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Towards Effectiveness of Integrated Management Systems for Enterprises

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As there is an increasing number of firms implementing ISO 9001, ISO 14001 and OHSAS 18001 standards, they experience some extra work and new challenges in these three separate systems. For example, ISO 9001, ISO 14001 and OHSAS 18001 require all working procedures to be traceable and auditable. To meet satisfactory requirements, each management system demands a lot of documentation, written procedures, checking, control forms and other paper work. It has been proved that it is a challenge to handle three separate management systems to ensure their alignments with the organization's strategy.

An Integrated Management System (IMS) has thus been advocated. This paper explores empirically motivations and benefits obtained in implementing an integrated management system (IMS) for enterprises. ***The aim of this paper is to understand challenges and critical issues involved in implementing IMS.***

In this study, questionnaire survey and interview discussions are conducted in China. Technique of power spectrum is used to analyze the experience of the firms in operating the IMS. It is revealed that the main motivations for implementing IMS are: to satisfy customers' requirements, to respond to government's appeal and to cope with stress from competitors. The noticeable benefits obtained are: to simplify certification process, decrease management costs and decrease paper work. From an empirical perspective, the study provides a better understanding for enterprises in implementing IMS.

Keywords: *Integrated Management System; enterprise; motivation; benefit*; *power spectrum technique.*

Introduction

The implementation and certification of quality (ISO 9001), environmental (14001) and occupational health and safety (OHSAS 18001) systems have been an important activity for many organizations and become a widespread practice around the world (Asif *et al*., 2009; Nakashima *et al*., 2006; Rocha *et al.*, 2007). So far, these management systems have received major attention within organizations to create competitive advantages and contribute to a sustainable development (Esquer-Peralta *et al*., 2008; Gudonavicius *et al*., 2009; Jørgensen *et al*., 2006).

ISO 9001:2000 is based on the following eight quality management principles: (1) customer-focused organizations; (2) leadership; (3) involvement of people; (4) process approach; (5) system approach to management; (6) continual improvement; (7) factual approach to decision making; and (8) mutually beneficial supplier relationships (Casadesus and Karapetrovic, 2005). Based on these eight guiding principles, ISO 9001:2000 defines five main management requirements: (1) quality management systems, (2) management responsibilities, (3) resources management, (4) product realization, and (5) measurement, analysis, and improvement (Padma *et al*., 2008).

ISO 14000 is a series of standards and guidelines with the aim of standardizing environmental management programs across industries worldwide (Alberti *et al.*, 2000). The ISO 14000 series comprise five aspects: (1) environmental management systems, (2) environmental auditing, (3) environmental labeling, (4) environmental performance evaluation, and (5) life cycle assessment (Zeng *et al*., 2005). The standards are classified into two main types: guidance notes and specifications. All standards except ISO 14001 belong to the former. They are descriptive documents and not prescriptive requirements. Its adoption is voluntary. As a subset of ISO 14000, the environmental management systems take a systematic approach and provide a tool to enable organizations for controlling impacts of their activities, products, or services on the environment (Low and Tan, 2005).

The standard on Occupational Health and Safety Assessment Series (OHSAS) 18001:1999 aims to create and to maintain a safe working environment, while protecting and maintaining safety and health of workers (Low and Chin, 2003). It is important that organizations should: (1) establish occupational health and safety management systems for minimizing risks to its employees and other affected parties; (2) implement, maintain, and continuously improve occupational health and safety management systems; (3) assure itself of its conformance with its stated occupational health and safety policy; (4) demonstrate these conformances; (5) seek certifications/

registrations of its occupational health and safety management systems by an external organization; and (6) make self-determination and declaration of conformance within specifications (Zeng *et al*., 2008a).

The ISO 9001, ISO 14001 and OHSAS 18001 standards require organizations to formulate policies, to define roles and responsibilities, to assign management representatives and to manage processes. In practice, implementing these standards in parallel demands many duplicate management tasks (Fresner and Engelhardt, 2004). For example, ISO 9001, ISO 14001 and OHSAS 18001 require all working procedures to be traceable and auditable. To meet satisfactory requirements, each management system demands a lot of documentation, written procedures, checking, control forms and other paper work. It has been proved that it is a challenge to handle three separate management systems to ensure their alignments with the organization's strategy. Hence, a dominant current trend is towards implementing an integrated management system (IMS) (Karapetrovic and Casadesus, 2009; Molina-Azorin *et al*., 2008; Zeng *et al*., 2007).

