

QMS Implementation Flowchart for Libyan Industrial Companies

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Abstract – Globalization has forced managers to use manufacturing capabilities in countries and industries with different cultures. Libyan industrial companies face many challenges in today's competitive market, and quality culture approaches is one of these challenges, which may furnish the road for Libyan industrial companies to effectively empower their employees and improve their capabilities in response to global competition. The objective of this paper is to design a practical implementation flowchart which is compatible with previously proposed quality culture framework for Libyan manufacturing companies.

Key Words: QMS, MBNQA, Quality culture, Libyan manufacturing industries, quality implementation flowchart, Libya.

I. INTRODUCTION

The quality culture implementation model developed in this study based on previous study of quality culture framework that consists of the seven elements of MBNQA and the elements of the national and organisational culture as in Figure 1. This framework had been published by Shokshok [1], and a continuation work to design an implementation flowchart consists of a set of quality culture implementation practices is needed.

The framework of quality culture was formulated on the basis of cultural variables and the theoretical model of quality management system implementation constructs and overall business performance. The combination of the elements of cultural variables, quality management process items and overall business performance was the framework of quality management system. Thus, the framework of QMS consists of the national and organisational culture variables, and the seven elements of QMS.

II. QMS IMPLEMENTATION FLOWCHART

The proposed QMS implementation flowchart, as shown in Figure 2, consists of three stages; Stage I (QMS

awareness), stage II (QMS preparation), and stage III (QMS implementation). These stages are considered to be important for QMS implementation processes in Libyan manufacturing companies, and their presence is based on previous researches work [e.g. 2, 3-11].

1. Stage I: Increase organisation's awareness of QMS: Senior management along with individual managers are required to promote and enhance organisation's awareness of quality, and required to determine the strategic needs of quality to the company. Prior to the adoption of any QMS, senior management need to evaluate the following:
 - i. Current operation practices.
 - ii. Assess the organisation's strengths and weaknesses.
 - iii. Determine the opportunities possible for improvements.
 - iv. Explore and be aware of the threats being faced by the company.
2. Stage II: QMS preparation: Stage II of the proposed QMS implementation flowchart, as shown in Figure 2, deals with the necessary management preparation for successful QMS implementation. In this stage, management is required to prepare the organisation for QMS implementation procedures along with diagnosing and changing, if necessary, the national and organisational culture variables.
 - i. Management preparation: Senior management is required to prepare the necessary management preparation for successful QMS implementation:
 - To review the organisation current status of QMS adoption.
 - To determine the belief, concepts and system of quality management in the company.
 - To confirm management commitment and leadership to QMS.
 - To commit time and organisational resources for the introduction and development of QMS practices.

