

Integrated Management Systems: Survey results from Portuguese companies and experts



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ABSTRACT

The proliferation of several certifiable sub-systems among different type of organizations lead companies to excessive departmentalization. This fact turned out to be, due to several reasons pointed out by numerous authors, disadvantageous. Hence, organizations optioned by integration of their management sub-systems. Academic awareness to this sociological event is mainly related with the fact of integration of management systems (IMS) had been performed empirically, that is, by each organization on their own due to the lack of an International Normative. In this paper it is intended to present the refined results from an online survey focused on Portuguese companies ruled by integrated management systems (IMS). These results will be crossed against a questionnaire under taken through a panel of academic and industry experts in order to weight the parameters surveyed online through a perspective of management system integration degree. The conclusions from this work also address Occupational Health and Safety issues in an integrated environment.

Key Words.

IMS, survey, OHSMS, group of experts

INTRODUCTION

The majority of management systems integration research studies conducted so far is supported by survey methodologies, case studies and descriptive statistics. As such, they express conclusions that are mainly derived from opinions and perceptions about the subject. Thus, it is common to find in the open literature references that point out the highly subjective results derived from such studies. This paper tries to compile the main conclusions that management systems integration body-of-knowledge research studies have tried to address, with the aim of describing the integrated management systems (IMS) state-of-the-art.

Quality management system (QMS) is, usually, the genesis management system from which an IMS is built up [1],[2]. Other reported implementation strategy is the *all in*, that is, the simultaneous implementation of several management sub-systems. Other authors distinguished four eras on quality organizational management, namely, the control era, the assurance era, the management era and, currently, the integration era [3]. This latter author emphasized the new role to play by quality professionals in an integrated environment in accordance with other authors [2].

A lingering question is related with integration levels. Some authors [4] distinguish between three integration levels:

- Corresponding: compatibility increase with management systems cross references.
- Coherent and coordinate: generically processes focusing management system tasks.
- Strategic and inherent: with a learning organizational culture, continuous improvement and stakeholders involvement focusing internal and external challenges.

According to these authors the ultimate level, strategic and inherent, is achieved through an organizational culture of learning, continuous improvement of performance and stakeholders involvement related to internal and external challenges.

Related to the issue of integration levels or integration degrees, Bernardo *et al.* [5] reported the most common classifications according to references (Table 1).

Table 1: Integration degrees according to the main authors [5]

Integration Degrees	[6]	[7]	[8]	[9],[10]	[11]	[4],[12]
Level 0	Individual MS				Combined	
Level 1	Combination based on linkages	Documentation Integration	Partial Integration	Harmonization	Integratable	Correspondence
Level 2	Integration of selected parts without linkages	Alignment of core processes, objectives, resources		Cooperation	Integrating	Generic
Level 3	Integration of systems certificated and uncertificated	<i>All-in-one</i> system	Full Integration	Amalgamation	Integrated	Integration

EUROPEAN AND PORTUGUESE DATA REGARDING IMS

Data regarding wide spreading of ISO 9001 and ISO 14001 certified companies worldwide is regularly provided by ISO. Equation 1 had been proposed as a feasible indicator to assess the macro evolution of IMS certified organizations since several authors reported that ISO 9001 certification process has reached a saturation level. Hence, we may assume that an increase of IMS ratio is due to an increase of ISO 14001 number of certificates, surely, within companies already certified by ISO 9001 standard.

$$IMSratio = \frac{N^{\circ} of ISO14001 certificates}{N^{\circ} of ISO9001 certificates} \quad (1)$$

In December 2011, ISO released the late edition from ISO Survey offering data from ISO 9001 and ISO 14001 among others certifications from 1999 till 2010. Data analysis of ISO Survey results according to eq. 1 provides the following figures. Figures 1 and 2 present IMS ratio evolution (1999-2010) related to Portugal and Europe. IMS ratio presents lowest values for Portuguese reality when comparing to the European IMS ratio. Relative minimum and maximum do not match superposing both pictures suggesting some national phenomena or some time lag.