Some researchers studied IMS from various viewpoints, including examining possibility of integrating quality, environmental and occupational health and safety management systems and exploring different integration approaches (Matias and Coelho, 2002; Zutshi and Sohal, 2005; Labodova, 2004). A few empirical studies, to our knowledge, had documented effectiveness obtained for firms that implemented an IMS.

Using the technique of power spectrum, this paper explores the motivations and benefits in implementing IMS for the Chinese enterprises. **The aim of this paper is to understand challenges and critical issues involved in these processes.** It is hoped that the study can shed some insight for improving sustainability of IMS implementation for enterprises.

Literature review

Improved understanding and common use of systems were the first step for integration. Aligning different management systems with business objectives and overall strategies of an organization is clearly the necessary criteria for effective integration. Karapetrovic and Jonker (2003) addressed that an integrated system was "a system of systems". They argued that the integration of management systems means to link them in a way that results in a loss of independence of one or both. Integration normally leads to a strong and comprehensive management system.

Matias and Coelho (2002) addressed that commonalities between the three systems were emphasized. Foreseen advantages for companies pertain to economies of scale in the certification processes and a joint approach to the provision of quality, environmental responsibility and workforce protection. Hence, the need to pursue standards integration is emphasized. Low and Tan (2005) argued that the revised ISO 9001: 2000 serves as an opportune platform for enterprises to consider certification to ISO 14000: 1996 and OHSAS 18001: 1999 through an integration exercise.

Wilkinson and Dale (2001) found that integration of quality, environmental and occupational health and safety management systems could be carried out in a number of different ways and might have resulted in differences in understanding of meaning of the term and in its applications. A set of guideline is developed for an integrated environmental management / total quality management systems with three broad components and a framework based on ISO 9001. The three components are: (1) management responsibilities, (2) process management, and (3) support systems (Renzi and Cappelli, 2000).

Some researchers suggested several possible strategies for integrating the ISO 9001 and ISO 14001 standards. Jonker and Karapetrovic (2004) proposed three different approaches: (1) first to establish a quality management system and subsequently for an environmental management system; (2) first to establish an environmental management system for a quality management system; and (3) simultaneously to establish quality and environmental management systems. Wilkinson and Dale (2002) suggested two approaches for achieving integration which takes place in two ways and at different levels. The two approaches are: (1) to merge documentation through aligned approach through similarities in the standards; and (2) to implement an integrated management system through a total quality management approach. For certification purposes, merging documentation through aligned approaches is adopted, but the scope and level of integration have to consider the needs and organizational culture.

Jørgensen *et al*. (2006) examined three ambition levels of integration: from increased compatibility of system elements over coordination of generic processes to an embeddedness of an IMS in a culture of learning and continuous improvement. It is necessary to consider different levels of integration to make a coherent standard. To create competitive advantages for the organization and contribute to a sustainable development, the IMS has to be expanded to include the whole product chain and all stakeholders. Rocha *et al.* (2007) proposed integrated management systems (IMS) model, which illustrates how existing management systems for quality, environment, occupational health and safety, and corporate social responsibility may be enhanced so that they are more reflective of sustainable development.

Zeng *et al*. (2007) revealed that the major problems for enterprises to operate multiple parallel management systems included: causing complexity of internal management, lowering management efficiency, incurring cultural incompatibility, causing employee hostility, and increasing management costs. They examined internal and external factors that affected the implementation of an IMS. The internal factors include: (1) human resources, (2) organizational structure, (3) company culture, and (4) understanding and perception. The external factors consist of: (1) technical guidance, (2) certification bodies, (3) stakeholders and customers, and (4) institutional environment. They proposed a multi-level synergy model (strategic synergy, organizational structural-resource -cultural synergy, and documentation synergy) for an effective implementation of IMS.

