency in the production process, which can lead to improved quality and reduced costs. This approach focuses on minimizing waste and maximizing efficiency in the production process, which can lead to improved quality and reduced costs. This method can help the industry streamline processes, reduce lead times, and improve customer satisfaction.

3. Total Quality Management (TQM): This is a management approach that aims to involve all employees in the continuous improvement of quality, with a focus on customer satisfaction. This method can help the industry build a culture of quality, improve communication, and increase employee engagement.

4. Statistical Process Control (SPC): This is a method of monitoring and controlling a production process by using statistical tools to detect and correct any deviations or variations from the desired quality standards. This method can help the industry monitor and control a production process by using statistical tools to detect and correct any deviations or variations from the desired quality standards. This can lead to improved quality, increased efficiency, and reduced costs.

These methods are constantly evolving as technology advances and new techniques are developed. Overall, each of these quality control methods can help the industry improve quality, reduce costs, and increase customer satisfaction by focusing on continuous improvement and minimizing errors and waste.

The concept of zero defects is a quality management approach that aims to produce products or services with no defects or errors. It was first introduced by Philip Crosby in the 1960s as part of his quality management philosophy. Crosby believed that defects were not inevitable and that they could be eliminated by implementing a strong quality control system that focused on prevention and continuous improvement. The concept is based on the idea that every defect is a cost to the company, whether it is in terms of rework, scrap, or customer dissatisfaction. By eliminating defects, companies can reduce costs and improve customer satisfaction, which can lead to increased sales and profits.



While achieving zero defects may be challenging, the concept can serve as a useful goal for companies to strive towards success. By focusing on improving quality and reducing defects, companies can improve their overall performance and competitiveness in the market. The concept of zero defects can be applied to any industry that produces products or services. However, some industries have been known to place a particular emphasis on achieving zero defects. Here are a few examples:

1. Aerospace and defense: The aerospace and defense industries have a strong focus on quality control and safety, and they often work towards achieving zero defects in their products and services.

2. Automotive: The automotive industry has a strong focus on quality control and reducing defects, with many companies implementing processes such as Six Sigma and Lean manufacturing to achieve zero defects.

3. Electronics: The electronics industry has a strong focus on quality control and reducing defects, particularly in the manufacturing of microchips and other electronic components.

4. Medical devices: The medical device industry has a strong focus on quality control and safety, with many companies working towards achieving zero defects in their products to ensure patient safety.

5. Pharmaceutical: The pharmaceutical industry has a strong focus on quality control and ensuring that their products are free from defects or contamination.





The goal of zero defects is to achieve 100% conformance to quality standards, with no room for errors or defects. Implementing a zero defects process requires a strong commitment to quality and continuous improvement from all levels of the organization. This can involve investing in training programs, quality control systems, and other resources to ensure that products or services meet the highest standards of quality.



To implement a zero defects process, companies need to establish a culture of quality that emphasizes prevention rather than correction. This involves identifying and eliminating the root causes of defects, rather than simply detecting and correcting them after they occur. The base of a zero defects process includes several key elements, such as:

1. Quality control systems: Companies need to implement quality control systems that are designed to prevent defects from occurring in the first place. This can involve establishing quality standards, implementing quality control procedures, and using statistical process control tools to monitor production processes and detect any deviations from the desired quality standards.

2. Continuous improvement: Companies need to be committed to continuous improvement, with a focus on identifying and eliminating the root causes of defects. This can involve implementing lean manufacturing principles, Six Sigma methodologies, or other continuous improvement frameworks.

3. Employee engagement: Companies need to engage employees at all levels of the organization in the zero defects process. This involves providing training and support to employees, empowering them to identify and solve problems, and recognizing and rewarding their contributions to the quality control process.

4. By establishing a culture of quality and continuous improvement: Companies can create a strong foundation for a zero defects process. This can lead to improved quality, increased customer satisfaction, and reduced costs associated with defects and rework.

Quality and productivity are closely related in the sense that improving quality can lead to increased productivity. When quality is improved, it can lead to fewer defects, less rework, and fewer customer complaints. This means that less time and resources are spent on fixing problems, and more time can be spent on producing products or services. This can result in increased productivity and efficiency in the production process. On the other hand, poor quality can lead to decreased productivity. When products or services are of poor quality, it can lead to more defects, more rework, and more customer complaints. This means that more time and resources are spent on fixing problems, which can result in decreased productivity and efficiency in the production process. Therefore, quality is an important factor in ensuring productivity in industries. The selection of the best quality control method for an industry depends on several factors, such as the type of industry, the specific product or service being produced, the existing production processes, and the goals and objectives of the company. Here are some steps that can help in selecting the best method:

1. Identify the problem or area for improvement: The first step is to identify the specific problem or area for improvement in the production process. This could be related to quality issues, waste reduction, efficiency improvement, or customer satisfaction.

2. Gather data: The next step is to gather data on the existing production process, including information on quality standards, defects, waste, and customer feedback.

3. Analyze data: Once the data is gathered, it needs to be analyzed to identify the root cause of the problem or area for improvement. This will help in selecting the most appropriate quality control method.

4. Evaluate options: Based on the analysis, evaluate the different quality control methods available and select the one that is most suitable for addressing the problem or area for improvement.

5. Implement and monitor: Once the quality control method is selected, it needs to be implemented and monitored to ensure that it is effective in achieving the desired results.

The best quality control method for Sri Lanka would depend on the specific industry and its needs. However, in general, Total Quality Management (TQM) and Lean manufacturing are considered to be effective quality control methods for Sri Lanka. TQM can help Sri Lankan industries to build a culture of quality, improve communication, and increase employee engagement, while Lean manufacturing can help Sri Lankan industries to minimize waste and maximize efficiency in their production processes.

In conclusion, quality control is an important and essential aspect of any industry, as it ensures that products and services meet certain standards and requirements. There are various modern methods of quality control available today, such as Six Sigma, Lean manufacturing, Total Quality Management (TQM), and Statistical Process Control (SPC). The selection of the best quality control method for an industry depends on several factors, such as the type of industry, the specific product or service being produced, the existing production processes, and the goals and objectives of the company. It's recommended that each industry carefully evaluate their needs and objectives before selecting a quality control method. By implementing effective quality control measures, industries can improve quality, reduce costs, and increase customer satisfaction.





National Productivity Secretariat; Uplift the Living Standard of Sri Lankans by Promoting Productivity

Mr. Suranga Gunarathne
DIRECTOR OF NATIONAL PRODUCTIVITY SECRETARIAT

Q1

First, can you give us a brief overview of your career and background?

I am Suranga Gunarathne, a class I officer of the Sri Lanka administrative service who is passionate about making the current public service more productive. After graduating from the University of Kelaniya in the BioScience stream, the opportunity to join the Sri Lanka Administrative Service in 2003 was a turning point in my life. My first appointment was with the Ministry of Industrial Development. It was a valuable experience to have the opportunity to work with more than two hundred industrialists from ten industrial

estates in the North-Western and Western Provinces to work for their development. An important milestone in my career was joining the National Productivity Secretariat (NPS). I had the opportunity to work with the National Productivity Secretariat for more than ten years. The local and international experience gained from the said organization was a great boost to my career. It was a very satisfying experience to work with the National Productivity Secretariat to increase productivity, especially in the public sector, the private sector, the

education sector, and the community sector. Currently, I am working as the Director (Career Guidance) of the State Ministry of Skills Development, Vocational Education, Research, and Innovations. At the same time, I lead the National Productivity Secretariat holding the position of acting director.

Q2

What is National Productivity Secretariat, and what role does it play in Sri Lanka to promote productivity among both public and private entities?

NPS is the foremost government institute established under the Ministry of Skill Development, Vocational Education, Research, and Innovations with the objective of promoting productivity in Sri Lanka. Our major functions include conducting productivity training programmes, awareness raising and promotion campaigns and organizing the annual National Productivity Award Ceremony mainly focusing on four main economic pillars: public sector organizations, private sector organizations, the educational sector, and the community productivity sector. The institute currently consists of nearly 80 graduated and qualified productivity development officers in its head office. In addition, every district and divisional secretariat has appointed at least 1 productivity development officer and altogether around 630 divisional officers are working with NPS covering all islands. The divisional officers organize the different kinds of productivity development programmes linked with the NPS head office mainly targeting the main above four pillars located in their areas. The NPS conducts several short term courses and certificate courses annually, which have been developed for aiming different groups from the school level to the corporate level providing them sufficient knowledge on productivity tools, strategies and quality management techniques including pertained training. In addition, the institute conducts on-demand workshops and awareness programmes for both private and public institutions.



Q3

What impact does productivity have on Economic Growth? And how does this institute contribute to the Sri Lankan economy?

I think the guidance provided by productivity improvement techniques to simplify organizational processes would lead to effective resource utilization in organizations and minimize resource wastage. The scarcity of resources is the main constraint for growth perspectives across the world. Therefore, productivity ensures the efficient utilization of resources, and it helps nations to accomplish speedy economic growth. NPS also provides some sort of strategic recommendations especially for public institutes to simplify their processes with the intention of enhancing overall institutional efficiency. I am fortunate to state that several institutions have already achieved considerable growth milestones because of adopting process-simplifying strategies.

“NPS is the foremost government institute established under the Ministry of Skill Development, Vocational Education, Research, and Innovations with the objective of promoting productivity in Sri Lanka.”

In addition, the evaluation criteria published by different types of global indices such as the Human Development Index (HDI), Global Innovation Index (GII), Ease of Doing Business Index, Global Competitive Index (GCI) and recently introduced Global Talent Competitiveness Index also should be considered when making policy decisions. The rankings of those indices are the indicators of growth accomplishments and the countries having high economic growth always hold the top ranking. Unfortunately, when considering the Sri Lankan context, we are still far behind in all kinds of indices compared with global and regional aspects. Accordingly, policymakers in both the private and public sectors must be aware of the importance of considering the criteria published by different global indices which provide guidance to improve productivity and finally achieve high growth accomplishments.

Q4

Does the institute collaborate with any other local or international institutions to enhance its institutional capacity?

Our institute has a long-term relationship with the Asian Productivity Organization (APO), a union of 21 Asian countries headquartered in Tokyo, Japan. Sri Lanka signed an MOU with APO in 1966 during the governing period of former prime minister Honorable Dudley Senanayake. Currently, NPS acts as the country representative of APO and holds the three main designations named APO country director, head of national productivity organization and APO relation officer in Sri Lanka. Mainly, APO provides technical assistance to our institute and frequently organizes multinational training programmes providing upgraded knowledge of dynamic and advanced concepts such as IOT, Smart Technologies, Lean Manufacturing, Agricultural productivity, Food Safety, Public sector development programmes and many more. Further, at least five global experts or resource persons visits Sri Lanka annually with the coordination of APO to conduct training and consulting sessions and research activities. NPS has already completed some important projects in rural districts in Sri Lanka with the support of APO. NPS doesn't have any direct relationship with other local public

institutes and operates independently under the Ministry of Skill Development, Vocational Education, Research, and Innovations. Besides, we provide our guidance and support to any public institute on their demand for their policy formation and process modification activities.

Q5

In general view, productivity means "the technical relationship between inputs and outputs". Please could you elaborate more on the term "productivity"?

As per my understanding, productivity can be defined in terms of different perspectives. Indeed, the relationship between input and output is a technical concept applicable only to the manufacturing sector. However, defining productivity in the service sector by applying the same approach is problematic, because the output of the service sector is rather immeasurable. Therefore, a management-oriented definition is suitable for measuring productivity in the service sector which is efficiency plus effectiveness. Even though the service output is rather immeasurable, the productivity and efficiency of service processes can be measured following different logical approaches. In addition, productivity can also be defined in terms of social angle referring to the quality of life. Accordingly, improving the quality of life and standard of living of people in a particular country is also an outcome of productivity. As I opined earlier, our Institute focuses on all those dimensions of productivity when developing its curriculums and projects.

Q6

Can you explain a few globally recognized techniques, tools and strategies that can be adopted to enhance productivity in an organization?

As a basic productivity improvement technique, I can state traditional Japanese concepts such as 5S, quality circles, kaizen etc. But recently more advanced techniques have been designed to improve productivity by aiming at various aspects of processes. Let's assume that if a particular firm intends to reduce defects and improve its processes, it can adopt the Six Sigma strategy. If any firm wants to minimize wastage, the Lean strategy is highly recommended. By the way, most global entities are currently adopting the combined

application of the above two strategies called “Lean Six Sigma” expecting to mitigate the risk of defects and wastage. Not only that, nowadays the Balance Score Card (BSC) strategy is also more popular among both manufacturing and service entities as an effective performance management tool. The BSC strategy is kind of a “Double Siso” which should be balanced four pillars together to be successful instead of focusing only on profits. The four pillars are financial indicators, process indicators, learning and growth indicators and customer indicators. NPS continuously promotes such modern and advanced techniques among all kinds of local entities conducting several programmes.

Q7

In your opinion, what kind of relationship exists between productivity and quality? How does productivity assist to maintain high-quality outcomes within business organizations?

