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Does Total Quality Management (TQM) in absolute terms open new doors to the term “Fractional Quality Management (FQM)” which consists of multiple quality management systems?

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Abstract

The central idea of quality management is to steer the undertakings of an organization through a torrent of decision-making processes systematically in order to execute a series of actions deemed necessary for the fulfillment of goals based on a set of standards and metrics used in its application to achieve consistency, accuracy, future inspection and accreditation. The bar for achieving these quality targets is placed above the current level of quality existing within the organization in order to initiate periodical improvements in terms of organizational conduct, product/service development and process efficiencies to elevate the current standards to a level worthy of securing a competitive advantage. These periodical stages of improvements depend on the organization's level of commitment and determination, the intensity level of constraints, which directly or indirectly impact the organizational environment per diem, the level of consistency and coordination infused within day to day operations and the rapidness of result centered implementation, that ultimately determines the distance pace of progress towards approaching the uppermost echelons of quality. Nevertheless, the term Total Quality Management (TQM) creates an imprecise undertone to suggest that an organization could have more than one set of quality standards of measurement and metrics, which is department and project specific; and not subject to a single and standard set of quality measurements, adhered by the organization. This conceptual paper will discuss whether the term TQM in absolute terms opens new doors to the term “Fractional Quality Management (FQM)” that consists of multiple quality management systems and how it can possibly effect the organization in terms of management and execution.

Keywords: Quality, Quality Management (QM), Total Quality Management (TQM), FQM

1. Introduction: From Quality to Quality Management

Quality is reflected through multi-dimensional attributes, which arise from a series of heterogeneous activities taking place within a firm. It is a trait and characteristic that ultimately defines the level of standards being adhered to through the current state of affairs within the organization as a mark of the level of excellence attained, with regards to the nature of business run by the organization. It creates an interminable pathway for further incremental improvements in product, process and service through management, manifested through the use of tangible and

intangible resources that exist within the organization. Quality in the past many decades have been measured through the utilization of quality metrics to provide a thermometer standing of an organization's attributes and resources weighted upon a selected benchmark to not only augment the value of output but also to augment the value of individual deliverables that form the given output.

Although, quality has been measured through the utilization of various measurement tools, it remains a hurdle to accurately determine what actually signifies high quality. This is true because the descending or ascending levels of quality within product, process, service and resources are subject to the descending and ascending levels of quality of benchmarks used for the purpose of comparative evaluations. The levels of quality of benchmarks are never stable as benchmarks are also subject to comparative evaluations with other organizational benchmarks. Nevertheless, the benchmarks utilized for quality improvements by other organizations are never divulged to avoid the risk of losing out on their competitive advantage. Hence, although quality metrics are used to determine the superiority or mediocrity of a product, process, service or resources, the ultimate decision maker of quality lies in the hands of the client and consumer who has the freedom to comparatively test and experience the reliability, durability, functionality, operability and performance of these offerings and thereby bestowing the user the authority to endorse or oppose the quality accreditation provided by these organizations through feedback.

Thus, the continuous flow of information gathered through selective and constructive user feedback becomes an essential input to further improvise the quality attributes of a particular product, process and service but does not guarantee future client and consumer endorsement on high quality accreditation provided by the same organization due to the competitive product and service development of the same genre offered by another firm. Through this occurrence, the bar of quality standards continuously elevates to another level and increases the difficulty in gaining consumer confidence. The reason why quality is reflected through multi-dimensional attributes is to provide a meticulous assessment of pertinent value driven components and ingredients that contribute towards achieving the organization's full potential in terms of product, process and service. These quality assessments can be used to implement future restructuring of quality testing models, which can provide increased discernibility in testing outcomes to further fortify the degree of quality assurance given by an organization, product, process and service. Nevertheless, it is a challenging task to ensure sustainable quality due to the verity that the task of maintaining a high level of consistency and accuracy during each decision-making process and during each step of implementation is subject to discrepancies that occur within knowledge flows, which can alter the path of planning and execution and consequently generating unexpected outcomes. When knowledge flows are intercepted with varied outlooks and judgments' from the organization's knowledge assets, the path of planning and execution goes through multiple trajectories, which can lead to an accumulation of unexpected constraints. These constraints disrupt the workflow mechanism, leading to quality interferences and change in control, which can abruptly alter the next course of action and approach to organizational quality. The pervasive scope of quality and its stringent requirement to be suffused into every activity run by an entity is enough proof to demonstrate that it's level of scrutiny, meticulous monitoring and inspection are indispensable practices within quality management, whose core purpose is to maintain a sustainable competitive advantage.