More recently, Salomone (2008) investigated potentials for the integration starting from an analysis of common aspects in terms of real motivations (company image, costs

saving, etc.), obstacles (unclear regulations, lack of financial support, etc.), driving forces and external pressure that companies meet when implementing each management system: Quality (ISO 9001:2000), Environmental (ISO 14001:2004), Occupational Health and Safety (OHSAS 18001:1999), and even, Social Responsibility (SA 8000:2007) management systems.

Methodology

The Sample

To explore motivations and benefits obtained after adopting an IMS for enterprises in China, a questionnaire survey is conducted. The questions for evaluating motivations to implementing IMS and benefits obtained after adopting it are determined from reviewing relevant literatures. In this survey, respondents were asked to evaluate the importance of the indicators with a Likert scale ranging from 1 to 5 with the following equivalence, "1: very low"; "2: low"; "3: neutral"; "4: high"; and "5: very high".

The questionnaire was sent to all senior managers who were responsible for quality, environmental and safety issues in 400 large and medium-sized enterprises which listed in the Dictionary of Management System Certified Enterprises.

A total of 66 companies responded. All the respondents are senior managers in their organizations that have been certified under ISO 9001-, ISO 14001- and OHSAS 18001. From the survey, 15 (23%) companies have invested over three years in implementing IMS; 24 companies (36%) between one and three years; and the remaining claimed to be within one year. Among the 66 companies, 34% of the respondents are manufacturers, 22% are electronic and electrical equipment companies, 21% are construction companies, 21% are chemical companies, and 2% from others.

Research methodology

In this paper, technique of power spectrum is used to analyze the data collected from the survey. Power spectrum is a complex number which is uniquely described by its magnitude and phase (Le *et al*., 2003; Tam and Le, 2007). There are two ways of representing data: in the time domain and in the frequency domain (Lathi, 1998). Transformation from the time domain to the frequency domain is achieved by using operator $e^{j\omega t}$, which can be depicted in Eq. (1) as:

$$e^{j\omega t} = \cos(\omega t) + j\sin(\omega t) \quad (1)$$

Frequency is normally defined as the number of repetitions over time and a concept of "frequency domain" is believed to be new in the field of management. Frequency is inversely proportional to time, which means the longer the time, the smaller will be the frequency and vice versa. Using the concept of frequency and time, data with a long time span has densely-concentrated spectra over a short frequency range and vice versa. Magnitude of frequency components which are displayed over a frequency range or spectrum is defined as proportional to signal energy. Signals which are continuous and periodic in time have densely concentrated energy spectra.

The power spectrum $P(f)$ of a data set $x(t)$ is given in Eq. (2) as:

$$P(f) = |X(f)|^2 \quad (2)$$

where $X(f)$ is Fourier transform of the data or input signal. It is evident that power spectrum is proportional to the square magnitude of input signal's Fourier transform as expected because the signal energy is directly related to its squared magnitude. It is important to stress that energy plays an important role in determining data characteristics, i.e. periodic, aperiodic or chaotic, detecting transitions from one state to another, i.e. a transition from periodicity to chaos or from periodicity to transient, and working out energy weighting at different frequencies (Lathi, 1998), which can be achieved by estimating power spectrum of input data. In the case of studying sample results of tests in management, power spectrum is particularly useful as it can reveal energy distribution of samples in each test. From that, significance of each test can be assessed. In addition, power spectrum can be used to classify different types of data including periodic, chaotic, transient and noise by interpreting its shapes and frequency range (Le *et al*., 2003). Moreover, as data processing and analyses are increasingly important, this further strengthens the idea of using spectral methods in the field of management. It is thus evident that spectral methods which have been successfully employed in the field of signal and image processing can also be employed in the field of quality and environmental management. The only drawback of power spectrum is that its phase information is suppressed which means that two different data sets could have identical power spectra.