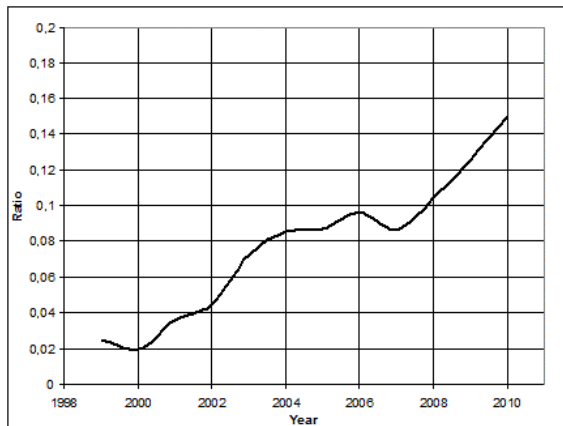


Figure 1: Portuguese IMS ratio evolution

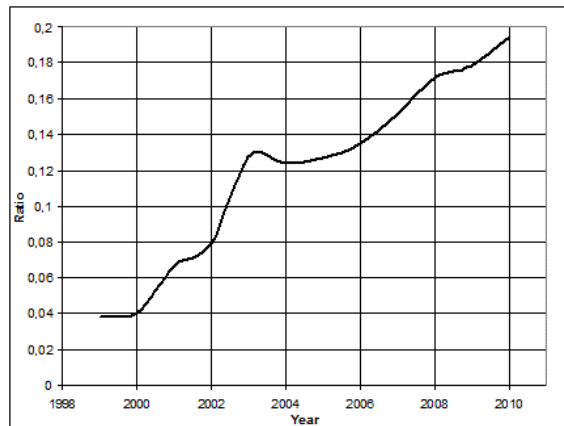


Figure 2: Europe IMS ratio evolution

Figure 3 presents a 10 years gap evolution from several European countries. The highest IMS ratio value is achieved by Sweden (Table 2). Generically, these results agreed with empirically and perceived experience, that is, a major number of companies have optioned by certification of several management sub-systems integrating them into an unique system in the last years (1999-2010). Besides, countries traditionally considered as benchmarks on environmental practices (Sweden, Norway, Denmark, Finland) presents highest worldwide IMS ratio.