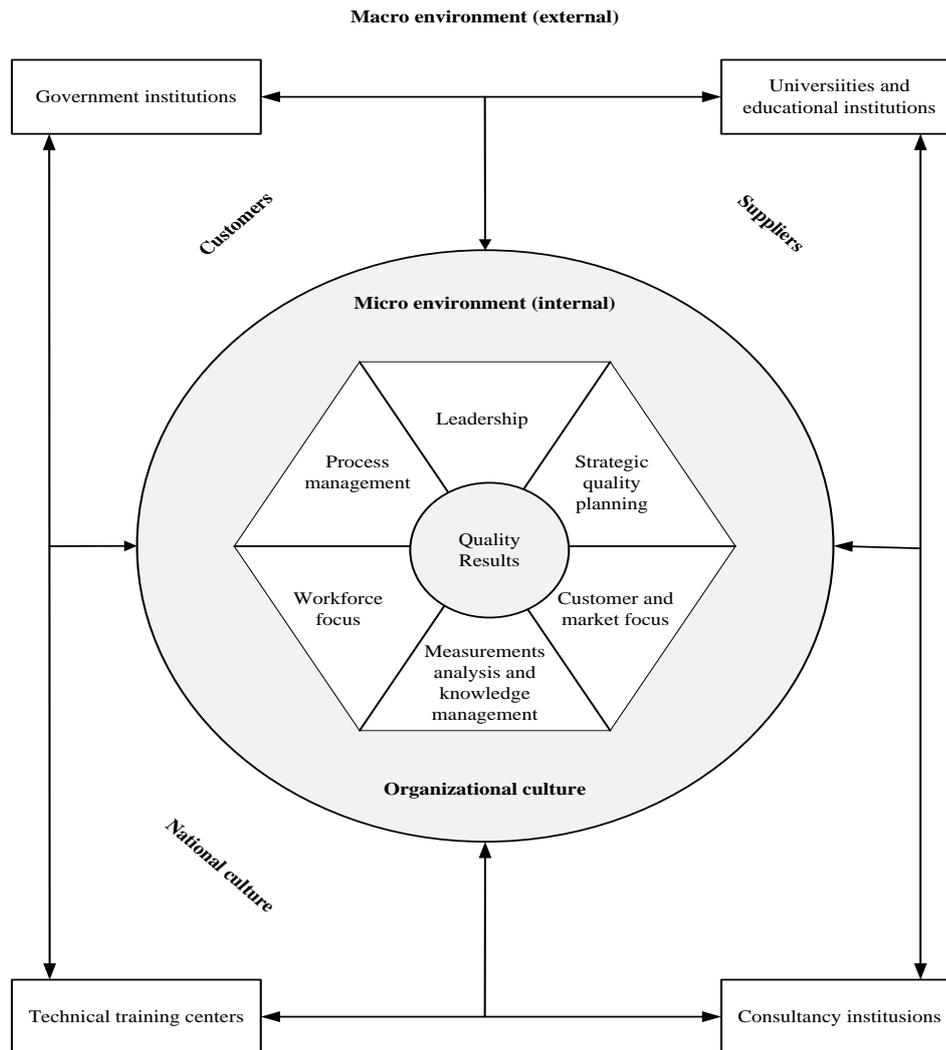


Figure 1 Quality culture conceptual implementation framework
Source: Shokshok [1]

- To create QMS vision that indicate where the company wants to go.
- To communicate the vision to staff.
- Use of company newsletters, periodicals and other media.
- To establish a QMS steering committee.
- To form a QMS department.
- To assess and monitor the progress of QMS introduction.
- To establish a set of priorities, such as project selection.
- To monitor and provide project teams with guidance.
- To set up examples of personnel commitments.

QMS steering committee and external consultants are required to prepare the following management preparation for successful QMS implementation:

- To set QMS objectives and perform strategic business planning.

- To convert corporate vision statement into a set of company objectives and strategies.
- To communicate with employees roles and needs in the QMS campaign.
- To publicise the QMS vision, guiding principles and objectives.
- Typical communication channels include business meetings, informal gathering, departmental meetings and company newsletter.
- To establish a company-wide education and training programme on QMS awareness and introduction.
- To promote and develop the related basic QMS knowledge, techniques and tools.
- To provide training by internal trainers and/or external consultants.
- To identify the advocates and resisters in the organisation.
- To investigate the attitude of employees towards the QMS adoption.
- Use of employee satisfaction surveys and performance appraisals.