In my opinion, quality is kind of a subset of productivity. Why I’m saying that both effectiveness and efficiency are the main two requisites of productivity and effectiveness referred to producing of right products. Even though some production firms achieve high-efficiency levels by minimizing wastage, we cannot say those firms are highly productive if the final products are not perfect. It means

ineffective processes lead to low-quality outcomes. Therefore, quality is a particular aspect related to effectiveness and customer satisfaction, which is essential to ensure high productivity. However, the mnemonic, PQCDMS is a vital tool in total process management implementations, with each word acting as an indicator of operational efficiency. PQCDMS means Productivity, Quality, Cost, Delivery, Safety and Morale. Achieving all the above indicators is important to follow a great productivity journey and all dimensions hold equal importance. Quality improvement can be a vital way of increasing a company’s productivity. A more uniform product results in less defective output, fewer items that are to be scraped and a decreased need for rework of non-conforming items. A more uniform product that conforms to manufacturer specifications represents an improvement in quality of conformance. This improvement in a product’s quality of conformance in turn leads to increased productivity since the same level of production can be achieved at a reduced cost. Accordingly, Productivity and quality are directly related to each other. If the quality increases, the productivity will also increase. In simple terms, productivity is directly proportional to quality, or they both are directly proportional to each other.



**Q8**

Are you satisfied with the level of productivity education incorporated into the Sri Lankan education system? What kind of additions need to be done to the Sri Lankan education system to promote productivity?

Honestly, I am not satisfied. Even though we tried during nearly the last 10 years to include main productivity concepts into school curriculums, it has still not become a reality. Except for a few small paragraphs on the 5S concept included in grade 6 textbooks, no other productivity tools and concepts were incorporated. Even so, the positive point is that nearly 800 schools voluntarily applied for the annual National Productivity Awards which is the largest process management evaluation award ceremony in the country organized by the NPS. It provides evidence for the necessity of inculcating productivity knowledge in school curriculums. If we focus on the tertiary educational sector, we are planning to introduce a master's programme in productivity and quality management collaborating with a postgraduate institute of a public university. The initial discussions are going on these days with potential universities. I think the knowledge of productivity generates a multidisciplinary impact since it is important for every field such as doctors, teachers, manufacturers, entrepreneurs, students and many more not only for achieving organizational success but also for achieving personal success. Therefore, at least now the relevant government authorities including educational governing bodies must prioritize this matter into their consideration. We can do nothing without their support and guidance.

Q9

How do you look forward to the challenge of heading the NPS at a time when the country is confronted by an economic crisis?

The main constraint is the financial shortage which is currently experienced by both private and public sector organizations. Therefore, most institutions think twice when allocating

funds for organizing training and development programmes and always try to postpone those kinds of arrangements in the way of managing tight budgets. Our institute is also facing the same sort of financial issues. Still, we are suffering due to not being capable of providing sophisticated training for newly recruited employees regarding modern and advanced productivity tools. Without proper training, we are unable to send them for advanced training and consultancy services demanded by large and medium-scale private sector entities.

PQCDSM is a vital tool in total process management implementations, with each word acting as an indicator of operational efficiency. PQCDSM means Productivity, Quality, Cost, Delivery, Safety and Morale.

Achieving all the above indicators is important to follow a great productivity journey and all dimensions hold equal importance.

In addition, we are under big pressure from society because of the negative social perspectives and attitudes towards the operations of public sector institutes. Considering some popular examples, you know many people complain that the public sector is more lethargic, less effective, has excessive employees, wastes public money, not doing the expected jobs and many more. As the National Productivity Secretariat, we must address all those complaints. Following those, we deploy our consultants to guide and support the institutions with more social complaints regarding the operational process. However, all public institutes have the sole responsibility to implement all processes aligned with the productivity guidelines.

Q10

What are the new changes you intend to introduce to the NPS?

Recently I assumed duty as the acting director of NPS. Mainly, we have planned to implement an important food safety development project among the selected SMEs in Gampaha district to collaborate with APO and it is scheduled to commence in the mid of June 2023. Under the direction of our minister and secretary, currently, we are working on two major initiatives. The first one is the SME development Productivity Improvement Programme which has been planned to initiate with the participation of 600 selected SMEs. We continuously provide our consultants as resource persons to conduct several important sessions to upgrade their knowledge and improve their skills. In addition, the institute is currently planning to implement a Process Development Project in public sector entities in the near future. Therefore, development officers have already started the process mapping of some selected entities taking the initial step of the project. Process mapping is essential to identify the required additions and removal of unnecessary tasks to enhance the productivity of any process.



Q11***In the end, what is your summarized message to give our readers?***

My answer is very simple. Organizational leaders must think about how to sustain productivity improvement in their organization. In my experience, the main reason for severe failures in many organizations is not adopting sustainable strategic implementations. Generally, what has happened, the initiative person or leader of any organization established a set of strategies suitable to its operations. After appointing a new person to the same position, that person again brings an entirely new set of strategies without considering the previous one. In the end, even though many frequent changes are happening in organizations, the achievement of continuous productivity improvements is still questionable. But it doesn't mean that organizations should follow the same set of strategies without adopting changes. My consent is all organizations must work towards a stable long-term vision. If we consider developed countries like Japan, they have highly prioritized the strategy of sustainable policy implementations. But in our context, Sri Lanka is still far behind compared to regional and other countries. Finally, what my advice is, this is high time for all private and public organizational leaders in Sri Lanka to think about sustainable productivity implementation while rotating the organizational wheel strategically generating a wise future generation.



Quality Gurus and Their Contribution

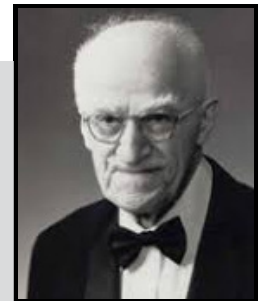


Walter Andrew Shewhart (1891 – 1967)

Walter Andrew Shewhart, the first honorary member of the American Society for Quality (ASQ), was an American physicist, engineer, and a statistician. He was born in New Canton in 1891 and received his doctorate in physics from the University of California, Berkeley in 1917. Shewhart succeeded in effectively bringing together different knowledge areas such as statistics, engineering, and economics. He is sometimes known as the father of Statistical Quality Control (SQC). Shewhart, in his book *Economic Control of Quality of Manufactured Product*, explains the fundamental points of SQC.

Dr. Joseph M. Juran (1904 - 2008)

Joseph Moses Juran was born in Romania. When he was 8 years old, he immigrated to the US with his family. Juran had a bachelor's degree in electrical engineering from the University of Minnesota. He is renowned for his contributions in the realm of quality management. His classic book, *The Quality Control Handbook*, is really valuable for quality managers. Besides, he wrote *Quality Planning & Analysis for Enterprise Quality* and *Juran on Leadership for Quality*. According to him, quality is a 'fitness for use'. 'A greater number of characteristics to meet customer requirements' is a significant constituent in Juran's definition of quality.



Shingo Shigeo (1909 – 1990)

Shingo Shigeo was born in Saga City, Japan in 1909. He was one of the industrial engineers at Toyota and is known for his important concept of Poka-yoke. Shingo wrote numerous books. Some of them are *A Study of the Toyota Production System*, *Revolution in Manufacturing: the SMED System*, and *Zero Quality Control: Source Inspection and the Poka-yoke System*. Shingo Shigeo's concepts such as SMED, Poka-yoke or mistake-proofing, and zero quality control are applied not only in the area of manufacturing but also in the area of sales process engineering.

Dr. Kaoru Ishikawa (1915 – 1989)

Kaoru Ishikawa was born in Tokyo. Ishikawa received the Deming Prize and the Nihon Kezai Press Prize. He did his Ph.D in engineering and is considered as the father of quality circles. He is well known for his cause-and-effect diagrams, also known as Ishikawa or Fishbone diagrams. These diagrams are used to find out the root causes of any particular problem under study. He also expanded Deming's PDCA (Plan-Do-Check-Act) model.





The Past, Present & Future of KDU Southern

Dr. A H Lakmal

The Founding Dean of the Faculty of Built Environment & Spatial Sciences

1. First, can you explain the strategy for establishing the Southern Campus of General Sir John Kotelawala Defence University?

Well, I think the foremost strategy of establishing the KDU Southern campus is, the capacity of Kotelawala Defence University Ratmalana was deemed insufficient to meet the growing demand and following the number of students who wish to enrol in KDU degree programmes significantly increased year by year. Consequently, a corporate plan was developed in the year 2012 that foresaw a vision to establish campus in South. Finally, KDU took the bravest steps following the guidance of Vice Chancellor Major General Milinda Peiris to establish a fully facilitated branch, especially for Southern and Uva provinces to offer selected UGC-approved degree programs at a convenience payment base at its initial stage. In addition, the fully residential university concept and green university concept are rapidly growing across the globe over the last few decades and those learning platforms generate some unique benefits when compared to the traditional university model. Accordingly, KDU wanted to promote those concepts among the Sri Lankan community and enable students to experience a modern, effective, and enjoyable learning background. Considering all KDU Southern Campus officially started its journey in the year 2013 scratch on 140 acres of land located in Sooriyawewa which is vested by the government while contributing to the proposed university village of Hambantota, which in a way concerns rural development as well.

2. What was the background of the southern campus at its initial stage and kindly could you share a few of your memorable experiences at the establishment?

The university was established in 2015, 08 years back with the Faculty of Built Environment and Spatial Sciences and the Department of Information Technology with only around 300 students and limited academic staff. In the early stages of our university, we offered only bachelor's degrees in the disciplines of

Architecture, Quantity Surveying, Surveying Sciences and a few degrees related to Information Technology. At the initiating stage, Southern Campus had only a few buildings and other infrastructure facilities also were relatively low. I can share with you many difficulties, but some wonderful experiences had during the establishment of this campus. I remember it took several hours to travel from Colombo to Sooriyawewa since the expansion project of the Southern Expressway up to Hambantota was under construction at that time. Sometimes, we had to travel two-three times per week to coordinate several works with KDU Rathmalana and other institutes located in Colombo. As the first dean, I am really delighted regarding the present status of our university which has achieved massive development during its short eight years of History, and I firmly believe that we have to pass thousands of milestones in future. Here, I must thankfully remind all the visionary leaders, giants and everyone who did numerous dedications to build this wonderful learning place. In concluding my answer, I highly admire all the students who choose this campus having a strong trustworthy in KDU to achieve their learning perspectives.



3. Facilities and infrastructure are essential for a better learning environment. What are the facilities available for students at the Southern Campus premises?

We are highly concerned about the facilities and infrastructure provided for students so that they can engage in their academic activities without interruptions. On the University premises, students are provided air-conditioned lecture halls, IT labs, design studios, library facilities, virtual reading facilities and international platforms to conduct research. Apart from that, students are encouraged to do extracurricular activities by providing them with sports facilities and a well-equipped gymnasium. Further, our students reside in fully furnished hostels, and they have access to medical facilities as well. Also, what cannot be neglected is the high security that the students are given to continue their studies in a safe academic environment. In addition, we offer all required facilities for our academic staff including free accommodations. Even amid this severe economic crisis, we are taking our maximum effort to do possible value-adding expansions within the university premises in future.

4. In your point of view, how does KDU's southern campus differ from other universities in Sri Lanka?

The most significant difference between our university and other universities in the country is that we are much into a military background, which specifically focuses on the leadership and discipline of students along with their academic knowledge. We, as a university, are heading towards the Green University Concept and the lectures are conducted in residential-learning mode where the students are required to reside on the Campus for their academic activities. Also, the Campus encourages extracurricular activities while providing good guidance. Further, as you may know, our university is a payment basis state university where the degree programs are offered at concessionary fees, and the selection procedure of the students to the degree programs is done through a standard process.

Since the KDU southern campus is a fully residential university, students get a unique opportunity to promote holistic development beyond academics. The close living accommodation and community environment provide ample opportunities for personal growth, character building, and the development of essential life skills. Students learn to navigate communal living, develop a sense of responsibility, and cultivate independence while benefiting from the support and guidance available within the university premises.

5. What is the progress of the Southern Campus at present when compared to the past?

Well, when we started the university in 2015, we had only the Faculty of Built Environment and Spatial Sciences with 3 departments attached to it and the Department of Information Technology. But today, we have widened the learning opportunities for students with the newly established faculties and departments such as the Faculty of Technology and the Department of Industrial Quality Management. Further, we have provided the students with virtual learning opportunities. We are also capable of conducting programs such as International Research Conference at the southern campus and have initiated a ROTARACT club and other student-oriented club activities to promote extracurricular work. All these are testimony of the progress we have made within the past 8 years. Finally, I am delighted to state that Southern Campus have undergone various changes and advancements to keep up with the evolving needs of students, advancements in technology, and trends in education when compared with the past.





6.

What are the future expansions of the Southern Campus?

According to the corporate plan of the university, we have planned to expand the physical infrastructure of the southern campus by constructing new buildings including academic buildings, research facilities, student accommodations, sports facilities, and administrative offices. The aim is to create a modern and conducive environment for learning, research, and student life. Further, the southern campus intends to introduce new academic programs and expand existing ones to cater to emerging fields, industry demands, and student interests to satisfy the higher educational need of the nation. Our university is already providing sufficient resources for research activities, and we expect to further expand the research capabilities by investing in high-quality design studios, equipment, and research centres. This will allow students to engage in cutting-edge research and innovation across various disciplines. In addition, we expect to sign MOUs with foreign universities and provide the students with training opportunities outside the country. Apart from that, we are planning to conduct joint conferences with foreign universities in order to strengthen international relationships.