To further study the data, a bispectral method is introduced which shows correlation among the tests at various "frequencies". The "frequencies" in this case is inversely proportional to the time the test samples are taken. For example, if the samples are taken every 2 seconds, then its frequency is 0.5 Hz. The bispectrum B (f1, f2) has been widely employed in the field of high-order statistics to study data correlation in 3-D and is given in Eq. (3) (Milligen *et al*., 1995):

$$B(f_1, f_2) = X(f_1)X(f_2)X^*(f_1 + f_2) \quad (3)$$

where the symbol " * " means complex conjugate. It is clear that bispectrum is strongly dependent on the Fourier transform of the input signal. From Eq. (3) the term $X^*(f_1+f_2)$ represents correlation among various frequency terms in the (f_1+f_2) plane. To estimate bispectrum, mean value of the data is removed to eliminate sudden spikes and pulses which could lead to mislead interpretation. In MATLAB, this can be done by using a detrend (.) function. After that, the data are windowed using a Hanning window via the command hanning (.) provided in MATLAB.

In addition, the data are also normalized by dividing each column by its largest item so that abrupt changes are nullified. The Fourier transforms of the detrended data are then calculated; for data size of more than 1,024, which is very common in signal processing, substantial computing work is required which makes the bispectrum sometimes hard to estimate and not practical. However, it reveals vital information to the understanding of data characteristics and especially correlation among various criteria at different frequencies.

In this paper, bispectrum of an error matrix of 210×10 is calculated to show correlation among fitting errors and also error uniformity. Unlike power spectrum which suppresses phase information in the data, bispectrum uniquely gives phase information, i.e. correlation among a number of frequencies, which enables detailed studies of correlation among factors. It should also be stressed that because bispectrum gives both magnitude and phase information, it is considered to be unique, i.e. different data possess unique and different bispectra. This makes bispectrum a useful tool for data classification and recognition. In addition, phase information gives bispectrum an advantage over the power spectrum method (Tam and Le, 2007). In fact, bispectrum is the only spectral method which can give phase information of input data. However, because phase information is usually difficult to interpret, magnitude bispectrum is usually employed as the main tool for data analyses.

Results and analysis

Motivations to implement an integrated management system

On the basis of the methodology aforementioned (Salomone, 2008; Zeng *et al*., 2007), six motivations in implementing an IMS are assessed: 1) To cope with stress from competitors; 2) To satisfy customers' requirements; 3) To respond to government's appeal; 4) To extend market share; 5) To lower operation conflict; and 6) To improve management efficiency. The results of the power spectrum are shown in Figure.1.

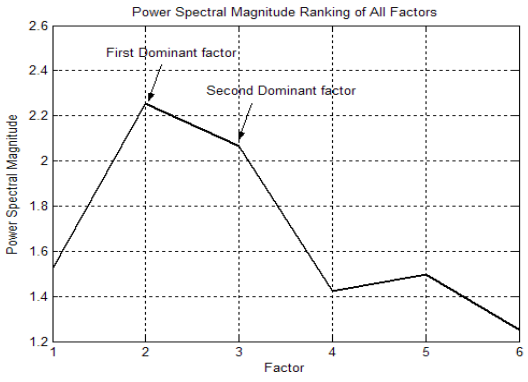

Figure 1. Results on motivations to implement an integrated management system

Note: Factor 1: To cope with stress from competitors; Factor 2: To satisfy customers' requirements; Factor 3: To respond to government's appeal; Factor 4: To extend market share; Factor 5: To lower operation conflict; and Factor 6: To improve management efficiency.

From Figure.1, it can be observed that the motivation factor "To satisfy customers' requirements" is ranked first, with a power spectral magnitude of 2.25. Although there is a difference of motivation between ISO 9001 and ISO 14001 (ISO 9001 is customer-driven while ISO 14001 is more driven by stakeholders, the community and regulators), the focus of the standards on customers and continuous improvements remains strong (Ubius & Alas, 2009; Urbanskiene *et al*., 2008).