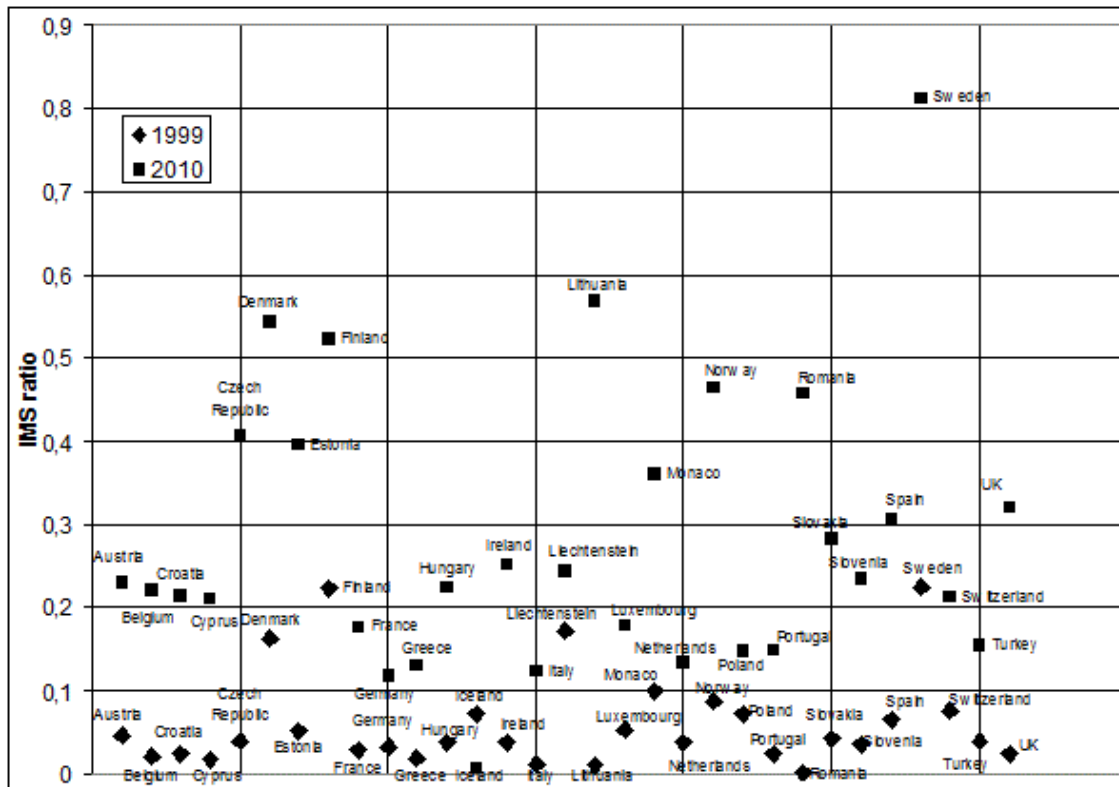


Figure 3: IMS ratio- Countries (Europe) 1999-2010

Table 2 present the countries top ten worldwide related to IMS ratio. We may see that 8 European countries are present in this list. Japan (2nd place) and Costa Rica complete the top ten.

Table 2: Countries Top Ten Worldwide IMS Ratio

	Country	IMS Ratio
#1	Sweden	0,810
#2	Japan	0,590
#3	Lithuania	0,569
#4	Denmark	0,543
#5	Finland	0,522
#6	Norway	0,463
#7	Costa Rica	0,458
#8	Romania	0,457
#9	Czech Republic	0,408
#10	Estonia	0,396

SURVEY RESULTS FROM PORTUGUESE COMPANIES

An online survey with 30 statements/questions was held focusing Portuguese companies with more than one certified management sub-system according to the following standards: ISO 9001, ISO 14001 and OHSAS 18001/NP 4397. The survey was conceptually supported on a Likert type scale, categorical and multiple option answers. A pre-test performed on three companies was used to validate the survey. The following results were supported on 52 validate answers given by management systems responsible during the period between 01-07-2011 and 01-11-2011. Some of these results were collected and subjected to the appreciation of an experts group to assess the integration level that each parameter expressed (next item from the paper). Figures 4 to 19 report the results from the questions or statements chosen to express those parameters. These questions or statements were:

Q28: The main motivations to implement the IMS were:

Q29: The main benefits resulting from the integration of the management system were:

Q30: The main obstacles found during the implementation of the IMS were:

S15: Authority from Environmental and/or OHS responsible is residual.

S18: On the company organizational structure there is a clear responsible by the IMS.

S19: The company monitors their processes based on KPI´s, MPI´s and OPI´s.

S20: The company promoted the implementation of integrated indicators.

Q22: If the company did not had implemented an IMS the overall performance comparing with the actual reality would be:

S10: Top management reveal integrated vision.

S16: IMS is an add-value.

S27: Organizational items not susceptible of integration have been identified.

Q24: Audits performed to management sub-systems are:

Q26: The strategy followed during integration process was:

S9: Organizational structure presents same organizational tools and methodologies between sub-systems and objectives alignment.

Q13: The implementation process was supported on a guideline or in a framework.

Q21: How do you classify the integration difficulty of sub-systems standards:

S5: Quality, Environmental and Occupational Health and Safety policies are integrated.

S11: Management procedures are integrated.

S14: Integration occurs at a documental level.

S8: Management system is bureaucratic.