7.

As the founding dean of the Faculty of Built Environment and Spatial Sciences, what is your vision for the future of the faculty?

As the present dean of the Faculty of Built Environment and Spatial Sciences, I have a clear vision for the future development of the faculty. My vision is to establish the faculty as a leading institution in the field, recognized for its excellence in education, research, and community engagement. I expect to increase the number of student recruitment and incorporate more industrial training into the academic programs. Establishing new departments based on built environment background is another endeavour I want to initiate. Creating international platforms to build good academic and industrial

relationships and expanding research through the Built Environment Journal are the other specific developments I want to see in the Campus. I also want our undergraduates to have the opportunity of taking part in student exchange programs in future. With regards to extra-curricular activities, both AISEC and Toastmaster clubs are to be established. These aspects of my vision for the Faculty of Built Environment and Spatial Sciences are aimed at establishing a thriving, dynamic, and socially responsible institution. With a focus on academic excellence, interdisciplinary collaboration, research and innovation, industry partnerships, and community engagement, we can shape the future of the faculty and make a significant impact on the built environment and spatial sciences field.

8

What is your message to the students who intend to join KDU's southern campus in future?

Entering university is an exciting and transformative time in a person's life. It's an opportunity to expand their knowledge, develop new skills, and form lifelong bonds. Here are a few messages I'd like to share with you: As a reputed university which provides quality education in a disciplined, secure environment, we already have high recognition for our degree programs both locally and internationally. So, I encourage the students to apply and enrol in our degree programs to pursue their dreams in higher education. Remember that students' time at KDU Southern Campus is a unique opportunity for personal and academic growth. Seize every moment, challenge yourself, and make the most of the resources and opportunities available to you in this wonderful premises.

9

What new initiatives and programmes can we expect from the Faculty of Built Environmental and Spatial Sciences within the next few months?

During the last six months, the faculty organized several academic programmes as well as some exciting sports and other entertaining



events. In the coming months, mainly we have planned to initiate a new degree programme titled BSc. (Hons) in Property Management and Investment under our faculty. And also, the launch of the first volume of “The KDU Journal of Built Environment” and the first issue of the industrial quality magazine “QUALITY – For Sustainable Future” is scheduled for this July. Further, in alignment with the main research symposium of KDU, “International Research Conference – 2023 (KDU IRC 2023), our faculty also planning to conduct a separate forum within the Southern Campus premises. This time we have scheduled to conduct a student research symposium parallel to IRC 2023 creating a good research platform for our students. In addition, many cultural and sports events have been planned by several clubs and associations of FBESS students.

70. Finally, what is your thought regarding the “QUALITY - For Sustainable Future” magazine of the Department of Industrial Quality Management?

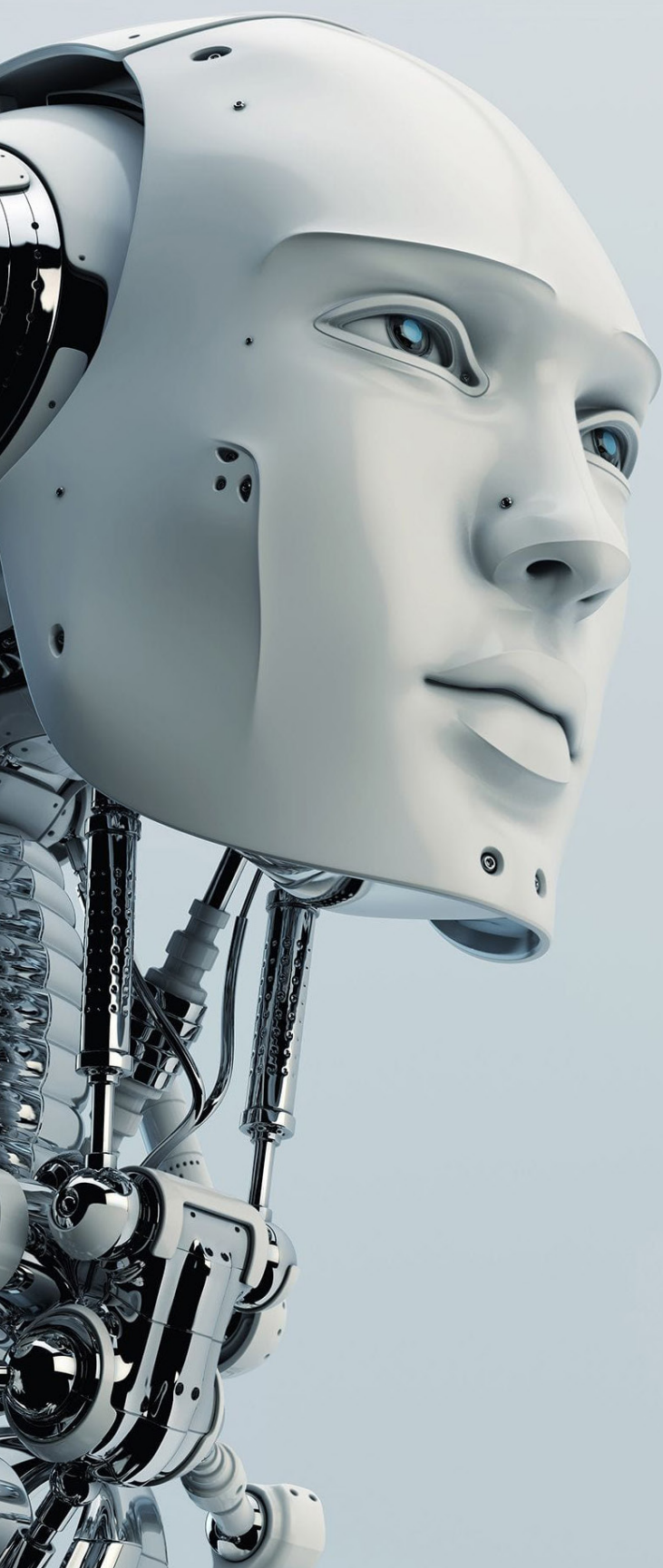
As the dean of the faculty, let me first congratulate the Department of Industrial Quality Management for their very first publication of “QUALITY – For Sustainable Future” magazine which has been successfully compiled with the immense contribution of both national and international quality practitioners. The Industrial Quality Management Department takes its maximum effort to enrich its students with new knowledge and experiences so that they can surmount the future challenges of industries as pioneers in quality management. This magazine will definitely provide a significant contribution towards the knowledge improvement of readers while enabling students to build strong relationships with industrial giants since their undergraduate stage. I take this opportunity to extend my sincere thanks to Dr. S D Jayasooriya, the editor in chief and Head of the Industrial Quality Management Department for steering this great task up to a successful peak and wish to place on record my appreciation for the valuable contribution made by all authors, academic staff, nonacademic staff, students, and others.





Evolution of

Quality



Before the concepts and ideas of Quality were formalised, much work had taken place over the centuries to reach the advancements in this area, the world sees today.

Quality can be traced back to medieval Europe in the late 13th century, where craftsmen began organising into unions called guilds, responsible for developing strict rules for product and service quality. Inspection committees enforced the rules by marking flawless goods with a special mark or symbol, along with Craftsmen placing a second mark on the goods they produced. These inspection marks and master craftsmen marks served as proof of quality for customers throughout medieval Europe. This approach to manufacturing quality was dominant until the industrial revolution that began in early 19th century.

As the industrial revolution began, and during the early days of manufacturing and the factory system, an operative's work was inspected and a decision made whether to accept or reject it. As businesses became larger, the concept of inspection continued, and later evolved in to deploying dedicated personnel having full time inspection jobs. This along with certain organisational challenges led to the birth of the separate inspection department, having a "chief inspector", reporting to the person in charge of manufacturing.

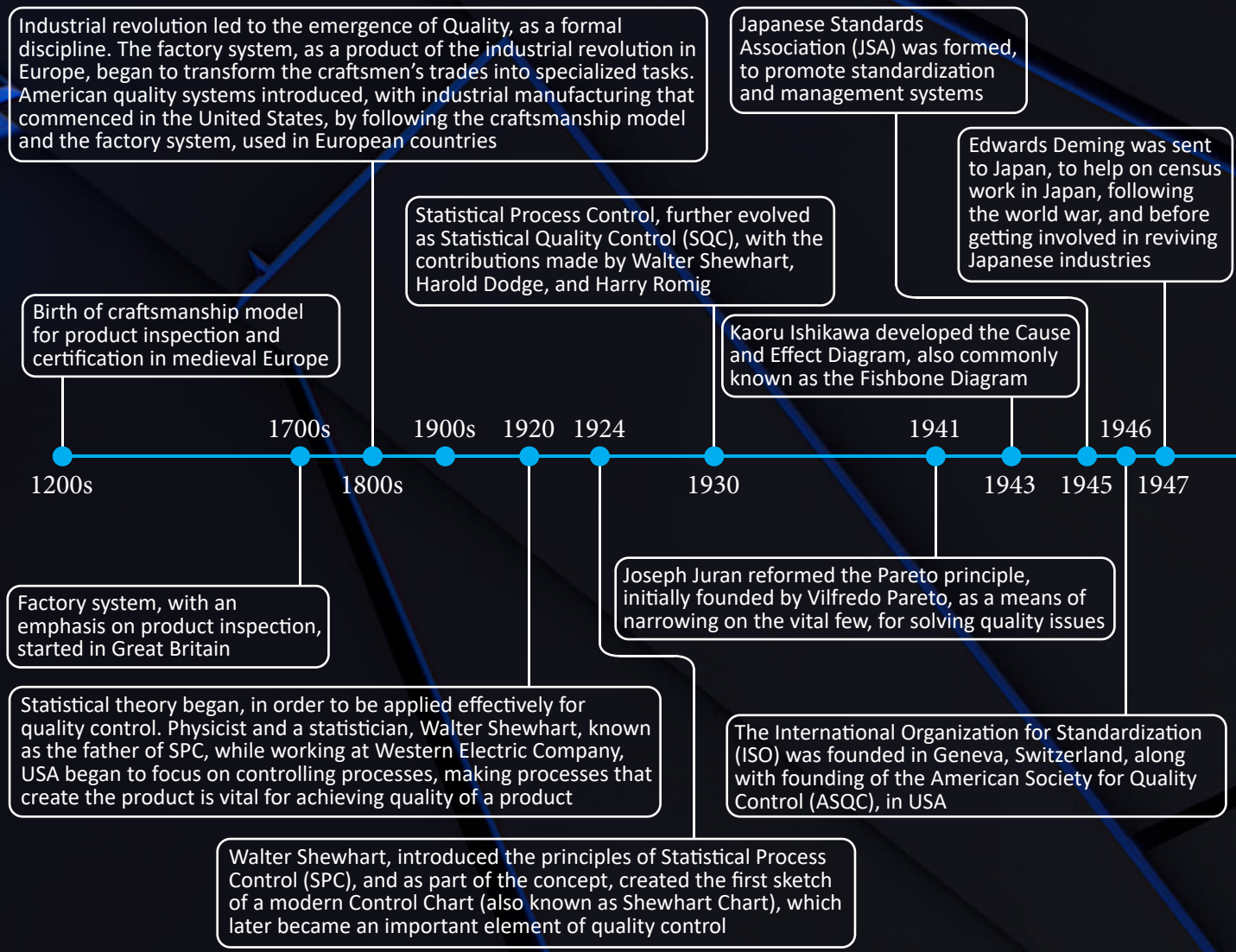


Dr. Samadi Withanage
Consultant/Lecturer/Auditor

Industries realised soon that the responsibilities of the inspection department and the chief inspector should be more than just product acceptance, as a result a need to address defect prevention emerged, along with the need for standards, training, recording of data, accuracy of measuring equipment, etc. This paved the way for the concept of quality control and a dedicated quality control department, having an in charge as a Quality Control Manager, responsible for inspection services and quality control engineering. Later, these beginnings evolved in to advance concepts and methodologies, such as Quality Assurance, Total Quality Management, Six Sigma, Lean Six Sigma, towards present 21st century.



This article intends to provide a synopsis to the *Evolution of Quality in terms of a timeline of developments*, beginning from early inspection through to the present day advance concepts and methodologies.