The motivation factor "To respond to government's appeal" is graded second, with a power spectral magnitude of 2.06. In recent years, the Chinese government has emphasized environmental management for enterprises. For example, the "Framework Planning of Promoting Cleaner Production" (FPPCP) was issued by the Shanghai government. According to the FPPCP, manufacturers with a strong competition capability and good economic performance are encouraged to promote clean production, in which the government might provide financial supports (Zeng *et al*., 2008b). Currently, more and more firms have begun to implement OHSAS 18001. It is believed that certified companies in implementing an IMS are more technical competent to improve competitiveness. Under this circumstance, influence from the government on firms is obvious although there is no mandatory requirement.

The motivation factor "To cope with stress from competitors" is ranked third, with a power spectral magnitude of 1.52. Although "integrated management system" is innovative to many Chinese firms, the benefits obtained in its adoption are acknowledgeable.

The motivation factor "To lower operation conflict" is ranked fourth, with a power spectral magnitude of 1.50. Traditionally, an organization has separate, competing staff groups to handle different management systems. This may cause waste of human resources and increase operational conflict. For example, each management system: quality, environment, occupational health and safety management systems, may have its own management representatives, management teams and internal auditing teams. In implementing integrated management systems, a specific organizational structure could coordinate from top managers to bottom front-line staff for meeting the needs of different management systems while harmonization of the standards should satisfy demands for integrated documentation and help reducing administration conflict. Furthermore, greater acceptance by employees to the three objectives including customer satisfaction, environmental compliance and employee safety is possible that results in higher staff motivation and lower inter-functional conflicts (Zutshi & Sohal, 2005).

The motivation factor "To extend market share" is ranked fifth, with a power spectral magnitude of 1.42. In general, the rising requirements of ISO 9000 and ISO 14001 certification, particularly from importers in industrialized countries, are viewed as a potential barrier to trade. Hence, there is a common perception that an IMS for these standards would help firms to expand the international trade. A study by Zutshi and Sohal (2005) indicated that implementing IMS enabled companies to maintain the market share and competitive advantage. The surveyed companies have experienced an improved reputation and a positive image within the community, as they are now seen caring for the environment. Resulting from the integration of procedures and processes, a company, moreover, is viewed by external parties as "working under a united entity rather than separate systems", which in turn can enhance "credibility" of the company.

The motivation factor "To improve management efficiency" is ranked sixth, with a power spectral magnitude of 1.25. Efficient systems must be designed in a

way to comply with the requirements of international standards. With similar management principles, the ISO9001, ISO14001 and OHSAS18001 provide a complete series of standards for establishing an effective documentation system. Each management system consists of similar elements including: (1) policy, (2) aims and objectives, (3) organization, (4) documentation, (5) plans (programmes), (6) procedures, (7) records, (8) audit, and (9) review. Documentation is intended for communication, operation, traceability, and evaluation. Although quality, environmental and occupational health and safety management systems are characterized by the same common key elements, they operate independently. Under some circumstances, elements for managing activities and processes that affect quality, environmental and occupational health and safety could be integrated by the implementation of IMS (Zeng *et al*., 2007). The companies implementing IMS can get rid of being trapped in a controlled bureaucracy with limited effectiveness.

Figure 2. shows the magnitude spectrum of the dataset. Strong harmonic peaks detected in the bispectrum have shown some strong correlation or coupling among a number of questions and/or responses from the respondents.

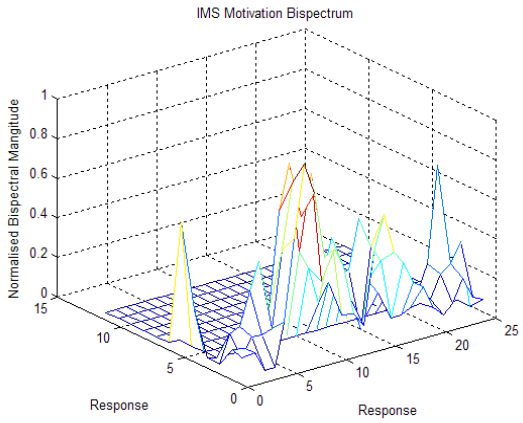

Figure 2. Bispectrum of motivations to implement an integrated management system

From Figure 2, it is clear that responses 10 to 15 appear to be more strongly related than other responses. This means that: (1) the respondents may have expected the questions as they might have seen the questions beforehand from their experience with previous surveys, and (2) strong harmonic peaks in the bispectrum also indicate strong peaks in the power spectrum. It should be noted that the bispectrum is used to detect redundancy in the dataset or strong relationship among a number of responses or questions. Generally, the responses are not independent which means that companies or customers may have possessed similar expectations from the host (Tam and Le, 2007).