Q25: How do you classify the IMS in you company:

Q23: How do you classify the integration level of the management system in your company:

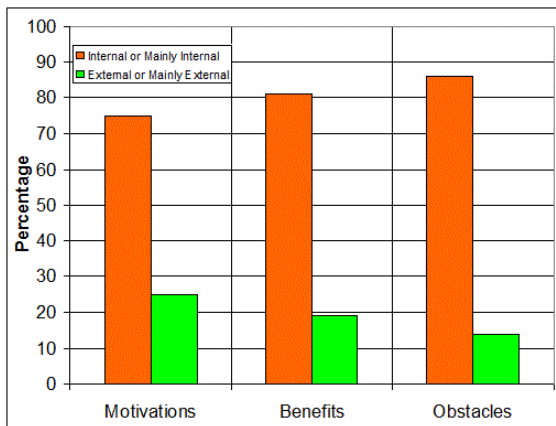


Figure 4: Results from Q28, Q29 and Q30

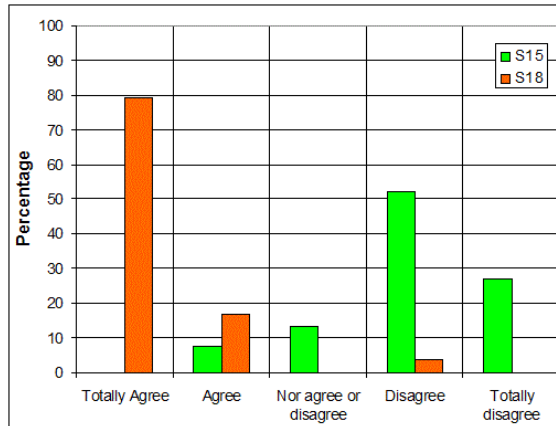


Figure 5: Results from S15 and S18

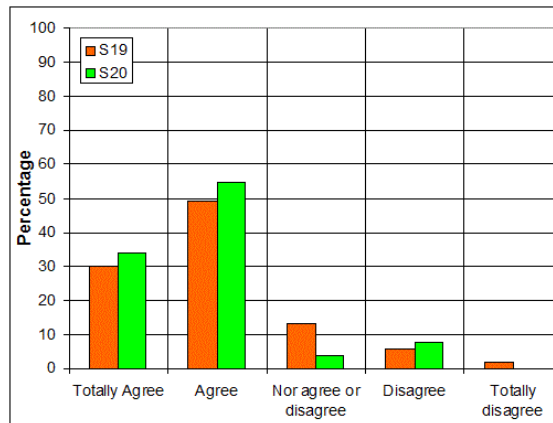


Figure 6: Results from S19 and S20

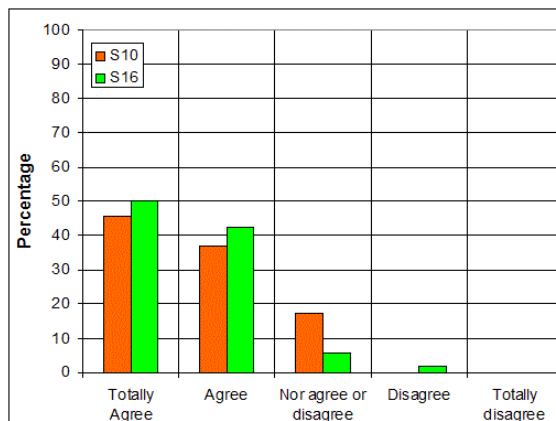
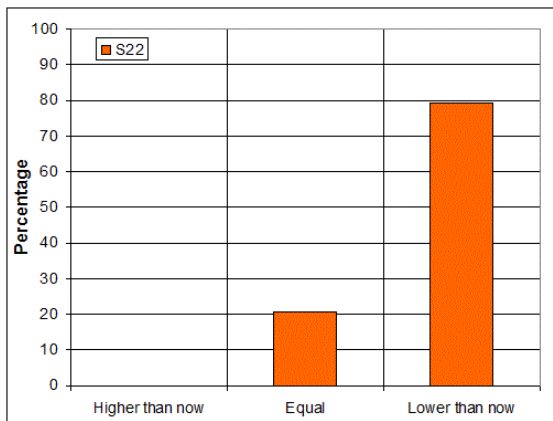