Edwards Deming started providing his expertise on statistics and quality methods for the revival of crippled Japanese industries, by teaching statistics and quality control to Japanese scientists, engineers and industrialists. Quality management practices emerged rapidly in Japanese plants, and became a major trend in Japanese management philosophy

Facing Japan's rising sun challenge in terms of quality improvements, quality revolution in the west was moving at a slow pace, compared to the past, until the early 1980s, when US and European companies introduced their own quality programmes and initiatives to counter the Japanese success. Total Quality Management (TQM) introduced years later, was a centre piece of most of these initiatives

Joseph Juran's reputation in quality management led the Union of Japanese Scientists and Engineers to invite him to Japan, to teach them the concept of Quality Management, as they rebuilt the economy

Yoji Akao introduced Quality Function Deployment (QFD) Methodology, as a structured approach for defining customer needs or requirements and translating them into specific plans to produce products to meet those needs

The concept of Total Quality Management (TQM) was formally introduced by Edwards Deming. TQM became a wider concept that addresses overall organisational performance and recognises the importance of processes. As the world moved in to the 21st century, TQM received wider acceptance in many countries, as a holistic framework, aimed at helping organisations to achieve excellent performance, particularly in customer and business results

Quality control and management became a national concern in Japan. First Quality Control Circles (QCC) were formed in Japan, along with the Kaizen approach, aiming at small and rapid incremental improvements for manufacturing processes

First international conference on quality control, sponsored by Japan, America and Europe, was held in Tokyo, Japan. In a paper submitted by Armand Feigenbaum, the term Total Quality was used for the first time, and referred to wider areas such as planning, organisation and management responsibility

Six Sigma methodology was made the central business strategy of General Electric by their CEO Jack Welch, and thereafter increasingly gained acceptance by many organisations in USA

Concept of Quality Circles was formalised in Japan



Quality motivation regained in the US and integrated programmes begun, such as introduction of the Zero Defects approach by Martin Company in USA, while developing and producing Pershing Missiles for the US Army

European Organization for Quality Control (EOQC) was established

The concept of Quality Assurance increasingly received attention, especially by the Japanese Union of Scientists and Engineers JUSE with the launch of Joseph Juran's Quality Control Handbook

Kaoru Ishikawa published a book on Quality Management, which paved the way for the formation of Company Wide Quality Control (CWQC), later in Japan

The methodology of Six Sigma (6σ) was formulated by Bill Smith, as a novel approach for quality and process improvements at Motorola

Initial Six Sigma methodology evolved into a management philosophy, as Lean Six Sigma (L6σ), with the integration of concepts of both Lean and Six Sigma, aimed at providing overall business excellence for organisations

Kaoru Ishikawa published a book on the basics of Quality Circles and the concept of Total Quality. By late 1960s and early 1970s Japan's imports into the USA and Europe grew significantly, due to their cheaper, higher quality products, compared to the western counterparts. A large number of US and European corporations began to appreciate the advancement of Japan's industries. Genichi Taguchi popularized the use of experimental design to design robust systems and products, in order to further strengthen quality improvement initiatives

Company Wide Quality Control (CWQC) was formally introduced for the Japanese industries by Kaoru Ishikawa, and became common in Japanese companies by the late 1970s. Concept focused on how all employees, from top management to the workers, participate in quality control. Kaoru Ishikawa also introduced Seven Basic Quality Tools to assist Japanese organisations for structured problem solving and process improvements



Quality of persons and groups involved in Spirituality

Introduction

Spirituality and spiritual work has a high regard and high respect as well as devotion, submission by people involved with it, and sometimes it creates fear or guiltiness leading to self and social control, that evolved with the biological and social evolution of human beings. People are usually not allowed questioning the spirituality and culture related matters because societies have developed self-managing social systems based on it for generations with the full support of the rulers and devoted spiritual leaders who were committed as well as who used it to maintain their power over others.

In ancient societies, rulers have highly respected such spiritual leaders, and always worked collaboratively for the benefit of the people in their territories, while both parties benefit from each other to have their ruling power, peace, prosperity and survival. There were situations, either party or both parties became corrupt due to selfishness, incapability and/or power struggles, and the territories or countries under their control became destabilized and the majority of people started to suffer without peace and harmony in the society. Still it is the situation all over the world.

Even in the modern world most underdeveloped countries are facing such unfortunate situations. With the deterioration of the quality of influential people involved with spiritual work there is a strong need to discuss on the Quality of spirituality stakeholders. We need to be clear on the usage of the term Quality here. Generally, when we say 'a quality product' or 'a quality person', it means a 'good quality'. Contrarily to it, in this article the term 'Quality' could be either 'Good' or 'Bad' based on the social acceptance. In simplest way, the spirituality is attached to beliefs with imaginary super-powers carried on through generations usually with beneficial returns to the society. With the advancement of human societies, intelligent people gradually give up such blind-beliefs, as they are 'Ethical' and understand that beliefs have no logical basis, and it cannot be proven scientifically as realistic. But intelligent people tolerate others continuing with their blind beliefs, because such practices of majority are essential for social self-regulation.

Before going further discussing on spirituality, we need to correctly understand what spirituality is and how important it is to human beings. Then we can talk about the quality of individuals who are involved with spirituality, while it is not logical to talk on the “quality of spirituality” due to obvious reasons. As this article is not a scientific publication while is intended for general knowledge and common sense, the in text citations and a list references are not included.

Spirituality

There are many definitions and explanations, and let us try an AI system in a modern way to get internationally used general answers from the ChatAI App which is similar to ChatGPT (Generative Pre-trained Transformer) language model. Please note that AI language models can mine information only from connected databases, but ancient knowledge especially in ancestral languages, as well as complicated modern knowledge not found in digital formats are not accessible to AI software. Please note that any document without citations and relevant references for information gathered from other sources is not valid as a scientific or academic reference. Several questions were asked and got the following results.



QUESTION 01 Define or explain spirituality.**ANSWER**

“As an AI language model, I cannot hold any personal beliefs or opinions, but I can provide you with a definition of spirituality. Spirituality is a broad concept that refers to an individual’s search for meaning and purpose in life, and their connection with something greater than themselves. It is often associated with religious or mystical experiences, but can also be seen as a personal journey towards understanding and fulfillment. Spirituality usually involves practices such as meditation, prayer, or contemplation, and often focuses on developing a sense of inner peace, compassion, and empathy towards others”.

(Authors Note: Stating that ‘Excluding personal beliefs or opinions reflects a higher level of intelligence’ by this AI model, and this situation is very important for our discussion. Note the use of terms ‘Beliefs’ and ‘Opinions’ which are relevant to us in this discussion)

Explain the connection between spirituality and beliefs.**QUESTION 02****ANSWER**

“Spirituality and beliefs are closely connected, as beliefs often form the foundation of one’s spirituality. Beliefs are the convictions and ideas that a person holds about the world, themselves, and their place in it. These beliefs can include religious or philosophical ideas, moral or ethical principles, and personal values. Spirituality, on the other hand, refers to a person’s search for meaning and purpose in life, and their connection to something greater than themselves”.

“For many people, their spiritual beliefs are informed by their religious or philosophical beliefs. They may believe in a higher power, follow a certain set of religious teachings, or adhere to a specific set of moral or ethical principles. These beliefs can provide a sense of purpose and meaning, and help individuals navigate life’s challenges and struggles”.

“However, spirituality can also exist independently of religious or philosophical beliefs. Some people may find meaning and purpose through nature, art, or personal experiences. Ultimately, spirituality and beliefs are interconnected, as they both shape a person’s understanding of the world and their place in it”.

(Authors Note: The spirituality is based on “Beliefs associated with 3 main areas; Religious, Philosophical, and Exposure through Nature/ Art/ Personal experiences”. It correctly says, “Ultimately spirituality and beliefs are interconnected”)

QUESTION 03 Any relationship between one’s spirituality and one’s genetics?**ANSWER**

“As an AI language model, I do not have personal beliefs or opinions. However, from a scientific perspective, there is ongoing research on the relationship between genetics and spirituality. Some studies have suggested that certain genes may play a role in shaping an individual’s spiritual beliefs and experiences. For example, a study published in the journal “Psychiatric Genetics” found that a specific gene variant was associated with increased spirituality in individuals with depression. However, these findings are still preliminary, and more research is needed to fully understand the complex interplay between genetics and spirituality.”

(Authors Note: This is an incomplete answer, the AI model is not capable of giving the citation for the journal “Psychiatric Genetics” mainly because AI systems are not allowed to extract and publish copyright information. Without the citation with the year of publication and with the reference, the relevant statement has no scientific validity, although the model says “As an AI language model, I do not have personal beliefs or opinions” in its several answers. However, it is the scientific knowledge that genes are responsible for human/ animal behavior, while genes are expressed partly due to the physical and internal chemical environment for which the carrier is exposed during its growth. It has been proven that individuals’ behavior and intelligence is associated with genes and the environment.)

Does spirituality essential for human and social existence?**QUESTION 04**

“As an AI language model, I do not possess personal beliefs or opinions. However, spirituality is a significant aspect of many people’s lives, and it can provide a sense of purpose, community, and comfort. For some individuals, spirituality is an essential component of their mental and emotional wellbeing, and it can influence their social interactions and relationships. Therefore, spirituality can be considered vital for human and social existence in certain contexts.”

ANSWER

(Authors Note: This is a very valid answer and confirms the essential nature of spirituality for humans, as finally it says “Therefore, spirituality can be considered vital for human and social existence in certain contexts”)

Most of the readers will agree that it would be better to consider AI mined information even without citations and references, subject to further clarification, rather than trusting single or multiple author’s writings without citations and references. But, still one should not ‘Believe’ or “Trust” everything mined from all accessible digital data bases because original information could be outdated, false, or ‘cooked’. From this entire article reader may get an idea, and then need to critically think about it. As the AI model states above, the author (of this or any article) cannot say, ‘As a human author, I do not possess personal beliefs or opinions’. Also, still the AI software are not innovative as humans.

Since we are now clear about the spirituality, we can easily see the quality is not attached to the spirituality, but to its users or practitioners, and believers.



ChatGPT



Quality of the people involved with Spirituality

Human societies are controlled by law and order together with punishments and reward/appreciations. Intelligent people, may be a few in the society always respect the law & order and they can understand what is 'right and wrong' or 'correct and incorrect' or 'fair or unfair', and live accordingly. It means intelligent people are considered as "Ethical". But the majority of people in a society are not so intelligent, and they need to be controlled and managed by law and other means. In ancient societies, culture and traditions which includes rulers' orders together with clergies' guidance by beliefs of religions managed societies. Such a system was heavily dependent on strong beliefs and fear for unknown super-powers carried over from generation to generation. Strong beliefs still play a significant role in culture, traditions and religions. Although beliefs are blind, questioning on them is not done, except in intellectual gatherings only for academic purposes, which is essential to avoid the breakdown of natural social control mechanisms. In underdeveloped societies, even in the modern world, questioning of some strong religious beliefs is considered as blasphemy and punished by death and other harsh treatments by extremist believers. The beliefs based situation is essential until societies develop to manage without such strong beliefs, although it is damaging for development of critical/ logical thinking and human friendly innovations.

However, some individuals involved as leaders in spirituality related areas based on strong beliefs such as of practices of religions, culture, and fear for gods/ ghosts, hypothetical non-human life forms, invisible super-powers, extremism in different areas etc are unknowingly or knowingly mislead believers to achieve their own hidden agendas. These selfish and corrupt people are in the 'low-quality' category, and they can easily mislead and cheat strong believers whose intelligent and critical thinking levels are questionable. Now we have come to an important point; some corrupt people involved in spirituality related work cheat others while some followers in the same work get cheated.



On the other-hand, some genuine people involved in spirituality related work help others while followers get benefits. Then, it is the good or bad 'quality' of service providers and followers or customers, but not the 'quality' of spirituality. Finally, the 'Ethical Behavior' of service providers is the key in the quality of the spirituality related work, but what about the followers or believers getting cheated by some service providers?.

Why some or majority of people get cheated?

Especially in the case of spirituality related areas, the genuine strong believers generally could be misled or cheated easily. When a person is trained to believe anything from his or her childhood (in the case of spirituality - usually on invisibles powers or self-created imaginary mind power types), without questioning or without logical thinking, such a person who is considered to be a blind believer even for normal day to day situation. Societies where majority of people are blind believers are considered as underdeveloped, and shrewd people can cheat the majority easily because strong believers have no training, skills or ability for logical reasoning. Generally, people those who are in power and trying to get the ruling power, use this human weakness of submission to beliefs without logical and critical thinking skills. In the same way many religious service providers use this human nature for their own survival and wellbeing. A major dangerous aspect is converting blind believers to terrorists, even using the spirituality in religions together with the nationalism for personal gains of their leaders. We have heard of situations where some cults, even in so-called developed countries, perform mass scale group suicides by its members while thinking they are do it for a spiritual sacrifice. It is really an extremism while some kill innocent civilians, and this is a damaging side of the spirituality of some humans.

Positive side of following some beliefs

On the other hand, there is a positive side of having strong beliefs some of which are spiritual, although they are blind, in a society for its self-control and even for motivation of believers. Believers get confidence and motivation in day to day work by attached superstitious practices. Generally, superstitious practices related to religious beliefs are considered as 'Spiritual'.

We know that some time back the WHO has defined Health to have 4 components, viz. 1. Physical Health, 2. Mental health, 3. Social health, and 4. Spiritual health. What is this 'Spiritual Health'? As we now know it is the beliefs dependent confidence and hope need for quick recovery from some disease or even mental and physical deterioration conditions. All traditional chanting, overnight ceremonies to get rid of evil spirits, making offerings, religious ceremonies, use of holy water and chanted threads, events showing and preaching miracles of super-powers, supporting religious activities etc come under spiritual health of believers as well as finally for the 'Social Health' of the society. Since believers of such activities benefit the entire society including its non-believers, while the moderate people, and believers of different ideologies together with non-believers need to respect different types of believers if their activities support the social health and individuals' spiritual health. Tolerance of 'Conflicting View-points' is essential to maintain the social harmony.