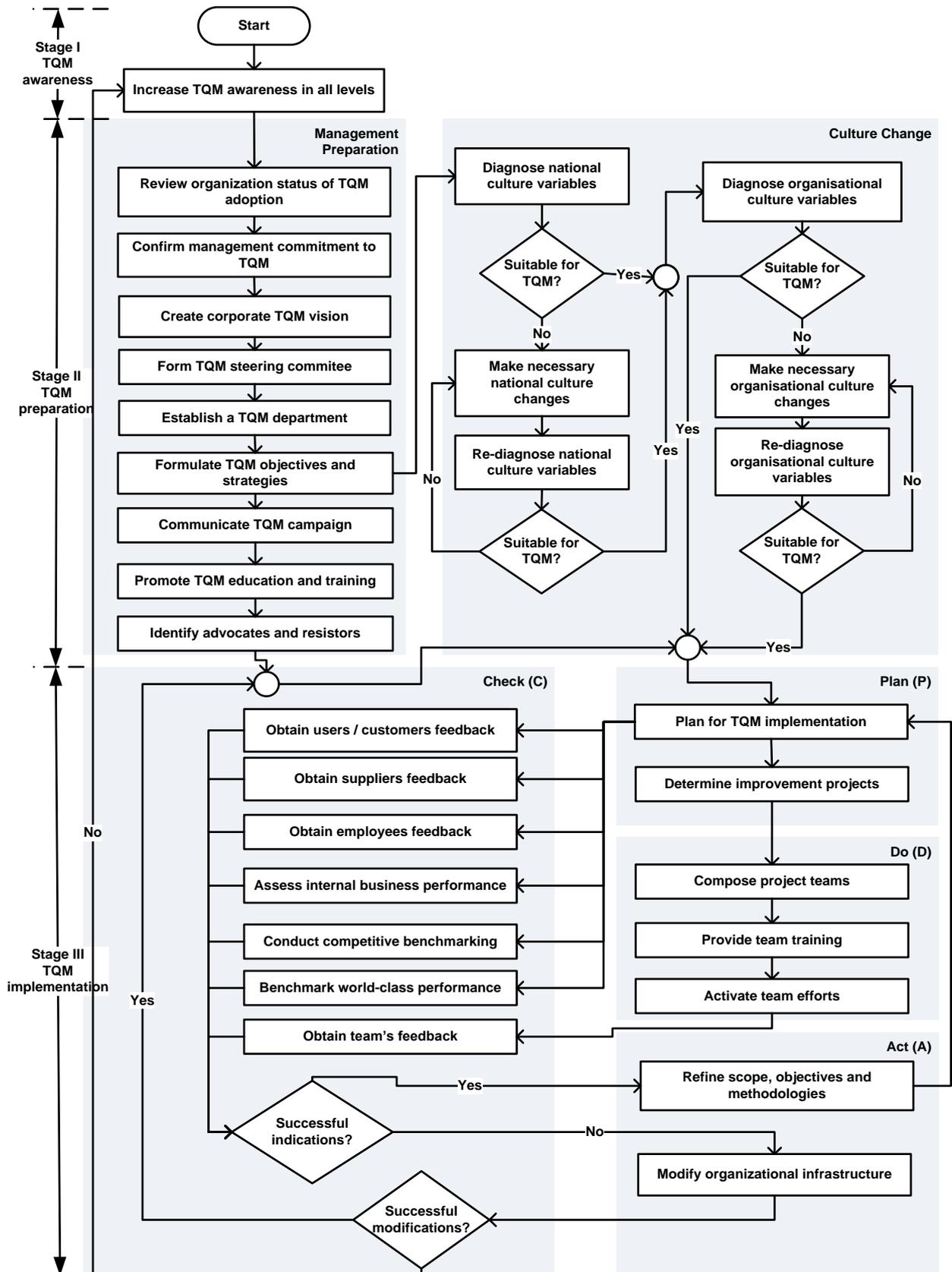


Figure 2 QMS implementation flowchart

- ii. Culture change: Through previous studies in Libyan manufacturing companies conducted by Shokshok [12-14], the author noticed that the Libyan companies operate in high power distance, high uncertainty avoidance national culture, and also operating within control-oriented organisation culture. These types of cultures are not the suitable cultures for QMS implementation [6] .

Tata and Prasad [6] suggested that companies operates within the above mentioned culture variables, will affect the QMS implementation cost and time. They suggested that companies should move towards low power distance, low uncertainty avoidance and operate within flexibility-oriented organisation culture in order for the success of QMS implementation. Al-Khalifa and Aspinwall [3], on their study in Qatar to determine the organisational culture types, they proposed a framework to move the existent culture to more flexible people-oriented style; clan and adhocracy culture. They suggested a number of strategies to move from hierarchy or market culture to clan or adhocracy cultures. Yong and Pheng [15] suggested for companies operating within hierarchy culture, like the Libyan companies case, to modify their culture to be more flexible and externally oriented for successful QMS implementation.

On Libyan manufacturing companies case, the change would be to decrease bureaucracy, employees freedomless, useless rules and procedures, dictatorships emphasis on guaranteed job, concerning on process orientation, focusing mainly on profitability, and less focusing in quality results, and individual competition. On the other hand, the change involves the increase of feeling of belonging, participation, broader decision making, employee ownership, meeting employee's needs, morale, trust, building teamwork, freedom to take risks, opportunity for growth, faster decision making, flexibility, more ideas, and customer focus.

3. Stage III: QMS implementation: QMS implementation stage can be started after the completion of QMS preparation stage. As shown in Figure 2, the implementation stage consists of four different, but related stages; Plan, Do, Check and Act (PDCA) [16-20]:

- i. Plan (P): QMS steering committee is to prepare the planning stage of QMS implementation:
- Plan for QMS implementation in line with the proposed QMS framework.
 - Establish an agreed reward and recognition scheme for promoting QMS adoption.
 - Identify continuous improvement projects.
 - Insure that projects are supportive of QMS vision and objectives.
 - Assign projects that have a high probability of success.
- ii. Do (D): QMS steering committee is to compose project teams:

- To establish a strong team infrastructure (e.g., departmental improvement teams, process improvement teams, cross-functional teams, and ad hoc task forces).
- To appoint leaders who need to establish ground rules, share information, and cultivate team unity.
- To select members who are the advocates and have clear team's mission.

QMS steering committee, external consultants and internal trainers are required to prepare team training:

- Prepare and establish teams and training programs.
- The training includes total quality concepts, team building and communication, basic quality tools, and problem solving techniques.
- Common approaches include cascade training, training by designated in-house trainers and/or by external consultants.

