Integrative Augmentation with the New ISO 10000 Standards[1]

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ABSTRACT

Application and integration of the systems based on ISO 10001: 2007 and other new augmentative standards are discussed. Particular attention is paid to the quality management standards forming the front end of the ISO 10000 series, namely ISO 10001, ISO 10002 and ISO 10003, as well as ISO 19011, the standard which stems from the original augmentative ISO 10000 guideline, specifically ISO 10011 on quality auditing. The ability of these and other similar standards to augment the performance of quality management systems in organizations and to foster integration of the respective augmentative systems themselves or within the overarching management systems is addressed and further illustrated through an example of their use in engineering education.

1.0   Introduction

Since 2007, only two new standards came from the Technical Committee (TC176) on Quality Assurance and Management (QAM) of the International Organization for Standardization (ISO). Published in November 2007, ISO 10001 and ISO 10003 were added to ISO 10002: 2004 to complete the Customer Satisfaction Complaint System (CSCS) set of standards (see Dee et al., 2004, for more details on the CSCS). At the same time, ISO updated its "Compendium" of QAM standards to include ISO 10001 and ISO 10003 (ISO, 2007). These two "guidelines" on codes of conduct and dispute resolution for customer satisfaction, respectively, belong to the distinctive group of "augmentative" Management System Standards (MSSs), which, among other defining characteristics, focus on a specific process of a quality and/or other Management Systems (MSs) and can be used to create either stand-alone MSs or subsystems of the overarching MSs. Some older augmentative standards (AUGSs) comprise ISO 19011: 2002, a descendant of the original AUGSs from the national (e.g., CSA Q395 and ANSI Q1) and international (ISO 10011) quality auditing standards, as well as ISO 10012: 2003 on measurement MSs and ISO 10002: 2004 on complaint handling.

One of the notions emphasized by Karapetrovic and Willborn (1998A), Dee et al. (2004), and Karapetrovic and Casadesus (2007), is that the application and integration of systems based on AUGSs holds a particularly promising future in standardized quality management. Meant as an application-focused follow-up on the Taichung discussion a year ago, this paper will start with a brief overview of the CSCS series, emphasizing the augmenting features and the integrative context of these three standards, as well as ISO 19011, along with a brief illustration of a related empirical study of 529 companies in Spain regarding their actual and potential use. Subsequently, an example from engineering education will be used to illustrate the application and integration of augmentative standardized systems. The conclusion will address the importance of integrative augmentation of standardized management systems.

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[1] This paper is based in part (e.g., sections 2.1 and 2.2) on Karapetrovic (2007B), presented at the QUALCON 2007 conference in Melbourne, Australia, in October 2007, and continues the discussion from Karapetrovic (2007A), presented at the 12th ICIT in Taichung, Taiwan, in April 2007.

2.0   Augmentation and Integration

This section focuses on providing a quick overview of the four augmentative standards specifically addressed herein, namely ISO 10001, ISO 10002, ISO 10003 and ISO 19011, illustrating the results of a survey of their usage in a variety of organizations based in an industrialized region in Spain, and finally addressing how they can be applied for integrative augmentation.

2.1   Overview

As detailed in Dee et al. (2004), all three standards from the CSCS set were developed upon the initiatives of the ISO Consumer Policy Committee (COPOLCO) by the ISO TC176's subcommittee SC3 "Supporting Technologies in QAM". The actual work on the CSCS started almost seven years ago, when the first draft of the document that became ISO 10002 was completed. Ever since July 2004, when it was published, ISO 10002 has been successfully used worldwide. In one example of such use, Ms. Estelle Clark of the Financial Ombudsman Service (FOS) in the United Kingdom reports that this standard is used by the FOS as "*the framework for handling over 100,000 complaints per year*" (Clark, 2007). ISO 10001 and ISO 10003 were developed simultaneously over about three-and-a-half years, starting in early 2004. Finally, written by a "Joint Working Group" between the ISO/TC176/SC3 and the environmental auditing ISO/TC207/SC2, ISO 19011 stems in part from the quality auditing standards which appeared in the 1980s (see, e.g., Karapetrovic and Willborn, 1998B). ISO 19011 was published in 2002, and is likely the most widely-used AUGS now.

The shortest standard in the CSCS family, with only seven pages of main text, but also a total of nine explanatory annexes, is ISO 10001: 2007. It covers the processes necessary for effectively and efficiently creating and using product-related promises made to an organization's customers (Dee et al., 2004). In difference to the other two CSCS standards, which contain a detailed description of the respective complaint-handling and dispute resolution policies and responsibilities, ISO 10001 facilitates the implementation of a simple framework for code establishment, on one hand, and integration with other MSs, on the other. ISO 10002: 2004 and ISO 10003: 2007 provide guidance for the setup of a complete complaint-handling and a dispute-resolution MS, respectively, including all the necessary MS elements, such as MS performance evaluation and review. Since ISO 10003 presents the most detailed guidance, especially in the annexes, it is the longest of the CSCS standards, with 13 pages of the main text and 34 pages in total. Covering the system for conducting MS audits, ISO 19011: 2002 does not contain any annexes, but is still more than 30 pages long.