Figure 7: Results from Q22

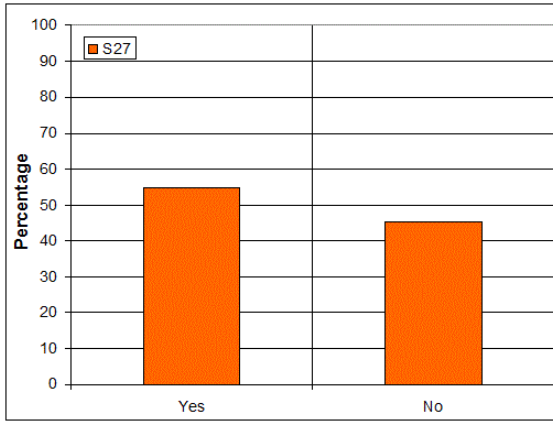


Figure 9: Results from S27

Figure 8: Results from S10 and S16

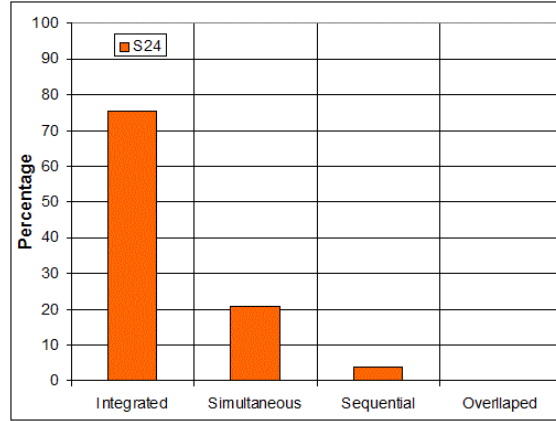


Figure 10: Results from Q24

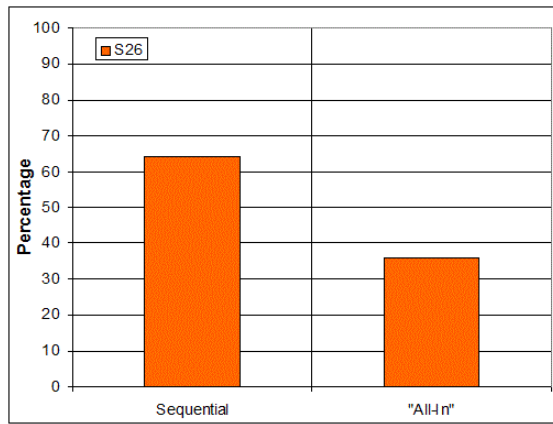


Figure 11: Results from Q26

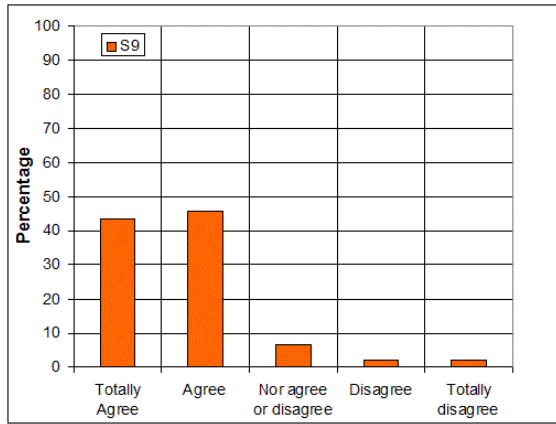


Figure 12: Results from S9

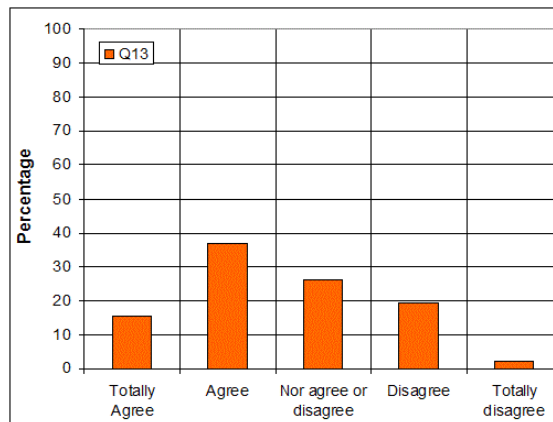


Figure 13: Results from Q13

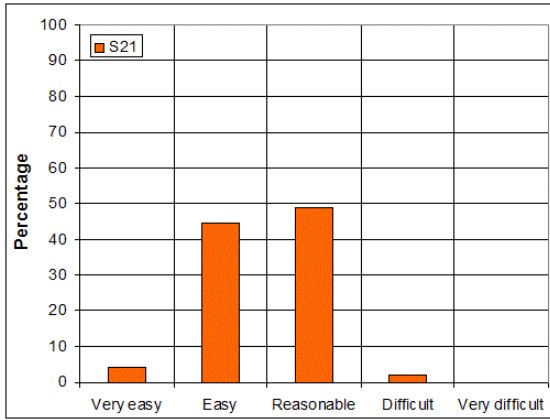


Figure 14: Results from Q21

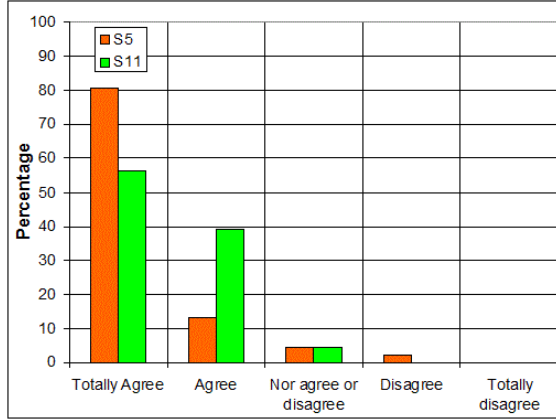


Figure 15: Results from S5 and S11

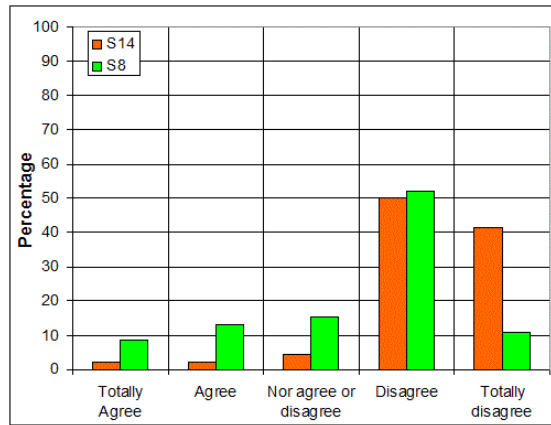


Figure 16: Results from S14 and S8

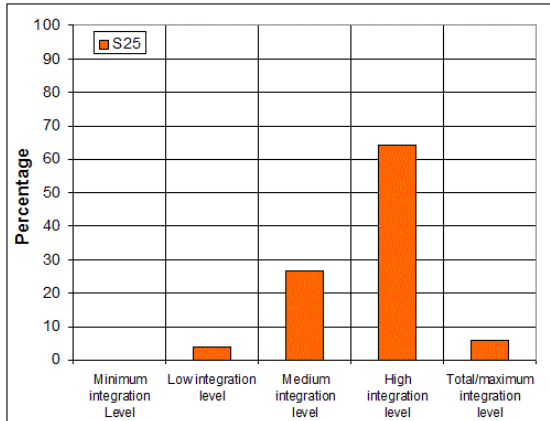


Figure 17: Results from Q25