QMS steering committee and project teams are required to activate team efforts:

- To activate teams with formal team meetings.
- To assign training facilitators for individual teams as advisors.
- To provide a clear project scope and objective to the teams.

iii. Check (C): QMS steering committee and Marketing/Quality departments are to obtain users/customers feedback:

- To collect users' and customers' (internal and external) feedback.
- To employ the means of customer satisfaction surveys, customer visits, customer complaints, marketing research, user groups or customer panels, and customer-supplier meetings.

QMS steering committee is required to obtain employees feedback:

- To collect feedback from employees on their attitude and comments towards QMS introduction.
- Use of employee satisfaction surveys, employee performance appraisal, and departmental meetings.

QMS steering committee, senior management and external consultants are required to assess internal business performance:

- To carry out internal business assessment to assess the performance of the internal operations.
- To compare performances against internal standards and goal.

QMS steering committee, top executives, and external consultants are required to conduct competitive benchmarking:

- To perform competitive benchmarking.
- To compare an organisation's operations and processes with other best-in-class performers or competitors in the same industry.

QMS steering committee is required to benchmark world-class performance:

- To compare performance against other competitors that has world-class performance.
- To perform self-assessment of progress against criteria of international and national/regional quality awards.

QMS steering committee and project teams are required to obtain team's feedback:

- To acquire feedback on project progress and final outcomes.
 - Use of standard feedback channels (e.g. regular progress report, performance assessment and audit sheets).
- iv. Act (A): QMS steering committee and top executives are required to modify organisational infrastructure and to refine scope, objectives and methodologies of QMS implementation:
- To modify organisational infrastructure that support QMS introduction, policy deployment and continual improvement.
 - To identify and eliminate implementation roadblocks and obstacles.
 - To change the procedures / processes, organisational structure, pay/rewards and recognition systems, if necessary.
 - To modify project/programme scope, objectives and methodologies.
 - To perform project/program review.
 - To facilitate creation and transfer of good practices.

III. FRAMEWORK VALIDATION

This part is considered to be crucial because it is a practicable procedure to validate the introduced conceptual implementation framework for Libyan manufacturing companies. A QMS self-assessment is designed based on the work of Ab Rahman and Tannock [21], Ab Rahman [22], HKMA [23], Jung et al [24], Lau et al [5], Malcolm Baldrige National Quality Program [25], QMEA [26], and also based on the results obtained from previous work conducted in the Libyan manufacturing companies [1, 13, 14, 27-30]. The major aim of the assessment processes is to evaluate the company's QMS status by company's management in different time intervals to diagnose the company's QMS status and success. The author contacted a number of quality experts in Libya and an industrial managers working in other countries. Results and recommendations will be published in soon future.

IV. CONCLUSION

This paper covers in detail the design of QMS implementation flowchart. The design is based on the findings from literature review and from Author past publications. These sources of information were the base for development of the QMS implementation flow chart.

By using the self-assessment questions, Libyan companies can evaluate their QMS status, and they can decide which part of the implementation flowchart they start with. The validation of the framework will be conducted with national and international manufacturing companies, Libyan quality experts, and through six months implementation in five Libyan companies.