One of the major problems within an organizational framework and which is not easily avertable is that consecutive courses of action resulting from preceding actions within a single stream of

linked activities suffer from interminable risk failure when defects within preceding actions remain to subsist and counteractively accumulate, causing the entire stream of linked activities to break down unexpectedly. The reason why this phenomenon is not easily avertable is because the visibility level of defects depends on how testing models are designed to produce maximum number of failure event possibilities in order to generate the best possible quality development approach that can curb defects to an absolute minimum. Since hundreds of size ranging activities form product development processes and process improvement procedures, each process has its own level of complexity and cannot be approached in an identical modus, thereby creating the need to develop unique suiting testing models for each process, which can ultimately erupt cost and time spillovers. The lack of unique process suiting testing models can root cause for undetectable weaknesses and errors to turn into a form equaled to that of a “transmissible defective gene” inherited by consecutive processes, and thereby altering the make-up of the consecutive process into something different from what it would have been if not for the defective inheritance.

The challenge of disentangling the knots incurred within consecutive processes due to the anomalies of the preceding process is far greater than having to disentangle the glitches at the beginning of the process stream. This is why quality management is required to be implemented from start until the finish within various product development models such as waterfalls, spirals, RADs, incrementals, prototyping and rapid prototyping and not just in certain areas of the product life cycle in order to circumvent interminable risk failure. The adverse reactions that follow can cause the entire product development and process improvement procedure to reach a sudden halt, disabling further execution, and therefore creating an array of futile cost investments resulting from the lack of “highly - defect sensitive” quality planning, testing and control procedures and techniques. When product development and process improvements are described in terms of quality, there is a perplexing question whether quality is to be referred to an external layer, an internal layer, a fusion, an embedded component, or a fixture or a peppering of key ingredients or the characterization of intangible functions or the resistance level of its key attributes. The answer would be that every detail, which sums up to the formation of the product or process in entirety adds up to the total worth value of substance assessment of the product or process. This total worth value of substance assessment of each individual attribute or component is referred to as quality. The reason for explicitly emphasizing this is that the actual nature of every product component is to be given equal weightage of quality importance like any other product component within the same product rather than focusing on a specific key constituent, which is deemed to contribute the most in gaining a competitive advantage.

The levels of quality enforced in product development and process improvements depend on the levels of determination and commitment pragmatically applied through a dedicated workforce. This dedicated workforce is exemplified through intense involvement in ensuring that each pursued or implemented action is error free and thoroughly understands the leading consequences that could be caused from an individual’s failed actions. Although more than one individual comprises a dedicated workforce, the actions performed by a single individual effects the actions of other tasks and responsibilities required to be executed in the fulfillment of the entire mission of a project. The focal importance placed in the execution of responsibilities performed by each project member can increase the likelihood of improving the substantial quality of the entire workforce and thereby establishing a dedicated workforce. Each comprising member of a dedicated workforce is expected to be a contributing element towards achieving its short term or long-term goals. Nevertheless, each expected contribution made by an individual member should

be in line with quality standards whereby “crossing limitations” are meticulously outlined to preserve quality conduct and to generate positive impact. Contributions made according to quality standards fortify the firm’s image in terms of continuous commitment towards product development and process improvement. Dedicated workforce as opposed to “team” indicates that each member becomes an indispensable and dynamic element to his/her own tasks and responsibilities due to the reputation earned through continuous quality involvements and execution.

Quality management is a pivotal tracking mechanism to maintain integrity within workflows, to maintain precision in decision making through consistent and accurate inflows and outflows of knowledge streams, to maintain and secure highly reliable knowledge assets, achieve defect free processes through the design and restructuring of unique suiting testing models, to periodically uplift the standards of conduct to improve organizational performance, to review and formulate crisis recovery procedures prior to any firm emergency in order to gain future customer loyalty, to preserve existing client base and also to create an efficient working environment based on producing quality deliverables. Therefore, when the intended mechanism of quality management is such, then what is precisely Total Quality Management (TQM)?

2. Total Quality Management (TQM): What is in “Totality”?

The aspect of “total” integrated into quality management redefines the concept of quality management altogether and constructs an expansive opening for interpretative discourse. The question arises as to: *Does TQM mean management of total quality or does TQM mean the totality of quality management?* If TQM means management of total quality, then the subject of debate would be how to manage total quality. If TQM means the totality of quality management, then the subject of debate would be how the total aspect of quality management will be looked into. If the former’s emphasis is on total quality, then the debate remains to stress firmly on the quality of product, process and organization. Nevertheless, if the latter’s emphasis is on management quality, then the debate stresses firmly on the quality of management in totality. Thus, this paper establishes two (2) overlapping yet opposite denotations within the term TQM.