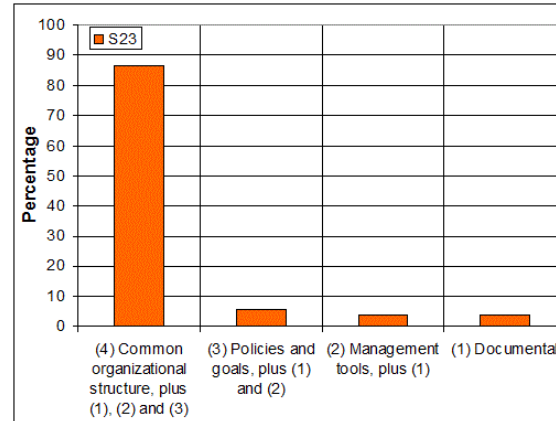


Figure 18: Results from Q23

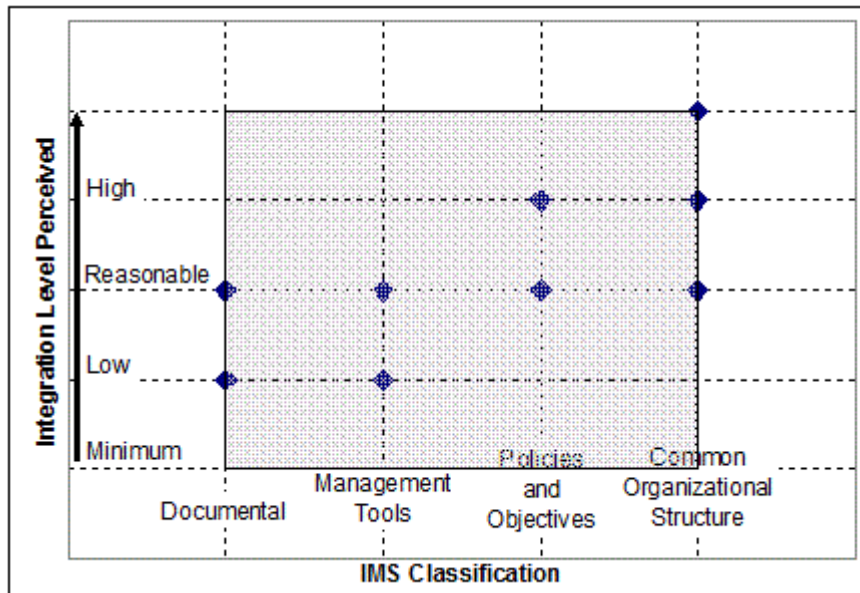


Figure 19: Results from Q25 vs Results from Q23

SURVEY RESULTS FROM PORTUGUESE EXPERTS

As been stated earlier, from the results presented in the latter item a new survey was developed focusing a group of experts. So, 10 academic and industry experts were invited to answer an online survey with 13 statements:

S1: The predominance of internal origin motivations, obstacles and benefits before, during and after the integration process.

S2: Environmental manager and/or OHS manager responsibility is not residual and formally there's a clear responsible by the IMS on the company organizational structure.

S3: The company monitors their processes based on integrated indicators (KPI's, MPI's and OPI's).

S4a: Workers have the perception that the management system overall performance is superior in an integrated context and that top management reveal integrated vision.

S4b: Workers have the perception the integrated system is an add value and the company performance would be lower in a non integrated context.

S5: The identification of organizational items not susceptible of integration.

S6: Integrated audits performed on the management system.

S7: An "all in" sequence integration *versus* a sequential process.

S8: Same organizational tools and methodologies between sub-systems and objectives alignment.

S9: Implementation process supported on a guideline or in a framework.