REFERENCES

- [1] Shokshok, M.A., *Quality Culture Framework Proposal for Libyan Industrial Companies*. World Academy of Science, Engineering and Technology, International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering, 2014. **8**(7): p. 2236-2239.
- [2] Chin, K.S. and B.G. Dale, *A TQM implementation framework for Hong Kong manufacturing industries. Final Report on HKSAR Government, City University of Hong Kong, Hong Kong*. 2000: p. 95.
- [3] Al-Khalifa, K.N. and E.M. Aspinwall, *Using the competing values framework to investigate the culture of Qatar industries*. Total Quality Management, 2001. **12**(4): p. 417-428.
- [4] Dale, B.G., *A framework for quality improvement in public sector organisations: A study in Hong Kong*. Public Money & Management, 1994. : p. 31-36.
- [5] Lau, R.S.M., X. Zhao, and M. Xiao, *Assessing quality management in China with MBNQA criteria*. International Journal of Quality & Reliability Management, 2004. **21**(7): p. 699-713.
- [6] Tata, J. and S. Prasad, *Cultural and structural constraints on total quality management implementation*. Total Quality Management, 1998. **9**(8): p. 703-710.
- [7] Pun, K.F., K.S. Chin, and H. Lau, *A self-assessed quality management system based on integration of MBNQA / ISO 9000 / ISO 14000*. The International Journal of Quality & Reliability Management, 1999. **16**(6): p. 606-629.
- [8] Chin, K.S. and K.F. Pun, *A proposed framework for implementing TQM in Chinese organisations*. The International Journal of Quality and Reliability Management, 2002. **19**(3): p. 272-294.
- [9] Elghamrawy, T. and T. Shibayama, *Total Quality Management implementation in the Egyptian construction industry*. Journal of Management in Engineering, 2008. **24**: p. 156-161.
- [10] Baidoun, S. and M. Zairi, *A proposed model of TQM implementation in the Palestinian context*. Total Quality Management & Business Excellence, 2003. **14**(10): p. 1193-1211.
- [11] Kluaypa, P. and S.O. Onuh, *The development of quality management model for implementation in Thai organisations*. in *World Congress on Engineering (WCE 2010)*. 2010. London, U.K.
- [12] Shokshok, M.A., M.N. Ab Rahman, and D. Abd Wahab, *Diagnosing organisational culture elements for successful TQM implementation: case study in Libya*, in *Regional Engineering Postgraduate Conference (EPC 2010)*2010: National University of Malaysia (UKM), Bangi, Selangor, Malaysia. p. 539-547.
- [13] Shokshok, M.A., et al., *Diagnosing national culture elements for successful TQM implementation: case study in Libya*. Applied Mechanics and Materials, 2011. **44-47**: p. 506-511.
- [14] Shokshok, M.A., et al., *Diagnosing organisational culture elements for successful TQM implementation: case study in Libya*, in *2010 International Conference on Education and Management Technology (ICEMT 2010)*, Cairo, Egypt, pp 13-182010. p. 13-18.
- [15] Yong, K.T. and L.S. Pheng, *Organizational culture and TQM implementation in construction firms in Singapore*. Construction Management and Economics, 2008. **26**: p. 237-248.
- [16] Cheng, J.-L., *Implementing six sigma via TQM improvement: An empirical study in Taiwan*. The TQM Journal, 2008. **20**(3): p. 182-195.
- [17] Zairi, M., *Total Quality Management: Deming and Juran, gift to the world*2005: Spire city publishing.
- [18] Petersen, P.B., *Total Quality Management and the Deming approach to quality management*. Journal of Management History, 1999. **5**(8): p. 468-488.
- [19] Deming, W.E., *Out of crises*1986: Cambridge : MIT press.
- [20] Magd, H.A.E., *ISO 9001:2000 in the Egyptian manufacturing sector: Perceptions and perspectives*. International Journal of Quality & Reliability Management, 2008. **25**(2): p. 173-200.

- [21]Ab Rahman, M.N. and J. Tannock, *Self-assessment and Mini-TQM framework for Malaysian SMEs*. Jurnal Produktiviti, 2008. **25**: p. 1-10.
- [22]Ab Rahman, M.N., *The development of a quality management framework for Malaysian small and medium enterprises*, 2004, University of Nottingham: Nottingham, England. p. .
- [23]HKMA. *The Hong Kong Management Association Quality Award*. 2010 [cited 2010 6 December]; Available from: <http://www.hkma.org.hk/qa/front.htm>.
- [24]Jung, J., et al., *The effect of organisational culture stemming from national culture towards quality management deployment*. The TQM Journal, 2008. **20**(6): p. 622-635.
- [25]Malcolm Baldrige National Quality Program, *Criteria for performance excellence. National Institute for Standards and Technology (NIST)*. 2010. **2010**(16 December).
- [26]QMEA, *Quality Management Excellence Award (QMEA) submission report, Malaysia Productivity Cooperation (MPC), PETALING JAYA, Malaysia*:. 2010. **2010**(6 December).
- [27]Ab Rahman, M.N., M.A. Shokshok, and D. Abd Wahab, *Barriers and benefits of TQM implementation in Libyan manufacturing companies*. Middle East Journal of Scientific Research (MEJSR), 2011. **7**(4): p. 619-624.
- [28]Shokshok, M.A., *Quality control of industrial products and its effects on marketing: Case study in Hot Strip Mill, Libyan Iron and Steel company*, 2002, The College of Industrial Technology: Misrata, Libya.
- [29]Shokshok, M.A., M.N. Ab Rahman, and D. Abd Wahab. *Barriers of TQM implementation in Libyan manufacturing companies*. in *Flexible Automation and Intelligent Manufacturing (FAIM 2010)*. 2010. California State University East Bay, USA, pp1053-1058.
- [30]Shokshok, M.A., M.N. Ab Rahman, and D. Abd Wahab, *Diagnosing culture variables to enable successful TQM implementation in Libyan manufacturing companies* World Applied Science Journal (WASJ), 2011. **12**(6): p. 903-911.

BIOGRAPHIES



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