First Denotation: Management of Total Quality

Management of quality of product, process and organization is performed through the categorical alignment and configuration of attributes that function as key descriptors or indicators of quality. This configuration of attributes is expected to be the ultimate reflection of what level of quality a product, process or organization stands for and is used to perform incremental measurements through routine checks, defect analysis, multi-level authentication, coordinated levels of hybridization, knowledge source investigations, testing upgrades, policy improvements and crisis prediction. The implementation of these procedures require meticulous planning and practice, which constantly triggers the need for maximum visibility in defect identification and resolution to elevate quality systematically to the next level. The usage of “total quality” indicates that the categorical alignment and configuration of attributes do not measure in the same way for every component or element within the product, process or organization and thereby creating the need to view and measure quality of each component and element from different indexes. When different indexes are used, the quality of each component and element within a product, process or organization also ranges differently because each component and element reacts differently to various testing conditions. Thereby, this thrusts the firm to place its highest concentration on the

component that contributes the most towards achieving its targets and fortifying the notion of “total quality”.

Second Denotation: Quality of Management in Totality

Defining the quality of management in totality is a challenging task to execute since it primarily involves monitoring and inspection activities to ensure that execution and implementation of tasks are conducted according to the prescribed standards and guidelines for attainment of accreditation. The monitoring and inspection activities are conducted internally and externally. Nevertheless, these auditing processes are never conducted on a daily basis and by comparison, the external auditing process is viewed as the most crucial process because the groups of individuals performing these processes have zero affiliation or connective relationships with any of the firm’s internal undertakings. Although, the external auditing process is viewed as a potential jeopardy to the firm’s plans for future accreditation, internal auditing processes should be utilized as a major preparatory platform that imposes maximum scrutiny into the firm’s internal processes as how the external auditing process is performed to detect any abnormalities or irregularities existing within the system. Furthermore, defining the quality of management is a very subjective process as it is subject to various leadership styles and systems of administration. Even though guidelines and standards have been entrusted as a medium of adherence, it is arduous to define the quality of decision-making, the quality of knowledge inflows and outflows that come from hybridization and information sources, the quality of coordination, the quality of authentication and the quality of workforce commitment. Therefore, when the aspect of totality is integrated into the management of quality, it creates a direct undercurrent indicating that quality can only be measured in totality – as an overall summation and not a measurement towards infusing maximum quality diffusion within all spheres of the firm’s undertakings.

3. One versus more than one: Which will be efficacious in implementation?

Total Quality Management (TQM) creates an imprecise undertone to suggest that an organization could have more than one set of quality standards of measurement and metrics, that is department and project specific; and not subject to a single and standard set of quality measurements, adhered by the organization, which thereby creates a sum of quality in totality. In terms of department activities, each department is assigned with their own unique functional responsibilities and tasks that are unlikely to move in crossroads with other functional departments unless projects are formed linking personnel from various departments together in a temporary collaboration. In that aspect, quality can be defined in terms of department quality and project quality from various attributes and perspectives but also share common attributes such as employee commitment, determination, contribution and conduct. Functional departments as opposed to temporary projects collaborations perform routine activities and require a different set of quality lenses since the outputs from functional activities are measured in the long term and functional processes systematically improve on a day-to-day basis in terms of system filing, information system processing, database conservation, redundancy checking and cleanup, information retrieval, backup control and support systems, incident analysis and arbitration. Nevertheless, the nature of each functional department within the firm varies in terms of subject matter functionality and hence their assigned deliverables and objects of focus are not the same. When deliverables and objects of focus involve diversified processes and tasks, then quality attributes breakdown into multi layers of sub-classifications, sub-characterizations and sub-

attributes, which can expand the value system of the quality scoreboard and thus mechanizing numerous pathways to measure quality processes for each task uniquely. Based on this explanation, the term TQM in absolute terms opens new doors to the term “Fractional Quality Management (FQM)” that consists of multiple quality management systems, which can be used to measure each department’s task and processes according to its unique constraints and limitations while creating a conduit for diffusing maximum quality within all spheres of the firm’s undertakings. The application of FQM can stratum and increase the number of sliced layers within quality distributions to visibly portray the accurate standings of department performance based on its own information and knowledge assets in order to thrust fitting aggregates of momentum onto its operations. The increased number of strata within quality distributions can be used to evaluate task methodologies and identify the consequences and costs of success – failure attempts. Furthermore, fractional quality segmentations can enhance decision-making capabilities according to subject modules within each department’s subject functionalities through constant information filtering and source validation mechanisms “installed” into the department’s day-to-day knowledge inflows and outflows. Thus, these fractional quality segmentations can maintain and secure highly reliable knowledge assets within each department to improve the flow of information coordination and synchronization channeling from department-to-department hybridization.