 S10: Implementation responsible has the opinion those sub-systems standards are easy or relatively easy to integrate.

 S11: The Company has an integrated policy of Quality, Environment and Occupational, Health and Safety and management procedures are integrated as well.

 S12: Integration does exist at a documental level and workers have the perception that the system is bureaucratized.

 S13: Integration level perception from the workers matches with the real integration level achieved by the organization.

 Each expert was asked to classify each statement and the inherent parameter according the integration level (ranging from minimum to maximum) it represents- Table 3. If the experts felt the statement and the inherent parameter do not represent any kind of integration level he may choose the option- 'Non Relevant Parameter'.

Table 3: Possible answers Matrix

	Integration Level					Non relevant parameter
	Minimum	Low	Reasonable	High	Maximum	
Statement						

Seven experts accepted the invitation to answer the survey. Data collection begun 21-03-2012 till 26-03-2012 and four experts effectively answer the survey. Table 4 reports the available results.

Table 4: Results

Statement	Expert 1	Expert 2	Expert 3	Expert 4	Predicted Weight
S1	High	High	High	Reasonable	High↓
S2	High	High	Low	High	High↓↓
S3	Maximum	High	High	Maximum	High/Maximum
S4a	High	Maximum	High	High	High↑
S4b	High	High	High	High	High
S5	Low	Reasonable	Maximum	Maximum	---
S6	Low	Reasonable	High	Reasonable	---
S7	Low	Reasonable	Reasonable	Reasonable	Reasonable↓
S8	High	High	High	Maximum	High↑
S9	High	Reasonable	High	High	High↓
S10	Low	High	Low	Minimum	---
S11	Reasonable	Reasonable	Maximum	Maximum	---
S12	Reasonable	Maximum	High	Reasonable	---
S13	Reasonable	Reasonable	High	Maximum	---

DISCUSSION

Survey results among Portuguese companies shows that internal or mainly internal

motivations, obstacles and benefits, prior, during and after the implementation process are predominant. Related to Occupational Health and Safety and/or Environmental sub-systems it seems that, in an integrated context, the authority from those managers/responsible is not residual and, at the same time, a formal IMS responsible do exist in the organization. These results suggest that sub-systems managers act as support to the IMS responsible. IMS responsible coordinates and feedbacks the inputs received from sub-systems managers. Companies surveyed reported that usually monitors their processes based on KPI's, MPI's and OPI's and on integrated indicators.

Workers from the surveyed companies felt that the overall performance would be lower in a non integrated reality, that the IMS is an add value and the top management from their companies reveal a clear integrated vision. Related to the subject of the identification of organizational items not susceptible of integration an almost *fifty-fifty* division occurred. Curiously, this is one open point on the experts survey too. Integrated audits are the preferred typology by majority of companies and a sequential process implementation has been reported as the most common one. When asked if the implementation process was supported on a guideline or a framework not all the companies agreed with this assumption. In fact, an important percentage disagreed. Almost all respondents agreed that Quality, Environmental and Occupational, Health and Safety policies were integrated and management procedures too.

Related to the experts survey, six statement/parameters remain open due to the nature of the answers given so far, not allowing a clear definition of the weighting. It is expected that with new contributions from the experts these open points may be solved. The statement and inherent parameter representing a highest integration level is related to the companies monitors their processes based on integrated indicators. The fact that workers have the perception that the management system overall performance is superior in an integrated context and that top management reveal integrated vision is a statement/parameter classified as high integration level.

CONCLUSIONS

The results from a survey online among Portuguese companies were crossed against a questionnaire under taken through a panel of academic and industry experts in order to weight the parameters through a perspective of management system integration degree. The fact that companies monitors their processes based on integrated indicators, that is, conjugating Quality, Environmental and OHS inputs is the parameter representing the highest integration level according to the panel of experts. These results will be critical on the development of a model to assess the maturity of an IMS.

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