Progressing with Good-Quality of people, Ethics and Spirituality

We can see the spirituality related practices of human societies have a major role playing throughout the human evolution, even in future generations to come. Generally, beliefs connected with religions which teach a set of practices to follow by humans from generation to generation without questioning, and other beliefs based on invisible imaginary human assumed/ unknowingly created super-powers, and assumed spirits of dead ancestors, and even past strong rulers elevated to divine status are considered under spirituality. Even self-control activities such as meditation, yoga etc practices are also fall under spiritual work. In all situations there are service providers and service receivers involved in spiritual work, while some practices such as meditation could be self-implemented. If both parties, service providers and service-receivers, are ethical people those who respect law and order (which means they are intelligent), the good quality of people and output with respect to spirituality will be maintained. Since all the humans have not been evolved to such higher level, society has to apply strict rules and regulations for the low quality individuals and such groups. Until such low quality humans exist in societies, it is essential to maintain the present social system that depends on beliefs (which is always blind). When the belief is scientifically proven by scientific method as realistic, then it will not be a belief anymore, and it will be a true phenomenon with known reasons. The best example is worshipping sun, moon and fire with fear and spirituality by ancient societies.

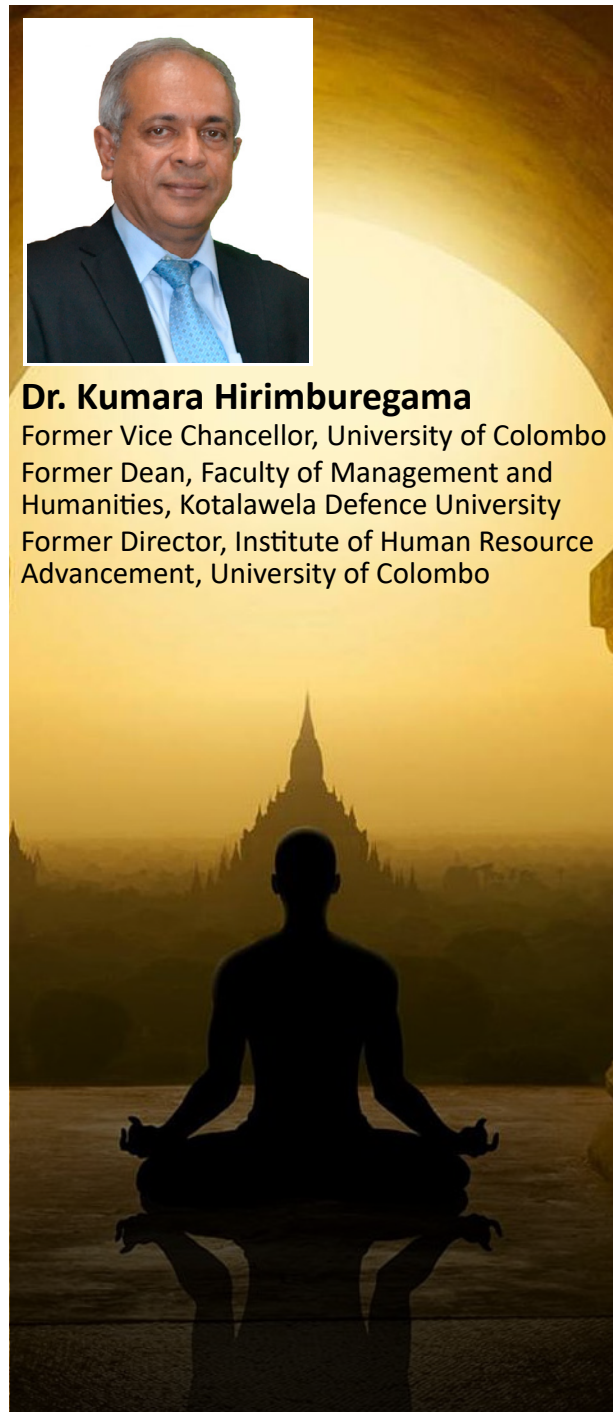
However, beliefs are essential even for intelligent humans because our genes have evolved to live with believes. Some intelligent people have the belief that 'If someone does good things, that person will get good returns and vice-versa'. There is no way to prove this hypothesis scientifically with its probability factors, but it is an excellent way for social harmony. At the same time, we have to seriously think about why majority of people can be easily cheated by a few corrupt individuals, and why they get cheated through believes. Specially, in underdeveloped societies, rulers

and some religious leaders use this situation for their benefits, even in spirituality areas. The only final solution will be the majority should become ethical and they should get developed to the level of 'un-cheatable'. Then majority will develop their critical thinking and innovative skills to perform as high good quality ethical entrepreneurs. This is the true development required by any society to have a developed country with majority of developed people.



Dr. Kumara Hirimburegama

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Quality in Higher Education: Nurturing Minds, Enriching Futures

Prof. K A S Dhammika
DEPUTY VICE-CHANCELLOR (ACADEMIC)
GENERAL SIR JOHN KOTELAWALA DEFENCE UNIVERSITY

Introduction:

Higher education plays a pivotal role in shaping individuals, societies, and nations. This has brought the attention of many stakeholders of higher education on the maintaining and sustaining of quality in the higher education system. Higher education institutes have taken numerous initiatives for improving the quality of the educational processes over the past years. This has become a necessity on one hand and a responsibility on another given that higher education institutes are

directly accountable for their operations. The pursuit of quality in higher education ensures that students receive a comprehensive and enriching educational experience, equipping them with the knowledge, skills, and values necessary to thrive in an ever-evolving world.

It is skeptical whether authorities in higher education have realized the process of improving quality in higher education to the expected level. This article delves into the importance of quality in higher education, explores key elements that contribute to its attainment, and provides a relevant figure to illustrate the concept.

The quality improvement process in higher education should encompass key aspects of teaching and learning processes, known as dimensions of quality in higher education. The flowing figure identifies the seven dimensions of quality in higher education.

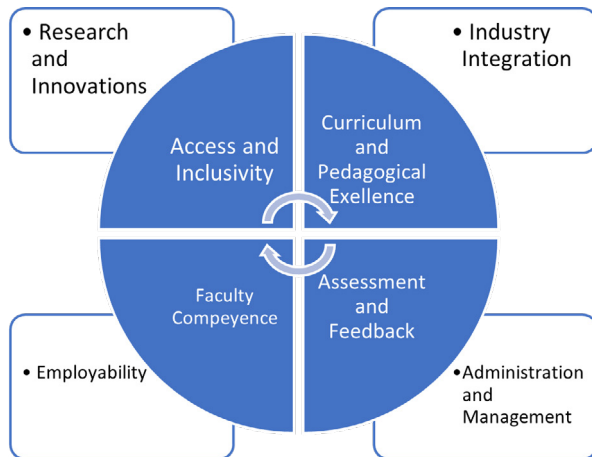


Figure: The Dimensions of Quality in Higher Education

Accessible and Inclusive Learning Environments:

Creating an accessible and inclusive learning environment is crucial for quality improvement in higher educational institutions. Such an environment ensures that students from diverse backgrounds, including those with disabilities and other learning challenges, have equal opportunities to thrive academically. To achieve accessibility, institutions must provide physical accommodations, such as wheelchair ramps, elevators, and accessible restrooms. Additionally, technological solutions like assistive devices and accessible digital resources can enhance learning experiences for students with visual or hearing impairments.

Inclusivity goes beyond physical accessibility and encompasses a culture of respect, understanding, and support. It involves embracing diversity, promoting inclusivity in course materials, and providing appropriate support services. This may include offering tutoring, counselling, or mentoring programs tailored to the needs of different student populations.

An inclusive learning environment fosters collaboration and diverse perspectives, enriching the educational experience for all students. It promotes empathy, and respect among students and faculty. By prioritizing accessibility and inclusivity, higher educational institutions can ensure that every student has an equal opportunity to succeed, leading to overall quality improvement and a more equitable and diverse learning community.

“The pursuit of quality in higher education ensures that students receive **A COMPREHENSIVE and ENRICHING EDUCATIONAL EXPERIENCE**, equipping them with the **knowledge, skills, and values** necessary to thrive in an ever-evolving world.”

Curriculum and Pedagogical Excellence:

Curriculum and pedagogical excellence are essential for quality improvement in higher educational institutes. A well-designed curriculum sets the foundation for a comprehensive and relevant education that meets the needs of students and the demands of the professional world. It should be aligned with industry standards, incorporate current research, and provide a balance between theoretical knowledge and practical application. Regular evaluation and updates of the curriculum ensure its continued relevance and effectiveness.



Pedagogical excellence focuses on the instructional methods employed by faculty members. It encompasses innovative teaching strategies, active learning techniques, and the integration of technology to enhance student engagement and knowledge retention. Effective pedagogy encourages critical thinking, and problem-solving skills, and fosters a collaborative learning environment. Faculty members should be supported through professional development opportunities that promote effective teaching practices and stay abreast of emerging educational trends.

A strong emphasis on curriculum and pedagogical excellence ensures that students receive a high-quality education that prepares them for the challenges of the future. It promotes student success, engagement, and lifelong learning, contributing to the overall quality improvement of the higher education institute.

Competent and Inspiring Faculty:

Competent and inspiring faculty members are integral to the quality improvement of higher educational institutions. Faculty members who possess a deep understanding of their subject matter and pedagogical expertise can effectively guide students on their educational journey. They bring their real-world experiences, research, and industry insights into the classroom, making the learning experience engaging and relevant. Competent faculty members stay updated with the latest advancements in their field, ensuring that they provide students with accurate and current information. They encourage critical thinking, problem solving, and foster a culture of intellectual curiosity among students. Moreover, they actively engage in research and scholarly activities, contributing to the body of knowledge in their respective disciplines.

An inspiring faculty member goes beyond imparting knowledge and becomes a mentor and role model for students. They motivate and empower students to reach their full potential, instilling a passion for learning and lifelong growth. Their enthusiasm,

dedication, and commitment to their students' success create a positive and supportive learning environment. By nurturing competent and inspiring faculty members, higher education institutions can provide students with a transformative educational experience, leading to quality improvement and the development of well-rounded individuals ready to make a positive impact in their chosen fields.

Robust Assessment and Feedback Mechanisms:

A robust assessment and feedback mechanism is crucial for quality improvement in a higher educational institute. It enables faculty and administrators to evaluate the effectiveness of teaching and learning processes, identify areas for improvement, and enhance the overall educational experience for students. Assessment practices should be diverse, encompassing various methods such as exams, projects, presentations, and practical exercises. This allows for a comprehensive evaluation of student's knowledge, skills, and competencies. Furthermore, assessments should align with the intended learning outcomes, ensuring that students are being evaluated on the desired educational objectives.

Equally important is the provision of timely and constructive feedback to students. Feedback should be specific, highlighting areas of strength and areas for improvement. It should be actionable and provide guidance on how students can enhance their performance. Additionally, feedback mechanisms should encourage students to reflect on their progress and engage in self-directed learning. By implementing a robust assessment and feedback mechanism, higher educational institutes can foster a culture of continuous improvement. It empowers students to take ownership of their learning, helps faculty refine their teaching strategies, and enables institutions to adapt their curriculum to better meet the needs of students and the demands of the ever-evolving professional landscape.

Research and Innovation:

Research and innovation in higher education institutes are crucial for driving quality improvement and staying at the forefront of educational advancements. Through research, these institutes can generate knowledge, identify areas for improvement, and evaluate the effectiveness of current practices. Innovations, on the other hand, involve the development and implementation of novel approaches, technologies, and methodologies that enhance the overall quality of education. Research in higher education institutes focuses on various aspects such as teaching methods, curriculum design, student engagement, assessment techniques, and the impact of technology on learning outcomes. By conducting rigorous research, institutes can gain valuable insights into effective teaching and learning strategies, identify gaps in knowledge, and inform evidence-based decision-making processes. Research findings can help shape policies, enhance instructional practices, and promote the use of evidence-based approaches to teaching. Innovations in higher education institutes often stem from research findings and are driven by the need to adapt to changing educational landscapes. These innovations can take various forms, including the integration of technology into teaching practices, the development of online and blended learning platforms, the establishment of interdisciplinary programs, and the implementation of learner-centered approaches. By embracing innovative approaches, higher education institutes can enhance student engagement, promote critical thinking skills, and foster a culture of creativity and innovation among both students and faculty. Moreover, research and innovation in higher education institutes also involve collaboration with industry partners, policymakers, and other stakeholders. Collaborative initiatives can help align academic programs with industry needs, ensure the relevance of curricula, and promote the acquisition of practical skills. Partnerships can also facilitate the exchange of knowledge, resources, and expertise, leading to innovative solutions that address real-world challenges and enhance the quality of education.