Benefits obtained in implementing integrated management systems

Benefit obtained in implementing an IMS is an important criterion for its sustainable implementation (Holdsworth, 2003). Benefits obtained are investigated (Salomone, 2008; Zeng *et al*., 2007), including: 1) simplify certification process; 2) save human resources; 3) decrease paperwork; 4) decrease management cost; 5) decrease complexity of internal management; 6) increase cultural compatibility; and 7) facilitate continuous improvement. Fig. 3 shows the survey results on benefits obtained in implementing an IMS by power spectrum.

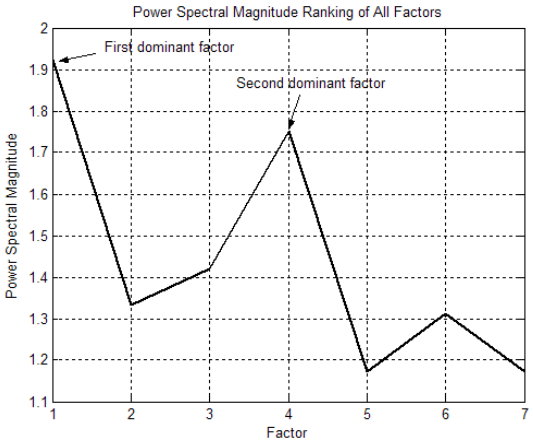

Figure 3. Results on benefits obtained in implementing an integrated management system

Note: Indicator 1: Simplify certification process; Indicator 2: Save human resources; Indicator 3: Decrease paper work; Indicator 4: Decrease management costs; Indicator 5: Decrease complexity of internal management; Indicator 6: Increase cultural compatibility; and Indicator 7: Facilitate continuous improvement.

The indicator "Simplify certification process" is ranked first, with a power spectral magnitude of 1.92. Currently quality management systems based on ISO 9001, environmental management systems based on ISO 14001 and occupational health and safety management systems based on OHSAS 18001 are run by different certification bodies. In practice, this separation has caused difficulties for firms. Certification bodies may have to face demands for joint certifications. This situation is expected to change in the near future when multinational certification bodies are available for offering combined auditing to their customers.

Although the standards of quality, environmental and safety system audits are different, procedures are almost identical. After identifying audit objectives, roles, and responsibilities of the parties involved, an audit is initiated with the scope to be defined and an audit plan to be prepared. Subsequently, auditor(s) executes audit plans; reports and records are submitted to clients, and appropriate follow-up actions being taken as necessary. Without an integrated system, it would certainly cause unnecessary waste of resources and time. Apart from focus on overall system improvement, joint audit systems will result in cost savings, better allocation and deployment of human, material and information resources, as well as a unified problem solving approach that will increase efficiency and effectiveness of other interlinked systems. Such efforts and experience in Denmark and Spain are worth noting (Jørgensen *et al*., 2006).

The indicators "Decrease management costs" and "Decrease paper work" are graded second and third respectively, with power spectral magnitudes of 1.75 and 1.42 respectively. For example, the ISO 9000:1994 series, emphasizing "doing what you have written" and "writing what you have done", are characterized as a documented quality system, and are structured around twenty clauses. Each element is supported by a great volume of procedure documents, work instructions, and quality records. It should be noted that paper work is significantly decreased after ISO 9001 is transferred from 1994 to 2000 versions, which was considered one of the most difficult components of the system (Bamber *et al*., 2002).

The indicator "Save human resources" is ranked fourth, with a power spectral magnitude of 1.33. That is supported by Salomone (2008). An IMS can reduce human resources needed to manage the three systems (for example, by aggregating management for record keeping, internal audit, board reviews and training).