The CSCS standards are characterized by identical structures, namely sections Four: "*Guiding Principles*"; Five: "*Framework*"; Six: "*Planning and Design / Development*"; Seven: "*Operation / Implementation*"; and Eight: "*Maintenance and Improvement*" (Dee et al., 2004). On the other hand, ISO 19011 features a format compatible to the CSCS standards, since it has analogous sections Four and Five on auditing "Principles" and "Programmes", respectively, section Six ("Audit Activities") analogous to section Seven of ISO 10001/2/3, and section Seven on auditors which relates to the resources part of the section Six of the CSCS standards.

2.2   Use

The fact that augmentative standards will, in most cases, have a narrower scope of application than ISO 9001, ISO 14001 and their other "overall MSS" counterparts, is actually advantageous. Namely, these standards can be quickly and easily implemented immediately after the organization perceives a need for, or a potential benefit of, such an application, regardless of whether or not a standardized overall MS exists in the organization. For example, the implementation of a full ISO 9001-based Quality MS (QMS) in a university course can be very involving and sometimes unnecessary. However, a university professor

can much more easily establish one or more student satisfaction codes of conduct according to ISO 10001, handle complaints and other feedback through ISO 10002, have a process in place for referring students to an ombudsman or another type of university-based service in the case of a dispute and in accordance with ISO 10003, and improve overall performance using the audit results stemming from an ISO 19011 application. These processes and their outcomes have immediate meaning to the students, which may or may not be the case with an overall ISO 9001 system. These examples are discussed further in section 3 of the paper.

While the benefits of the application of augmentative standards are theoretically fairly clear, it is interesting to see how real organizations perceive these standards and their current and future application. To that end, the results of a survey of 529 ISO 9001-registered companies based in Catalonia, Spain, will be briefly illustrated here. A full description of the methodology and findings of this survey are available in Karapetrovic et al. (2006A), with the augmentative standards in particular being further discussed in Karapetrovic et al. (2006B). Specifically, the companies were asked about their perceptions regarding the importance of the implementation of various standards, including the four augmentative standards discussed here.

The survey, with the overall response rate of 23%, included two strata of organizations, namely the ones that were registered to ISO 9001 only (a total of 353 companies, with the response rate of 20%) and the ones that were registered to both ISO 9001 and ISO 14001 (176 organizations, with the response rate of 33%). The results show that about half of all respondents were either not familiar with ISO 10001 and ISO 10003, or were unsure if they will implement these standards in the future. Such a high proportion is not surprising, since the standards were not yet published at the time of the survey (2006), and the respondents most likely evaluated their importance based largely on their topic only. However, another contributing factor may be that the augmentative standards in general, since they belong to the "supporting standards" category of ISO, do not receive the same exposure or attention as ISO 9001, ISO 14001, ISO 22000 and other standards with the "certifiable" designation. The standards that had been published for several years at the time of the survey, namely ISO 10002 and ISO 19011, were not widely known either, with about 40% and 30% of the respondents still indicating unfamiliarity or uncertainty, respectively (Karapetrovic et al., 2006A&B).

Nevertheless, 33% of the ISO 9001-registered companies and 36% of the companies with multiple standards certificates have already implemented or perceive that it will be important to implement ISO 10002 in the future. These numbers are slightly lower for ISO 10001 (27% and 23%, respectively), and are in the one-sixth to one-fifth of the responses range for ISO 10003 (21% and 14%, respectively). Although these proportions may seem relatively low, especially when contrasted with the number of the "not important" responses (for example, about one third of the respondents indicated that it is not important for them to implement ISO 10003), considering the large number of organizations with ISO 9001 certificates, both in Catalonia and worldwide, these standards seem to be destined for a solid and wide usage (Karapetrovic et al., 2006A). ISO 19011 was found to be the most widely-applied AUGS, with about a 40% usage.

2.3   Integration

Several of the AUGSs' characteristics (Karapetrovic, 2007A), make the corresponding augmentative systems very flexible for different integration possibilities. Unlike the "regular" or "traditional" integration, which is by definition cross-functional and must combine at least two overall and standardized MSs (e.g., ISO 9001 and ISO 14001, see Karapetrovic and Willborn, 1998A), integration of standardized augmentative systems can be accomplished in both the horizontal and the vertical direction (Karapetrovic, 2007A). Furthermore, integrative augmentation can even facilitate the "traditional" type of

integration (see, e.g., Karapetrovic and Willborn, 1998A and 2001, and Karapetrovic, 2003), addressed for instance in the upcoming ISO "Handbook on the Integrated Use of Management System Standards".