Projects formed through hybridization, on the other hand vary based on a number of reasons. *One:* Each project has its own theme and mission, thus is expected to produce unique deliverables each time. *Two:* Each project does not consist of the same working group or similar set of knowledge assets to deliver results. *Three:* Each project does not encounter similar problems and constraints and requires different approaches to solve unique cost and time constraints. *Four:* Each project consists of varied stakeholder involvement, causing bonding, collaborative and communication outcomes to differ from previous project’s stakeholder involvement. *Five:* Due to the diversified nature of project matter, each project generally consists of different project leaders who have varied leadership styles and a varied effect on their subordinates. *Six:* Each project subject matter can impact differently on the external environment, especially to those who are aware of its actions. *Seven:* Each project can have varied consequences and responses from each deliverable produced. *Eight:* Each project consists of its unique degree of importance and interest to the firm that can determine the degree of support ensued on its continuance. *Nine:* Each project is subject to its own protocols and level of reporting authority, which can determine the degree of flexibility and elasticity in the execution of tasks. *Ten:* Each project consists of its unique internal disputes generated from extensive competition and character clashes, which can create a dysfunctional flow of knowledge inflows and outflows. These are viewed as challenges in the journey towards suffusing quality improvements, if there is only one set of quality standards of measurement and metrics to adhere to by the firm. Therefore, how can FQM be tailored to solve these challenges?

One: Fractional quality segmentation can articulate explicitly the expectations of expected deliverables beforehand to provide the task dynamos an envisage of the quality anticipated to disqualify any mediocrities within steps taken to achieve that deliverable. This is hard to do if a qualified task architect does not construct steps taken leading to that deliverable. Thus, a task architect will be a new project-based job description hailing from fractional quality segmentation. *Two:* Varying sets of knowledge assets that comprise the assemblage of a project can be selected through personnel performance history in terms of commitment and dedication towards a task, instead of relying on years of affiliation with the firm or the degree of close bonding with upper

management to augment the level of focus and concentration towards achieving quality outputs rather than personal upliftment. Therefore, the two (2) main attributes within the personnel performance history would be: (i) commitment attributes and (ii) dedication attributes in maintaining the highest quality standards in steps leading to that deliverable instead of primarily focusing on individual achieved targets, which completely disregards the manner of its attainment. When this mechanism is continuously practiced and implemented, then the variability of knowledge assets existing and participating in differentiated projects will not be seen as a challenge but viewed as a way to provide tremendous opportunity for committed and dedicated knowledge assets to expand their experiential horizons. *Three:* Fractional quality segmentation can be carved into constructing sub – deliverable methodology constraint analyses to reduce number of defects within steps taken to achieve that sub-deliverable. *Four:* Although collaborative and communication outcomes are difficult to predict in advance, appropriate modes of communication can be implemented based on several factors of consideration (i) the need for future reference (ii) the need for cross – reference against existing data (iii) the need for validating new information with knowledge assets to maintain reliability of sources (iv) the need for gaining more time to respond to unwarranted remarks and pacify hostile environments (v) the need to ensure full stakeholder involvement and participation (vi) the need to distinguish the unreliable knowledge assets from the reliable ones (vii) the speed of information transmission and response (viii) the need to predict future communication outcomes based on existing communication observations (ix) the need to schedule appropriate time gaps for resurrecting and mending past adverse communication outcomes. The following factors need to be considered in order to (i) show increased levels of developments within step flows reaching individual deliverables (ii) increase accountability among individual members of the dedicated workforce (iii) increase firm loyalty and confidence towards information sources (iv) reduce number of long term disputes to a minimum (v) reduce nonconformity levels of long term discussions by non-participants (vi) instill responsibility within knowledge assets to provide quality inputs in discussions leading to a deliverable (vii) gain full advantage on time frame for increased levels of decision making outcomes (viii) plan next form of action to reach consensus towards achieving individual deliverables (ix) to avoid stakeholder back out during culmination of project life cycle. *Five:* The use of fractional quality segmentation can circumvent the delegation of more and one project leader for a whole project and instead delegate the appointment of more than one temporary project leader for the attainment of an assortment of single sub-deliverables. If twenty sub-deliverables are carried out, then twenty transient project leaders should be assigned. *Six and Seven:* The use of fractional quality segmentation should be able to investigate the core effects resulting from sub-implementations and prepare a plan of action as to how each sub-implementation will safeguard the quality of human surroundings. *Eight:* The use of fractional quality segmentation can ensure that each projected output of each sub-deliverable analytically addresses, substantiates and rationalizes the concerns of key project stakeholders on a timely basis. *Nine:* This is in accordance with *Five*, which is to ensure that sub-deliverables are reported to temporary project leaders who are subject matter authorities. *Ten:* This is in accordance with *Four*.