The indicator "Improve cultural compatibility" is graded fifth, with a power spectral magnitude of 1.31. As Wilkinson and Dale (2002) indicated, organizational culture is a key issue when integrating management systems. There is a relationship between management scopes and cultures, and differences in scope are likely to lead to different sub-cultures in the organizations (Ubius and Alas, 2009). The differences are more significant in ISO 900l: 2000 than in the ISO l400l and OHSAS l800l. While implementing the ISO 9001, mission statements frequently include statements about quality of process to ensure quality for fulfilling customers' needs (Mackau, 2003). The statement is likely to be less important to those who are not involved in "quality management" than to those who are involved. Those who are not involved may develop a "different culturally based understanding" from those who are involved. Moreover, those who are involved in the ISO 14001 and OHSAS 18001 may develop their corresponding priority on environmental management and safety management respectively. These different sub-cultures may hinder the development of a strong common culture which emphasizes on the values of co-operation and involvement (Karapetrovic, 2002; Karapetrovic and Casadesus, 2009).

The indicators "Decrease complexity of internal management" and "Facilitate continuous improvement" are graded sixth and seventh, with the same power spectral magnitude of 1.17. An IMS can result in reduction in duplication of policies, procedures and records, leading to reduced effort for system implementation and maintenance. This also results in the decrease in the volume of paper and number of forms required in the company. In practice, a prerequisite for the integration is an understanding of generic processes and tasks in the management cycle; the plan-do-check-act, and the potential benefits of such integration are related to internal coordination and the reduction of possible trade-offs. An even more ambitious level of integration is concerned with creating a learning culture, stakeholder participation and continuous improvement of performance to realize external benefits and to contribute to sustainable development (von Ahsen and Funck, 2001). To realize this ambition, focus of the management system has to be on the synergy among customer-based quality, product-oriented environmental management and corporate social responsibility.

Figure 4 shows the bispectrum of IMS benefit data, from which it is noted that there are more dominant harmonic peaks compared to the bispectrum of IMS motivation given in Figure 2.

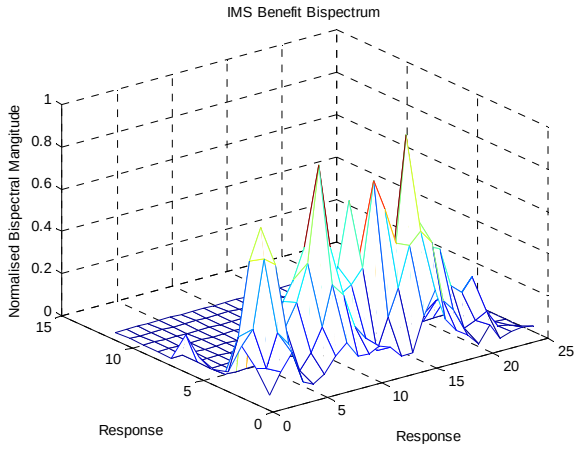

Figure 4. Bispectrum of benefits obtained in implementing an integrated management system

This suggests that: (1) the respondents expected the questions or even too familiar with the questions in the survey, (2) responses 20-25 appear to be independent from the remaining responses, which means that the corresponding questions to these responses should be carefully analyzed for future surveys, and (3) Because of nearly uniform distribution of the bispectrum, it is expected that the data approach periodicity which means that there exist predefined patterns in the responses from the respondents. Practically, to make the survey more efficient and effective, the bispectrum of the responses should be as smooth as possible to eliminate periodic components in the dataset (Tam and Le, 2007).

Conclusions

The implementation and certification of quality (ISO 9001), environmental (14001) and occupational health and safety (OHSAS 18001) systems have been an important activity for many organizations. These management systems can create competitive advantages for firms and contribute to a sustainable development. Implementing these standards in parallel often results in some problems. Hence, IMS are being advocated. In this paper, the technique of power spectrum was used to analyze the experience of the firms in implementing an IMS. It was revealed that the main motivations for implementing IMS were: "To satisfy customers' requirements", "To respond to government's appeal" and "To cope with stress from competitors". The significant benefits achieved were: "Simplify certification process", "Decrease management costs" and "Decrease paper work".