Industry Integration and Employability:

Industry integration and employability play vital roles in ensuring quality improvement in higher educational institutions. By integrating industry practices and perspectives into the curriculum, students gain practical knowledge and skills that are directly applicable to real-world scenarios. This integration bridges the gap between academia and industry, enabling students to be better prepared for the workforce upon graduation.

Industry collaboration also enhances employability prospects for students. Through internships, cooperative education programs, and industry partnerships, students gain valuable work experience and develop professional networks. This exposure to real work environments fosters a better understanding of industry expectations and requirements, equipping students with the necessary skills and competencies sought by employers.

Furthermore, industry input can inform curriculum development, ensuring that educational programs align with industry needs and trends. By incorporating feedback from employers, higher education institutions can continually update their curricula to reflect the latest industry practices and technological advancements. This proactive approach ensures that graduates possess the relevant skills and knowledge that are in demand, increasing their employability and contributing to the overall quality improvement of higher education.



Administration and Management:

The administration and management of higher education institutes play a crucial role in ensuring the quality improvement of these institutions. Effective administration and management strategies are essential for creating an environment that fosters academic excellence, innovation, and overall growth. One key aspect of administration and management is the establishment of clear and transparent policies and procedures. This includes developing and implementing guidelines for admissions, curriculum development, faculty recruitment, and student support services. By having well-defined processes in place, higher education institutes can ensure fairness, accountability, and consistency in their operations.

Additionally, effective administration and management involve the allocation and utilization of resources in a strategic manner. This includes financial resources, human resources, and infrastructure. Administrators need to carefully plan and allocate these resources to support teaching and research activities, upgrade facilities, and invest in professional development opportunities for faculty and staff.

Conclusion:

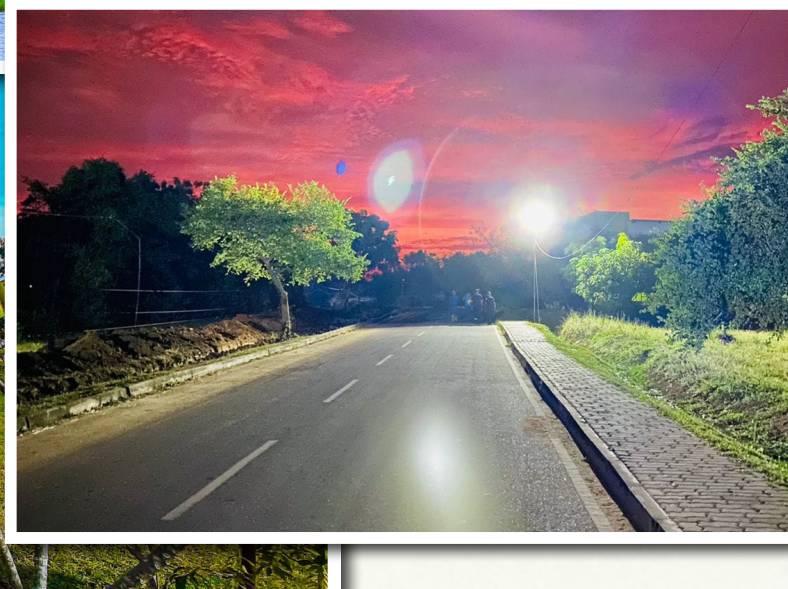
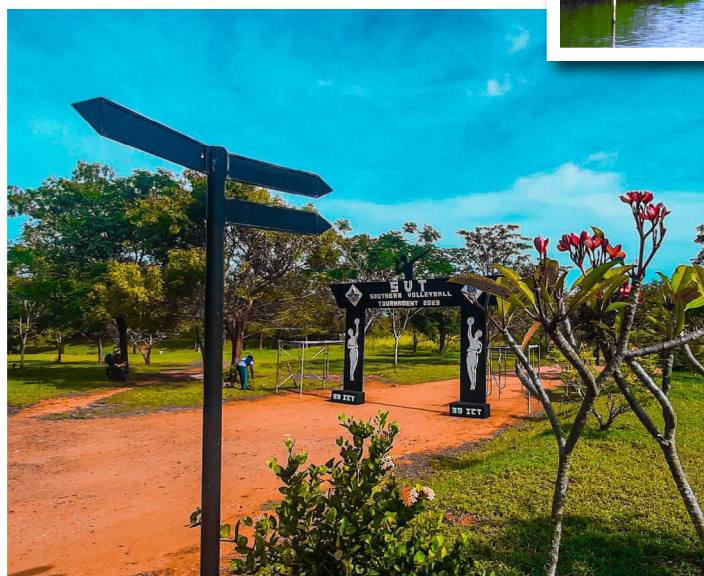
Quality in higher education is a multifaceted concept that requires the collective effort of institutions, faculty, students, and stakeholders. By embracing inclusivity, designing relevant curricula, nurturing competent faculty, implementing robust assessment practices, fostering research and innovation, integrating industry collaboration, promoting employability, and with a proper administrative and management system in place, higher education institutions can create an environment that nurtures minds, enriches futures, and empowers individuals to thrive in a dynamic and interconnected world. Investing in quality education is an investment in the growth, progress, and prosperity of societies and nations at large.

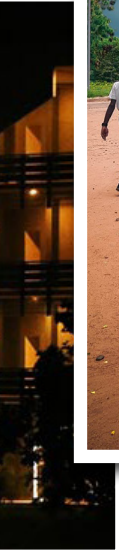
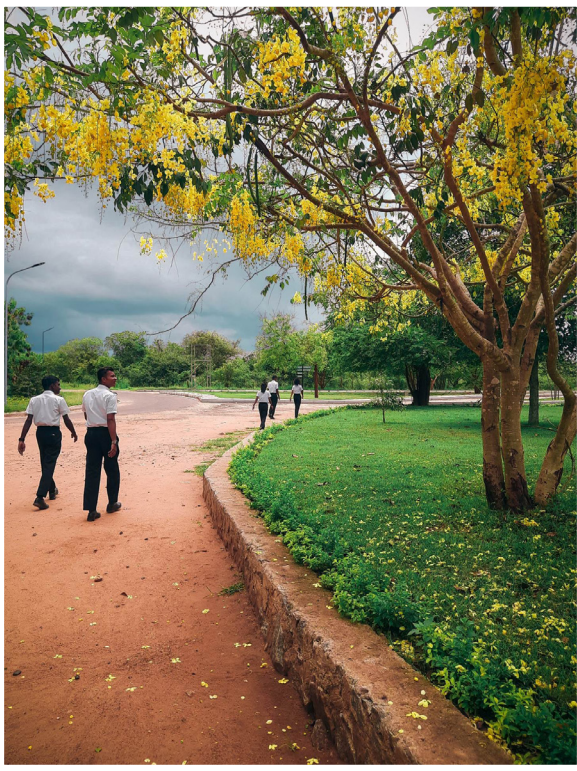


Photo Collection



of KDU Southern Campus







Increase our value by living a balanced and quality life

Do we intend to live a quality life? What do we accept by “living a quality life”? The Quality of life has many perceptions depending on the social background of a person. Whatever the circumstances are, anyone in any status would like to be “happy” in the end. Therefore, it is very correct to say that we all focus our lives towards happiness. We never plan to become an unhappy/sad person. It is important to balance our life in many areas irrespective of our status or level. It only requires an understanding of what we want and the needs of life.

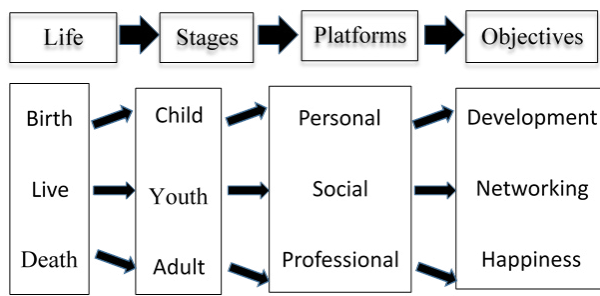


Figure: Life: stages, platforms and Objectives
 Source: the book "Life - no, no, it's mine" by the author of this article

"Finding a balance between these different areas can be difficult, but it's important to try to find a balance that works for us and NOT for anyone else."

First, we have to understand what is life...

My definition for Life is; "The time period available for the human being to live on the earth". Irrespective of gender, we spend this period in three stages namely;

1. Childhood – the time the human spend as a dependent of someone else. When we are in childhood, we cannot take decisions alone, try to learn things, like to get new experiences and watch what is happening in the environment while adjusting our thought in relation to the environment.
2. Youth hood – the period we work on establishing a base for a life we like to live. We like to take our own decisions, face challenges and work tirelessly to have a life we want to spend. We use the power of the youth hood is in the process.
3. Adulthood – the period we spend our life as a very responsible person. We try to understand our responsibilities as a human and work out strategies to meet our objectives while honouring the norms and rules of the society.

Accordingly, I see that there are no age limits for these stages. My thinking is that we all spend these stages any time in our life and in any platforms. We can define the stage according to the way we spend our lie at that particular time.

As examples;

- Sometimes we cannot take decisions on own and we try to depend on someone else. At that time, we spend out life is as a "child". It can happen irrespective of our age. In addition, some children lose their parent/s when they are small and have to take responsibilities of life at that age. During this period, these children have to act as adults though they are children.
- As an adult, a youth or a child, a human being faces challenges in life at any stage. Then we all have to work as youths with lots of strength. Sometimes, even if someone is at an old age, humans try to depend on someone due to various reasons. They, though in the old age, act like children.
- Some hold very high and responsible posts at the workplaces but do not take the responsibilities of home as a father / mother. Therefore, for the home people that person is not an adult. On the other hand, some take the responsibilities of the household and act irresponsibly at the work place; they are children to the workplace and adult to their family.

We use the term Life Balance to describe the idea of managing various aspects of our life to allow us to lead a happy and fulfilling existence. This can include things like our work life, our personal life, our relationships, our health and our hobbies. Finding a balance between these different areas can be difficult, but it is important to try to find a balance that works for “me” and NOT for anyone else.

The productivity of any person depends of the way they spend their life. If we can carry out the work we contribute to our families, social networks and workplaces (professional platform) like we work for our own organization, we can offer a better output at any occasion. By creating an “entrepreneurial” culture within ourselves, we can be a valuable person by understanding and adopting ourselves in any situation. Be ourselves, update as a valuable person and we can become the most “wanted” within our span. Everyone’s life is different and what works for one person may not work for another. However, some tips discussed here may help us to take time for ourselves, setting priorities, and understand how to enjoy life. Additionally, it is important to remember that life is not always perfect, there will be vicissitudes, and we have to prepare for any situation. Let us ask this question form ourselves “Am I a valuable person in my personal, social and professional platforms?” As William Shakespeare said, let us be true to ourselves. What do we have to do to be a valuable person in above areas? First, we have to understand the meaning of “value”. There are several definitions in books and in practice. In addition, I define the value as the difference between the want and need.

VALUE = WANT – NEED

When we are thirsty, we need something to drink. The very basic need to fulfil thirsty is water. However, how many of us use water? Don’t we drink tea, coffee, soft drink, a branded drink, beer or even alcohol? Our want is different depending on the situation we are. We are willing to spend extra money to satisfy our want in fulfilling a need. Depending on our status or capabilities, we can satisfy our wants by spending extra amount. The difference we pay to satisfy our want in fulfilling the need is the value we see in the product we use. The need is water but the want is a branded soft drink! I hope that this example will clear the rationale of the definition of value I suggested. Another example is - our need is shelter; we want an apartment, separate house, two-storied house, a house with waterfront or many more. We are willing to spend more to satisfy our want. If there is no roof, any house we have does not full our need. It is of no value to us: any product that does not fulfil a need will never be a wanted product.

How do we find out whether we are “wanted” in our platforms? In each platform, we have our customers – people who seek our service. First, we have to understand the need of our customer. Can we fulfill the need of the customer? If yes, then we have to understand the wants of the customer at that time/situation. If we do not understand the want properly, we will not be able to satisfy the customer’s want. We may be able to fulfill the need. However, the customer will seek a person who can satisfy his/her want. If we cannot do it, we may not be of value to that customer. Therefore, we have to understand the wants of the people we are working with in each platform and we should know their exact want.

One important fact to understand is that, we cannot become “valuable” to everyone in the society. We have to know our “customers” in each platform. Can we reach our objectives by associating with these “customers”? If yes, then try to satisfy “their wants” only and not the wants of others. Many of us fail by trying to be valuable in the society anytime and everywhere. It is not required. Do not waste your time in societies where your value is not sort. Under these circumstances, it is essential to balance our lives in these areas and stages.

Balancing our life involves allocating time and energy to various aspects of our life in a way that promotes overall well-being and fulfillment. Using your time in the most productive way is a key factor here. Remember! You can’t “save” time. You have to “use” time. Do not waste. At present, do we have a balance between different areas of your life? How do we understand that there is no balance? I can suggest a tested method I used in balancing my life. I started this in the period 1990-95 when I felt that I miss “something” in my life. I wanted to find it.