4. Can TQM stand the test of time without a standard definition?

The term TQM has been existing for the last four decades. Nevertheless, the term is still regarded as new compared to its fragmented terms, which have gained full establishment, footing and

acceptance in terms of definition and meaning. The term TQM has yet to identify itself with common ground and establishment in terms of definition and meaning, due to the verity that the past four decades have contributed to multifarious forms of research on TQM, which is blending into the likes of other terms such as knowledge management (KM), R&D management (RDM), technology management (TM) and total innovation management (TIM). As a result, from this definition flux, interpretations have multiplied incessantly, introducing newer paradigms within quality outlooks. When TQM is discoursed within subjects like knowledge management, R&D management, technology management and total innovation management, it creates opportunity for puzzling questions to surface, such as: (1) *Is TQM expected to be viewed as an absolute exterior, that interiors the subjects: knowledge, R&D, technology and innovation?* (2) *If knowledge flows, R&D, technology and innovation are part of the TQM equation, then what is the necessity for subjects like knowledge management, R&D management, technology management and total innovation management?* (3) *If the quality factor is harnessed within knowledge management, R&D management, technology management and total innovation management, does that mean that the quality performance within these subject contents is lower than that of TQM?* (4) *Why do TQM, knowledge management, R&D management, technology management and total innovation management required to be viewed as discrete subjects in management studies if quality is a recognizable connector that ties the purpose and mission of each management subject?* (5) *Why is TQM seen coupled with certain areas of management subjects and not all facets of the organization considering the element of “totality” is emphasized in the term TQM?* (6) *Why has quality and innovation viewed in terms of “totality” compared to knowledge, R&D and technology, which are not viewed in terms of “totality”?* The reasons for these questions to surface is because there is a lack of distinctive lines of connectivity that bridges management domains (KM, RDM, TQM, TIM, TM), which exclusively concentrates on its own management components in singularity. Although researchers have attempted to shrink the spatial distance between management domains, there is a tendency for the distance to expand itself further due to persistent concentration and focus on singular domains. When research is conducted on a singular domain, the research attempts to establish connectivity not with other management domains but with certain components of the organization. Thus, it is difficult to visualize the coexistence of multiple management domains in terms of relativity but it is coherent to visualize the coexistence of one large management domain together with integral components of other domains. Management domains have already been formed. Furthermore, multiple management domains have been widely discoursed for many years but seem determined to battle for focal place as governing domain within the organizational environment instead of establishing interconnected domain relationships. When domain relationships are not discernible within a structural framework and when domains do not coherently harmonize within a given fixture, due to overlapping domain components being inferred and deduced differently within other domains – then concrete definitions for management domains will cease to exist.

5. Conclusion

The opening of new doors for the introduction of Fractional Quality Management (FQM), which consists of multiple quality management systems within the organization entity, is conceivable due to the incapacities rising within the realms of TQM in distinguishing the quality of certain areas of management. The aspect of totality in TQM creates a direct undercurrent indicating that quality can only be measured in totality – as an overall summation and not a measurement

towards infusing maximum quality diffusion within all spheres of the firm's undertakings and the firm's obvious thrust to place its highest concentration on the component that contributes the most towards achieving its targets and fortifying the notion of "total quality". It is currently impossible to define the quality of decision-making, the quality of knowledge inflows and outflows that arises from hybridization and information sources, the quality of coordination, the quality of authentication and the quality of workforce commitment within the realms of TQM. Therefore, this conceptual paper establishes the preliminary significance of how FQM can expand the value system of the quality scoreboard and improve the unreachable areas unconceivable through the "totality" aspect of TQM.