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Integruotų įmonių valdymo sistemų efektyvumo didinimas

Santrauka

Įmonių, kurios diegia ISO 9001, ISO 14001 ir OHSAS standartus, nuolat didėja. Šiems standartams įdiegti reikia papildomo darbo ir naujų iššūkių.

Paprastai įmonėje yra atskiros konkuruojančios grupės, kurios valdo įvairias organizacijos sistemas. Tai gali būti susiję su tuo, kad švaistomi žmogiškieji ištekliai ir atsiranda kai kurių konfliktų. Pavyzdžiui, kokybės, aplinkos, sveikatingumo ir saugumo valdymo sistemos gali turėti savo atstovus, grupes, taip pat vidaus audito sistemas. Diegdama integruotas valdymo sistemas, tam tikra organizacinė struktūra galėtų koordinuoti aukščiausio lygio darbuotojų – vadybininkų – ir žemesnio lygio darbuotojų veiklą patenkindama įvairių valdymo sistemų poreikius, o standartų derinimas padėtų spręsti integruotos dokumentacijos problemas ir sumažintų administracinius konfliktus. Be to, aukštesnio lygio darbuotojų motyvacija padėtų spręsti darbo konfliktus.

Buvo nustatyta, kad trijų valdymo sistemų derinimo galimybė turi didelį pranašumą. Tai užtikrina organizacijos strateginių tikslų pasiekimą. Integruota valdymo sistema (IVS) pasiteisino. Šio straipsnio tikslas yra atskleisti šios sistemos motyvaciją bei pranašumus ir trūkumus įmonių veikloje.

Tyrimas ir anketiniai duomenys buvo gauti tiriant įmonių problemas Kinijoje. Nustatyta, kad pagrindiniai IVS diegimo motyvai yra šie: patenkinti vartotojų poreikius, atsiliepti į vyriausybės kreipimąsi ir atsilaikyti konkurencinėje kovoje.

Tyrimas parodė, kad ISO 9001 ir ISO 14001 standartai turi motyvacinį skirtumą, t.y. ISO 9001 yra priklausomas nuo vartotojų, o ISO 14001 – nuo akcininkų, bendruomenės ir reguliuojančių asmenų. Standartai labai priklauso nuo vartotojų ir nuolatinių naujovių įdiegimo.

Pagrindinė nauda yra, kad supaprastinamas pažymų rengimo procesas, sumažėja valdymo sąnaudos ir darbas su dokumentacija. Šiuo metu kokybės valdymo sistemos paremtos ISO 9001, aplinkos valdymo sistemos – ISO 14001 bei sveikatingumo ir saugumo valdymo sistemomis, kurios,

besiremiančios OHSAS 18001, yra valdomos įvairių grupių. Dėl šio atskyrimo firmoms kilo daug nepatogumų. Šios problemos privertė suvienyti kai kurias grupes. Artimiausioje ateityje daugianacionalinės grupės galės pasiūlyti bendras audito paslaugas vartotojams.

Nors kokybės, aplinkos ir saugumo sistemų auditai skiriasi, procedūros yra beveik tokios pačios. Užsibrėžiami audito tikslai, vaidmuo ir partijos, kurios susijusios su tuo, atsakomybė. Auditas priklauso nuo darbų apimties ir audito plano. Taigi auditoriai vykdo audito planus, pranešimai yra perduodami klientams ir imamasi atitinkamų veiksmų. Be integruotos sistemos tektų susidurti su nereikalingu resursų ir laiko švaistymu. Jungtinė audito sistema ne tik sutelktų dėmesį į tai, kaip bendrai tobulinti sistemą, bet ir taupytų lėšas, geriau pasiskirstytų žmogiškuosius, materialinius ir informacijos resursus. Be to, bendras požiūris į problemų sprendimą padidins našumą ir tarp savęs susijusių sistemų efektyvumą.

Žiūrint iš įmonės perspektyvos, tyrimu labiau suvokiama IVS įvedimo svarba įmonių veikloje.

Raktažodžiai: *integruota valdymo sistema, įmonė, motyvacija, nauda, energetinė spektro technologija.*

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