I had a vision of life ***“To be a balanced individual by continuously learning and sharing knowledge and experience while honouring human responsibilities”***. To reach the vision I need to ensure that I spend the required time in each area of my life – personal, social and professional – and make sure that I achieve my objectives in each area and be a “wanted” person in each area. I wrote down my objectives for each area of my life and allocated marks varying form 1-10 depending on satisfying my objectives in each area. The table below shows the point table.

| | | | | | | | | | | | |
|-------------------|--------------|---|---|---|---|---------------------|---|---|---|---|-----------|
| points | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Status(objective) | Not achieved | → | | | | Partially fulfilled | → | | | | Fulfilled |

Figure: Allocation of points



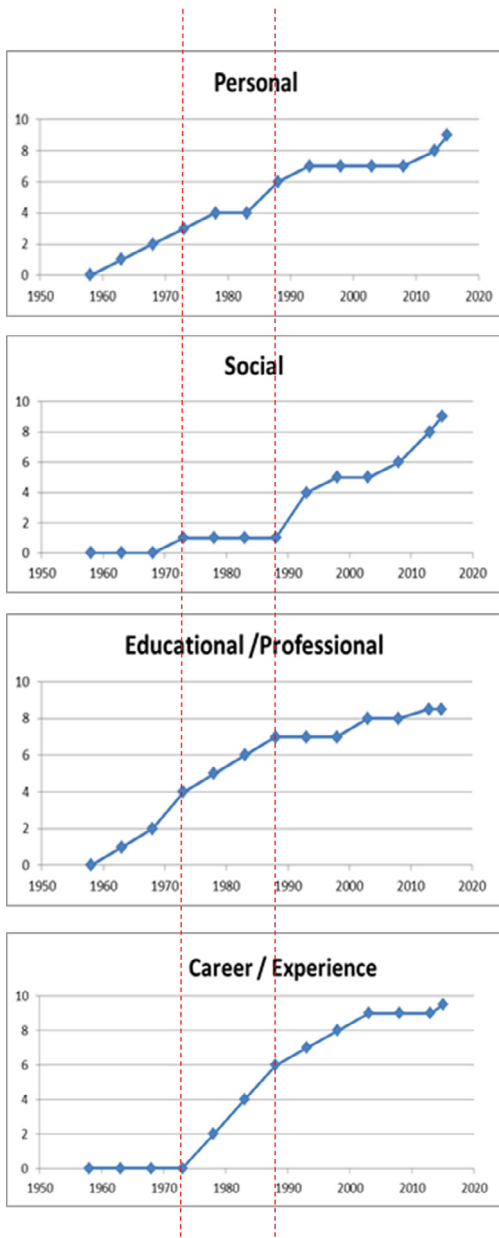


Figure: Achieving objectives in each area
Source: Author

“If we are true to ourselves, we cannot be False to anyone else”

William Shakespeare

Considering the day I was born as zero, I plotted graphs using the “year” as the X-axis and the “point” I gave for achieving my objectives (as at the particular year) as the Y-axis. Figure 3 shows the graphs plotted. When I first did this in 1992, I noticed that the objectives in my Personal Professional and career are in the verge of increasing towards satisfaction but my “social” aspect is at standstill.

I understood that this is the “gap” I felt in my life during that period. Thereafter I changed my strategies to be active in the Social platform as well and maintain the momentum. Make sure that you review at least every five years. It’s a continuous process till the end of life.

I am sure that we all can at least try to do a similar analysis in relation to our “own life” and understand where we lag behind or improve. We, definitely, all have different visions in our lives. We may not select the areas as Social, Personal and Professional but select the areas that we want to be “valued”. Then only you will be able to achieve your objectives in relation to your vision. It is very important to have a vision to the life – whatever it is. IT could be our “day dream”. Make sure that whatever we do, to the best of our abilities.

In summarizing the concept, I wish to mention the following;

1. Create a vision to the life
2. Select the areas you wanted to be valued at
3. Understand their needs and wants and try to satisfy the wants whole making sure that their needs are fulfilled
4. Plot graphs to understand your achievements in each area you select and work towards improving with time targets.
5. Review and change/ modify/ add when and where necessary.

The above are basic requirements to make life enjoyable. We are not living in a perfect environment. We have to understand the dynamics of the society we live and adopt, but not harming our own vision. No one is not too late to start a quality and balanced life.



Mr. Linton Fernando
President, IQPM

Quality Gurus and Their Contribution



Dr. Armand V. Feigenbaum (1920 – 2014)

Dr. Armand V. Feigenbaum is an American quality control guru. He did his master's degree and Ph. D from the Massachusetts Institute of Technology (MIT). Feigenbaum now serves as the president and CEO of General Systems Co. He developed the concept of Total Quality Control, which was later referred to as Total Quality Management (TQM). His two famous books are Quality Control: Principles, Practice, and Administration and Total Quality Control.

Dr. Genichi Taguchi (1924 – 2012)

Genichi Taguchi was born in Takamachi, Japan in January 1924 and studied technical engineering at Kiryu Technical College. He earned his doctorate in science from Kyushu University in 1962. In 1960, he received Japan's Deming Prize. He was also awarded the Indigo Ribbon in 1986. He became an honorary member of the Japanese Society of Quality Control in 1995. Many consider him as instrumental in the emergence of Japan as a manufacturing power. Taguchi believed in the statistical techniques to identify and eliminate quality problems. He invented a methodology referred to as 'Taguchi Methods' with the objective to improve quality and decrease costs. His concept of 'Robust Design' is intended to optimize quality at the design phase.



Philip Bayard Crosby (1926 – 2001)

Philip Bayard Crosby was born in Wheeling, West Virginia, USA. He was instrumental in popularizing the concept of 'Zero Defects'. He established Philip Crosby Associates in 1979 to teach the significance of "zero defects" quality and the need for building processes which do things right the first time.

John S. Oakland (1946)

John S. Oakland is a British quality expert. He served as head of the European Centre for Total Quality Management at the University of Bradford Management Centre in Britain. His contribution to the development of quality in Britain is noteworthy. According to him, 'quality is meeting the customer's requirements' and 'quality starts at the top'. He considers the pursuit of quality as the basis for the success of any company. Oakland opines that quality has emerged as the most significant competitive weapon and total quality management (TQM) is a means of managing for the future.





Economics of Green Certification

The economics associated with green certification are multifaceted, encompassing various aspects of costs, benefits, and market dynamics. In this article, economic implications of green certification across different dimensions will be delved.

Cost of Certification: |||

Obtaining green certification involves certain costs. These may include application fees, assessment fees, and expenses associated with implementing sustainable practices. The exact costs depend on the type and scope of certification. While there are upfront expenses, these investments can yield long-term cost savings through improved resource efficiency, reduced energy consumption, and waste reduction. By adopting sustainable practices, businesses can optimize their operations, leading to lower resource usage, decreased waste disposal costs, and greater overall efficiency.

Market Differentiation: |||

Green certification provides businesses with a competitive advantage by differentiating their products or services in the market. Consumers, particularly those who prioritize sustainability, are often willing to pay a premium for certified environmentally friendly products. This market differentiation can lead to increased sales, market share, and enhanced brand value. Green certification allows companies to tap into the growing consumer demand for eco-conscious products and services, capturing a larger share of the market and enjoying a loyal customer base.

Access to Green Markets: |||

Green certification can open doors to specific green markets that have sustainability criteria or requirements. This includes government procurement programs, contracts, or partnerships that prioritize environmentally responsible suppliers. By obtaining certification, businesses can access these markets and benefit from the associated economic opportunities. This can include securing contracts with government entities or partnering with organizations committed to sustainability, thereby expanding the business's reach and revenue potential.

Regulatory Compliance:

In some cases, green certification is necessary to comply with environmental regulations or to access certain incentives or subsidies. Achieving certification ensures that businesses can continue operating without penalties or legal issues. Additionally, certification can provide access to incentives such as tax credits, grants, or favorable financing options. By meeting regulatory requirements through certification, businesses can avoid potential fines, legal disputes, or reputational damage while also gaining financial benefits that support their sustainable initiatives.

Cost Savings through Efficiency:

Green certification often involves adopting sustainable practices, technologies, and processes that promote resource efficiency and waste reduction. This can result in cost savings in areas such as energy consumption, water usage, waste management, and raw material procurement. By optimizing resource use, businesses can lower operating costs and increase profitability over time. Reduced energy expenses, waste disposal costs, and material waste translate into improved financial performance, creating a more resilient and competitive business.

Reputation and Brand Value:

Green certification enhances a company's reputation and brand value. It demonstrates a commitment to sustainability and responsible business practices, attracting environmentally conscious consumers and stakeholders. A positive brand image can lead to increased customer loyalty, improved investor confidence, and a competitive advantage in the marketplace. By aligning their operations with sustainability goals and obtaining green certification, businesses can differentiate themselves as responsible and trustworthy, gaining the trust and loyalty of environmentally aware consumers.

Innovation and Business Opportunities:

Pursuing green certification prompts businesses to explore new technologies, materials, and processes that align with sustainability goals. This stimulates innovation within the organization and opens up new business opportunities. For example, developing and providing sustainable products or services can tap into growing markets and create a first-mover advantage. By investing in research and development focused on sustainability, businesses can not only meet certification requirements but also drive industry advancements and position themselves as leaders in the green economy.

Risk Management and Resilience:

Green certification helps businesses manage environmental risks and build resilience. By adopting sustainable practices, companies reduce exposure to regulatory, legal, and reputational risks associated with environmental non-compliance. This protects them from potential fines, legal disputes, or damage to their brand reputation. By proactively addressing environmental risks and implementing sustainable strategies, businesses can safeguard their operations and ensure long-term viability.

Employee Engagement and Productivity:

Green certification improves employee satisfaction, engagement, and productivity. Employees find purpose and motivation in working for environmentally responsible organizations. Green-certified companies may also provide healthier and more sustainable work environments, leading to improved employee well-being and reduced absenteeism. By promoting a culture of sustainability and involving employees in green initiatives, businesses can foster a positive work environment, attract top talent, and boost productivity and creativity among their workforces.

Long-Term Economic and Environmental Benefits:

Green certification contributes to the long-term economic and environmental well-being of businesses and society. By reducing environmental impacts, conserving resources, and promoting sustainable practices, businesses foster a more resilient and sustainable economy. This yields long-term benefits such as improved public health, reduced ecological damage, and enhanced natural resource availability. By prioritizing sustainability and obtaining green certification, businesses play a crucial role in creating a sustainable future and driving positive change at both the local and global levels.

It is important to note that the economic impacts of green certification may vary depending on the industry, market dynamics, and an organization's commitment to sustainability. Nonetheless, green certification offers the potential for economic benefits in the short and long term by aligning business practices with environmental stewardship. By embracing sustainability and incorporating it into their strategies, businesses can position themselves for long-term success while contributing to a more sustainable world.



Ms. Nishadi Rajapakse
Secretary, IQPM



Total Quality Management

Total Quality Management (TQM) is a management approach of an organization centred on quality, based on the participation of all its members and aiming at long term success through customer satisfaction and benefits to all members of the organization and society.



KDUiRC
INTERNATIONAL RESEARCH CONFERENCE







Quality of Starlight

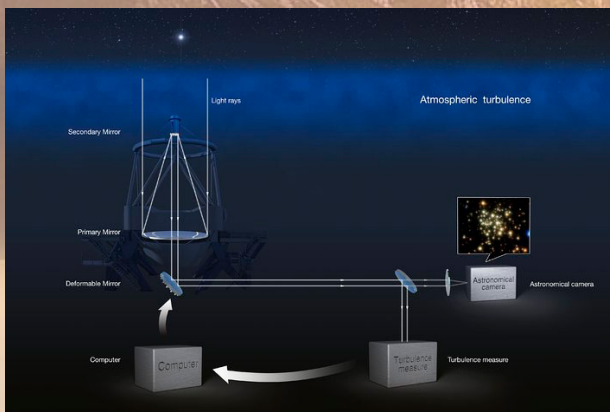
Starlight, in its direct (e.g. sun, stars) and indirect (e.g. moons, planets) forms, is the key to astronomy. Humans have traced this light across the skies for thousands of years and used it to understand the workings of the universe, from theories of gravity to relativity. Through the ages, we've created instruments of increasing sensitivity to capture fainter light and to have a deeper and more detailed look at the universe. However, as starlight that traverses the expanses of space enters the Earth's atmosphere, it gets dulled and distorted, and scientists have developed a number of methods to 'clean up' this light, to extract as much information as possible.

This process starts before many astronomical instruments and telescopes are even built. The location of the telescope can determine the quality of the 'seeing' of the site - a term that determines the degradation of starlight from atmospheric conditions such as air currents, temperature changes, humidity, and dust particles. 'Bad seeing' is what creates the classic 'twinkling effect' on stars, but results in blurred images. 'Good seeing' creates a more stable optical path (path taken by light from its source to the instrument sensors) for the starlight to travel through, and these sharper images give better resolution to astronomers. You'll find the ideal conditions for optical astronomy as far as possible from human habitation to avoid light pollution, where air is clear, dry and cold and contains less atmosphere for the light to pass through. This results in some of the world's largest optical telescopes being placed in high altitude deserts like the Atacama desert which hosts the Very Large Telescope Facility and Mauna Kea Observatory in Hawaii. However, the best seeing conditions on Earth are not a replacement for vacuum of space, and the impressive resolutions of these large telescopes are still marred by the noise added at this level.