For example, an augmentative system established in accordance with any of the CSCS standards can be vertically integrated within an overall CSCS, then at the next level up within, for instance, an ISO 9001-based QMS or within an ISO 27001-based Information Security MS (ISMS), and also within the overarching Integrated Management System (IMS). This integration can be done regardless of which underlying model is used to provide the framework for the higher level function-specific MS or IMS (see, e.g., Karapetrovic and Jonker, 2003 and Karapetrovic, 2003). If we take the structure of ISO 10001: 2007 to illustrate this point (e.g., see Karapetrovic, 2007A), it can be integrated within:

- "The process approach" of ISO 9001: 2000 and similar MSSs by incorporating the guidelines from section(s):
  - o 6.1 ("Code Objectives") and 6.5 to 6.7 ("Code Procedures, Performance Indicators and Communication Plans") within clause Five "*Management Responsibility*",
  - o 6.8 ("Resources") into clause Six "*Resource Management*",
  - o 6.2 to 6.4 (Information Gathering and Code Preparation) and 7 (Code Implementation) within clause Seven "*Product Realization*", and
  - o 8 ("Maintenance and Improvement") into clause Eight "*Measurement, Analysis and Improvement*";
- "The PDCA approach" of ISO 14001: 2004, ISO 27001: 2005 and similar MSSs by incorporating the guidelines from section(s):
  - o 6.1 into the "*Policy*" component
  - o 6.2 to 6.8 into the "*Planning*" component
  - o 7 into the "*Implementation & Operation*" component
  - o 8.1 to 8.3 ("Collection of Information", "Evaluation of Performance", "Satisfaction with the Code") within the "*Checking and Corrective Action*" component
  - o 8.4 and 8.5 ("Review and Continual Improvement") within "*Management Review*";
- Any IMS approach, for example the one given in Karapetrovic and Willborn (1998), by arranging the guidelines from sections 6.1 to 6.3 in "*Determine (Goals)*", 6.4 to 6.7 in "*Plan & Design (Processes)*", 6.8 in "*Acquire & Deploy (Resources)*", 7 in "*Implement (Processes)*" and 8 in "*Evaluate (Goals)*".

However, the real advantage of integrative augmentation rests with the horizontal integration, where systems are used to augment each other and thus are combined much more naturally (Karapetrovic, 2007A). For example, as mentioned above, ISO 10001: 2007 simply refers to establishing a "*code framework*" (i.e., the related system) "*based on and integrated with (…) other management systems*". Therefore, a code system can be established by building on the MS components from other AUGSs, for instance ISO 10002: 2004 and its sections on "commitment" (5.1), "policy" (5.2), "responsibility and authority" (5.3), and "management review" (8.6), as well as ISO 19011: 2002 to setup internal auditing. The same can be said for a complaint-handling system and a dispute resolution system, which can be integrated themselves and use ISO 19011 for the auditing component of this integrated complaint-resolution system. In turn, the auditing system in an organization can use ISO 10001 for setting up codes related to its performance, as well as ISO 10002 and ISO 10003 for dealing with any complaints or feedback on auditing. Further demonstration of integrative augmentation is provided next.

3.0   Example

This section illustrates how augmentative standards are being used in a Canadian university to teach several engineering courses, both undergraduate and graduate, and ranging from less than 10 to about 140 students in each class. Since these standards are used together, integrative augmentation is also addressed.

3.1   Application of ISO 10001 and ISO 10002

In order to set up a system for customer satisfaction codes of conduct in accordance with ISO 10001: 2007 in engineering courses, the professor in charge of teaching those courses can follow the sequence of activities illustrated in Annex F ("Code Framework") and provided in sections 6 "*Planning, Design & Development*", 7 "*Implementation*" and 8 "*Maintenance & Improvement*" (e.g., see Dee et al., 2004 and Hughes and Karapetrovic, 2006). For example, following section 6.1 of ISO 10001: 2007, from the overall goal to increase student satisfaction with the delivery of engineering management courses at the University of Alberta, the objectives for three distinct codes are identified, namely to provide prompt and effective responses to student inquiries about the course ("Response Code"), to cover the material necessary for completing the scheduled coursework on time ("Schedule Code"), and to review the solutions of and student performance on the various course evaluation components as quickly as possible ("Review Code"). Information regarding the appropriate design for the codes is taken into account [sections 6.2 and 6.3 of ISO 10001: 2007], such as reasonable and achievable guarantees of the response and review times considering the resources available, for example the professor not owning a wireless e-mail device like Blackberry®, as well as the number of the students in the course and the teaching assistants' availability for marking.

The codes are prepared in accordance with the section 6.4 of ISO 10001: 2007 and contain the suggested elements of the code. For instance, the "Response Code" states the *promise* ("I will respond to any enquiry regarding the course within 24 hours of receiving it…"), the mandatory *action in the case of non-fulfilment* ("… or I will provide an explanation, the response and a chocolate bar or another type of a snack, as selected by the enquirer"), *scope* ("Although this code is valid 24 hours a days a week…"), *limitations* ("I cannot guarantee the 24-hour response during the reading week, statutory holidays, from March 25 to 27, 2008, or in cases of natural or technical events outside of my control"), and *communication details* ("Please let me know through e-mail in the case that I did not respond to your inquiry within the promised time"). In establishing *code performance indicators* [section 6.5 of ISO 10001: 2007] (e.g., response time statistics), *procedures* [6.6] (e.g., calculating response times), *communication plans* [6.7] (e.g., providing the code and performance reports on the course web page) and *resources* [6.8] (e.g., uninterrupted Internet access), the "Guiding Principles" (section 4 of ISO 10001: 2007) are also incorporated. For example, to address principles 4.4 "Visibility" and 4.5 "Accessibility", the codes are provided in the course outline and are available at any time on the course web page. These codes are being currently implemented [section 7 of ISO 10001: 2007], while both the codes and the overall system and its performance will be analyzed and improved [section 8].

ISO 10002: 2004 is being used to collect student complaints and other feedback about the course. In a similar fashion to the application of ISO 10001: 2007, the system can be set up by following the establishment principles and guidelines in sections 4, 5 and 6 of the standard, addressing individual feedback through the application of section 7, as well as maintaining and improving the system and its performance with the use of section 8 guidelines (e.g., see Dee et al., 2004 and Hughes and Karapetrovic, 2006). The complaints and feedback collected are unsolicited, and provided through a variety of channels, including in-person, via e-mail, phone or anonymously.

3.2   Integrative Augmentation

Integration of the augmentative systems in this application comes almost naturally, as a consequence of the numerous logical linkages among the code, complaint handling, dispute resolution, and auditing systems. For example, the "Response Code" is used to provide a 24-hour maximum time to acknowledge the receipt of a complaint or other student feedback regarding the course. This not only connects the ISO 10001-based code system with the ISO 10002 complaint-handling system, specifically its section 7.4

"Acknowledgment of Complaint", but also contributes to the implementation of the related "Guiding Principles".

Other examples include both ISO 10003 and ISO 19011. In the case that a student complaint is not resolved, the professor can use ISO 10003: 2007 to refer the complaint to the appropriate university or other independent dispute resolution providers. ISO 19011: 2002 can be used by professors as well as teaching and research assistants for internal or even external auditing of the code and complaint systems, for instance. As new AUGSs appear, for example the ISO 10004 guideline for customer satisfaction monitoring and measurement, it is expected that the related systems can and should also be included. In the case of ISO 10004, it could augment the maintenance and improvement components of ISO 10001 and ISO 10002 – based systems by providing a framework for student surveys on the performance of the related systems in the courses where these systems are applied.

4.0   Conclusion

A number of standards originally or currently bearing the ISO 100XY designation represent examples of a new "species" of augmentative standards with an outstanding potential for application and integration within organizational management systems (Karapetrovic, 2007A, Karapetrovic and Casadesus, 2007). ISO 10001, ISO 10002, ISO 10003, ISO 19011 and the like focus on adding or improving specific components of a function-specific or an overall, and thus integrated, management system. An overview of several of these standards was provided first, particularly focused on the commonalities in their content, structure and ability to be both independently applied and foster vertical and horizontal integration with additional standardized management systems. A brief discussion of the empirical results concerning the perceived importance of the implementation of augmentative standards in 529 ISO 9001-registered companies in Spain was given. An example of the application and integration of standardized augmentative systems in engineering education was subsequently illustrated.

This paper actually started with the statement that "only two" such standards were published since 2008, thus giving a positive connotation to the avalanche-like appearance of new management system standards (Karapetrovic, 2003). Although such notions are sometimes criticized, and there is even some recent evidence that organizations registered to two (ISO 9001 / ISO 14001) or more management system standards show preference toward the integration of standards and not just the related systems (see, e.g., the corresponding findings of Karapetrovic et al., 2006A), it seems fairly clear that this avalanche will not and should not stop (Karapetrovic, 2003; Karapetrovic, 2005; Karapetrovic and Casadesus, 2007). Therefore, integration of standardized management systems, including integrative augmentation, seems to be set for growth as an area of both practice and research. One important related development in the period between 2008-2009 will be the publication of "only one" handbook, namely the ISO "Handbook on the Integrated Use of Management System Standards".

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