(photos: The European Southern Observatories' (ESO) Very Large Telescope (VLT) in Cerro Paranal, over 3000m above sea level in the Chilean Andes surrounded by the Atacama desert. The VLT hosts 4 telescopes with mirrors 8.2 metres in diameter, and over 15 instruments working in rotation to observe the skies in the optical and near infra-red ranges of the electromagnetic spectrum. The yellow beam is the laser that creates 'guide stars' for its adaptive optics system. credits - ESO Images archive)

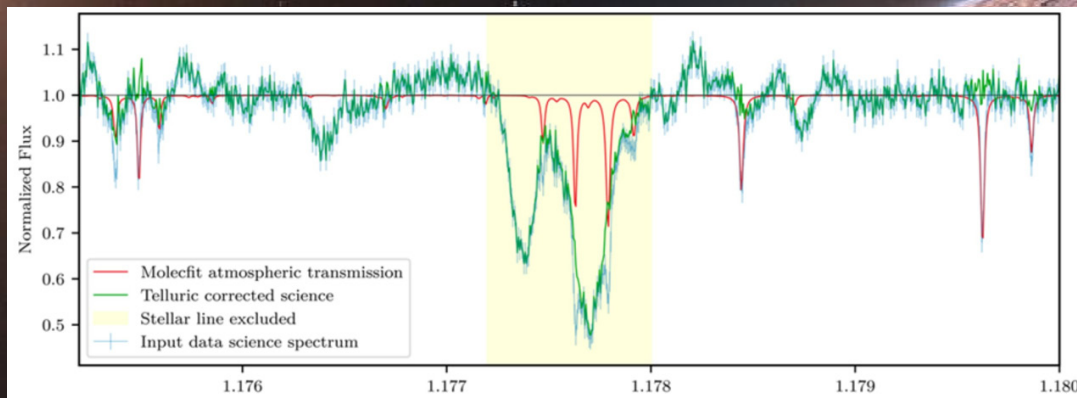
Optical telescope facilities, those that observe the visible range of the electromagnetic spectrum, utilise both hardware and software to mitigate these effects. One cutting edge hardware technology is Adaptive Optics (AO). AO uses deformable mirrors in the optical path to correct for the distortions in the 'wavefront'. A 'guide star'- either a bright star in the observing region of the sky, or a 'star' created by a laser that excites atoms in the upper atmosphere- is used to monitor atmospheric conditions. The corrections that are calculated from the distortions present in the guide star images, are sent to the deformable mirror that changes its surface to account for the atmosphere. This creates a more stable image, which allows astronomers to take longer exposures, which contain more details and fainter objects.



(photos: The path of starlight through the turbulent atmosphere enter the VLT, reflecting off the primary and secondary mirrors and into the ESO Adaptive Optics System. The AO system is - <https://www.eso.org/public/images/ao-final/>, Images of Neptune - with and without the VLT AO system turned on- <https://www.eso.org/public/images/eso1824b/> credits: ESO Images archive)

Just as image quality is lowered by Earth's atmosphere, it can also degrade spectra. As light passes through substances, the atoms which interact with it will absorb specific wavelengths of the electromagnetic spectrum. By studying the gaps presented in starlight, astronomers can study the compositions of interstellar dust, clouds, and sometimes, the compositions of exoplanets. However, molecules in our atmosphere also impart their print on light that travel through it, contaminating the spectrum. This is called 'Telluric absorption' and correcting for this phenomenon is mainly done in the software 'data reduction' stage.

Raw data produced by most of today's advanced instruments need to go through several processing steps to remove atmospheric and instrument signatures before they are ready for scientific analysis. The 'Telluric Correction' to remove atmospheric absorption lines in a spectrum usually occurs near the end of this process. One of the most commonly used methods of Telluric Correction is to observe a well-known star- a source of light that has an already documented spectrum- and use it to create a model of the telluric lines that can be subtracted from the target data. If a Telluric star is not available for observation, then software such as Molecfit (an instrument independent tool provided by ESO) can be used to correct the data. Molecfit uses radiative transfer functions, known atmospheric conditions at the point and time, to create a synthetic spectra that can be subtracted.



(photo: A spectrum of a telluric corrected star using Molecfit, where the corrected spectrum is shown in green. Excluded stellar lines are shown in light yellow, and the modelled atmospheric transmissions are shown in red. Source: S. Ulmer-Möll et al 2018 <https://doi.org/10.1051/0004-6361/201833282>)

Continual improvement of these processes are always the results of pushing the boundaries in the combined fields of optics, instrumentation, and software engineering, and the ultimate goal of all this technology is to provide astronomers around the world with the best possible starlight for analysis.



Dr. Nuwanthi Fernando

Research Software Engineer
Australian Astronomical Optics
Macquarie University, Sydney



LEAN MANAGEMENT

A production principle stating that any components of a business enterprise that fails to directly benefit a final product is superfluous.

SIX SIGMA

A set-of quality control tools that businesses can use to eliminate defects and improve processes to help boost their profits.

Department of Industrial Quality Management

The Department of Industrial Quality Management was established in the year 2023 to produce graduates who will acquire an advanced level of education including both specialist knowledge and general intellectual and life skills that prepare them for gainful employment in the field of Quality Management and other related disciplines nationally and internationally. Accordingly, B.Sc. (Hons) in Industrial and Service Quality Management degree has been designed for the Level 6 of the Sri Lanka Qualification Framework (SLQF-2015) having 120 credits. This covers knowledge, skills, attitudes, and mindsets which are required to be a perfect professional in the field of quality management. The Department of Industrial Quality Management functions under the Faculty of Built Environment and Spatial Sciences, General Sir John Kotelawala Defence University (Southern Campus), Sri Lanka. More information can be taken from <https://fbess.kdu.ac.lk/departement-of-industrial-quality-management/>

B.Sc. (Hons) in Industrial and Service Quality Management

Students who have completed the B.Sc. (Hons) in Industrial and Service Quality Management degree will have acquired an advanced level of education including both specialist knowledge and general intellectual and life skills that prepare them for gainful employment in the field of quality management and cover the knowledge, skills, attitudes and mindsets which are required to be a perfect professional in the field of sustainable quality management.

The graduate will be able to,

- acquire the subject knowledge, skills and attitudes in the field of industrial and service quality management.
- apply the knowledge and skills to solve real-world problems in the field of industrial and service quality management.
- adapt to different environments with a mindset, desirable attitudes and a vision for life and maintain professionalism.
- maintain lifelong professional development by updating themselves with emerging trends in the field of industrial and service quality management.

Objectives of the degree programme

- To produce a competent graduate to face the dynamic challenges in achieving excellence with the required competencies in the field of Quality Management.
- To produce an employable graduate with a sound competence in the field of Quality Management nationally and internationally.
- To develop the entrepreneurship skills which influence to promote an independent professional in the field of Quality Management.
- To create the graduate as a consultant who will be able to consult the public and private organization to improve the productivity and quality of them.
- To give a contribution to the national economy as being a partner of sustainable development process in Sri Lanka.

Programme Structure

BSc. Hons in Industrial and Service Quality Management

| Semester 01 | | | Core Elective | GPA | Credits | Total Credits |
|-------------|---------|---|---------------|------|---------|---------------------------------|
| 1 | IQM1112 | Management & Business Environment | C | GPA | 2 | 15 (GPA) + 1 (NGPA) |
| 2 | IQM1122 | Introduction to Quality Management | C | GPA | 2 | |
| 3 | IQM1133 | Business Mathematics | C | GPA | 3 | |
| 4 | IQM1143 | Information Technology | C | GPA | 3 | |
| 5 | IQM1153 | Business and Professional Communication | C | GPA | 3 | |
| 6 | IQM1162 | Business Economics | C | GPA | 2 | |
| 7 | IQM1171 | Graphic Design | C | NGPA | 1 | |

| Semester 02 | | | Core Elective | GPA | Credits | Total Credits |
|-------------|---------|-----------------------------------|---------------|------|---------|---------------------------------|
| 1 | IQM1212 | Operations Management | C | GPA | 2 | 15 (GPA) + 1 (NGPA) |
| 2 | IQM1223 | Accounting | C | GPA | 3 | |
| 3 | IQM1233 | Business Statistics | C | GPA | 3 | |
| 4 | IQM1242 | Human Resource Management | C | GPA | 2 | |
| 5 | IQM1253 | Academic and Professional Writing | C | GPA | 3 | |
| 6 | IQM1262 | Supply Chain Management | C | GPA | 2 | |
| 7 | IQM1271 | Leadership in Quality | C | NGPA | 1 | |

| Semester 03 | | | Core Elective | GPA | Credits | Total Credits |
|-------------|---------|--------------------------------------|---------------|------|---------|---------------------------------|
| 1 | IQM2112 | Quality Tools and Problem Solving | C | GPA | 2 | 15 (GPA) + 1 (NGPA) |
| 2 | IQM2124 | Lean and Six Sigma I | C | GPA | 4 | |
| 3 | IQM2132 | Total Quality Management (TQM) | C | GPA | 2 | |
| 4 | IQM2143 | ERP for Quality Management | C | GPA | 3 | |
| 5 | IQM2152 | Marketing Management | C | GPA | 2 | |
| 6 | IQM2162 | Financial Management | C | GPA | 2 | |
| 7 | IQM2171 | Personality Development and Grooming | C | NGPA | 1 | |

| Semester 04 | | | Core Elective | GPA | Credits | Total Credits |
|-------------|---------|----------------------------------|---------------|------|---------|---------------------------------|
| 1 | IQM2212 | Quality Management System (QMS) | C | GPA | 2 | 15 (GPA) + 1 (NGPA) |
| 2 | IQM2223 | Lean and Six Sigma II | C | GPA | 3 | |
| 3 | IQM2232 | Management Information Systems | C | GPA | 2 | |
| 4 | IQM2243 | Operation Research | C | GPA | 3 | |
| 5 | IQM2253 | Business and Industrial Law | C | GPA | 3 | |
| 6 | IQM2262 | Business Excellence Models | C | GPA | 2 | |
| 7 | IQM2271 | Environment, Culture and Society | C | NGPA | 1 | |

| Semester 05 | | | Core Elective | GPA | Credits | Total Credits |
|-------------|---------|--|---------------|-----|---------|---------------|
| 1 | IQM3113 | Strategic Management | C | GPA | 3 | 15 (GPA) |
| 2 | IQM3124 | Lean and Six Sigma III | C | GPA | 4 | |
| 3 | IQM3132 | Organizational Behaviour | C | GPA | 2 | |
| 4 | IQM3143 | Service Quality Management | C | GPA | 3 | |
| 5 | IQM3153 | Digital Business and Quality Marketing | E | GPA | 3 | |
| 6 | IQM3163 | Project Management | E | GPA | 3 | |

| Semester 06 | | | Core Elective | GPA | Credits | Total Credits |
|-------------|---------|---------------------------|---------------|-----|---------|---------------|
| 1 | IQM3219 | Industrial Training | C | GPA | 9 | 15 (GPA) |
| 2 | IQM3226 | Industrial Project Report | C | GPA | 6 | |

| Semester 07 | | | Core Elective | GPA | Credits | Total Credits |
|-------------|---------|--|---------------|-----|---------|---------------|
| 1 | IQM4113 | Research Methodology | C | GPA | 3 | 15 (GPA) |
| 2 | IQM4123 | Business Analytics | C | GPA | 3 | |
| 3 | IQM4133 | Management System Audit | C | GPA | 3 | |
| 4 | IQM4143 | Sustainable Quality Management | C | GPA | 3 | |
| 5 | IQM4153 | Artificial Intelligence | E | GPA | 3 | |
| 6 | IQM4163 | Creative Thinking and Entrepreneurship | E | GPA | 3 | |

| Semester 08 | | | Core / Elective | GPA | Credits | Total Credits |
|-------------|---------|--|-----------------|-----|---------|---------------|
| 1 | IQM4219 | Dissertation | C | GPA | 9 | 15 (GPA) |
| 2 | IQM4224 | Integrated Case Study | C | GPA | 4 | |
| 3 | IQM4232 | Workshop and Seminar in Quality Management | C | GPA | 2 | |



Intake 40 - Department of Industrial Quality Management
[1st Batch of the Department]





LIFE AT KDU SOUTHERN CAMPUS



PUZZLE TIME



P D J M R W Z C N C U S T O M E R
 R E C L O U D G I L I T T T P Q C
 O S O E C L E A S I N G E M A I O
 C K R Z S W P F D M A C C I Y N M
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|-------------|-------------|----------------|------------|------------|
| Audit | Taxation | Leasing | Colour | Cloud |
| Payment | Supplier | Legal | Compliance | Revenue |
| Customer | Procurement | Reconciliation | Idea | Innovation |
| Printer | Desktop | Automation | Quality | Technology |
| Information | Sport | Weather | Financial | Monsoon |
| Corporation | Evening | | | |



**“Quality
is pride of
workmanship”**

QUALITY

For Sustainable Future

”

Quality is never an accident; it is always the result of high intention, sincere effort, intelligent direction and skillful execution; it represents the wise choice of many alternatives.



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