

A Study of ISO 9001- and ISO 14001 - Registered Service Organizations in Murcia

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Abstract

Integration of standardized overall management systems and their auditing subsystems, as well as the usage of related augmentative standards in service companies are studied. Survey data from 70 organizations, 44 of which were classified as “service”, holding both the ISO 9001 and ISO 14001 certificates in the Spanish region of Murcia is analyzed. The study covers the Management System Standards (MSSs) implementation sequence, Management Systems (MSs) integration, audit resources integration and augmentative MSSs application. Interestingly, 30% of these service organizations implemented various MSSs simultaneously, 84% had integrated MSs, 79% used single internal MS audit teams, and 32% prioritized the use of augmentative MSSs.

Keywords

ISO 9001; ISO 14001; Integration of Management Systems; Audit; Murcia

1. Introduction

Since the Toulon-Verona Conference 2016 is related to services and is held in Spain, this paper illustrates service organizations-focused, selected, and preliminary results from an integration and augmentation of management systems-oriented survey conducted in the Spanish region of Murcia.

When the survey was conducted in 2013, Management System Standards (MSSs) were obviously popular in Spain, with 42,644 and 16,051 organizations registered to ISO 9001 and ISO 14001, respectively (ISO, 2014), although these numbers dropped by about 15% since (ISO, 2015).

Adding to the studies in the 1990s (e.g., Wilkinson & Dale, 1999) and in the 2000s (e.g., Zeng et al., 2007 and Salomone, 2008), in this decade (the 2010s), there is already a minor sea of research on the integration of Management Systems (MSs) following these MSSs (e.g., Santos et al., 2011, Rebelo et al., 2016, Domingues et al., 2016), some of which also from Spain (e.g., José Tarí & Molina-Azorín, 2010), but seemingly lacking in Murcia.

Murcia itself was known as a region oriented towards farming, but services (e.g., tourism, accommodation and transport) have become largely its main economic sector (INE, 2016).

Therefore, this paper focuses on ISO 9001- and ISO 14001-registered service organizations in Murcia, with contrasts against their non-service counterparts for two MS integration and auditing issues also shown. While the methodology is presented in Section 2, the six specific issues covered (i.e., the MSSs implementation sequence, MSs integration, audit human resources integration, audited MSs integration, augmentative MSSs application and MSSs type usage) are discussed as subsections of Section 3, followed by brief conclusions in Section 4.

2. Methodology

Empirical data from organizations that were registered to both the ISO 9001:2008 and ISO 14001:2004 standards and were headquartered in the Region of Murcia in south-eastern Spain (Table 1). These organizations were listed by three registrars, namely AENOR, APPLUS and BUREAU VERITAS. A postal survey was sent from Cartagena on May 13, 2013 to the manager in charge of quality in each organization. The last questionnaire was received on December 20 of that year to complete the total of 73 returned surveys.

The survey was based on and follows the Karapetrovic et al. (2006) study performed in Catalonia in north-eastern Spain. It was also a component of a 2013 study established simultaneously in other countries (e.g., Serbia).

Table 1. Survey Details

Study factor	Value
Location	Murcia
Time	May-December 2013
Population	Organizations registered to ISO 9001 and ISO 14001
Sample size	313
Obtained responses	73
Response rate	23%
Valid data	70
Valid percentage	22%

Source: own elaboration

The 70 responding organizations with valid data for the issues covered in this paper were classified into two groups, namely “service” and “non-service”, according to the International Industrial Standard Classification of All Economics Activities –ISIC (UN, 2008). The “tertiary sector”, e.g., “transport” / “distribution” and “hospitality” / “sanitary” / “consulting” services, was used to identify services (UN, 2008). Following such grouping, 44 organizations (63%) belonged to services and 26 organizations (37%) to non-services.

3. Results

3.1 MSSs Implementation Sequence

The frequencies for the responses regarding the order in which both service and non-service organizations implemented specific MSSs are shown in Table 2 (for the first and second MSS applied) and Table 4 (for subsequent MSSs).

It is evident from Table 2 that almost a two-third majority of service organizations, namely 65%, implemented ISO 9001 as the first MSS. As a first singularly-implemented MSS, ISO 9001 is followed by ISO 14001, applied by 5% of service organizations. These two companies belong to the toxic waste management and maintenance subsectors, thus making the “environmental MS before the quality MS” sequence sensible. Another logical result is that a large fraction of service organizations (30%) applied both ISO 9001 and 14001 at the same time.

On the other hand, ISO 14001 was implemented as the second MSS in 78% of service firms, while ISO 14001 and OHSAS 18001 were combined in terms of a simultaneous application in 2% of such firms. Only 6% implemented ISO 9001 as the second MSS. However, 9% of organizations from the service sectors applied other standards (e.g., ISO 13816, PECAL 2110, Global GAP and IFS Logistic) as the second MSS, instead of ISO 14001 or ISO 9001 (Table 2).

Table 2. Implementation Sequence in Services and Non-Services: First and Second MSS (Frequency)

		Services	Non-Services	Total
First	ISO 9001	28	12	40
	ISO 14001	2	0	2
	ISO 9001 / ISO 14001	13	8	21
	ISO 9001 / ISO 14001 / OHSAS 18001	0	2	2
	ISO 9001 / ISO 14001 / ISO 22000	0	1	1
Second	ISO 9001	2	1	3
	ISO 14001	25	12	37
	OHSAS 18001	1	1	2
	ISO 14001 / OHSAS 18001	1	1	2
	Others	3	1	4

Source: own elaboration

For comparing service and non-service organizations with respect to the sequence of implementation of MSSs, specifically for the first and second MSS applied, the Mann-Whitney U / Wilcoxon W Test based on Wilkinson (1999) and Nakagawa & Cuthill (2007) was performed using SPSS Statistics, showing that the relationship is non-significant at $p < 0.05$ (Table 3).

Table 3. Implementation Sequence in Service and Non-Services: First and Second MSS (Testing)*

	First	Second
Mann-Whitney U	489.500	240.000
Wilcoxon W	1479.500	835.000
Z	-.260	-.889
Asymptotic Significance (2-Tailed)	.795	.374

* SPSS® output

Table 4 explains the subsequent MSSs implemented (i.e., the third and fourth in the order). OHSAS 18001 was applied as the third MSS in 58% of service firms, while only 25% of them implemented another standard (i.e., EMAS and ISO / TS 16949) in that position. OHSAS 18001 (40%) and ISO 13816 were selected as the fourth standard in an equal percentage (40%) of the responding service organizations in Murcia.

Table 4. Implementation Sequence in Service Organizations: Subsequent MSSs (Frequency)

		Services
Third	ISO 14001	2
	OHSAS 18001	7
	Others	3
Fourth	ISO 14064	1
	ISO 13816	2
	OHSAS	2

Source: own elaboration

3.2 MSs Integration

63% of companies from the service sector integrated all MSSs they implemented in a unique single MS (Table 5). In addition, a total of nine organizations (or 21%) integrated a subset of standardized MS applied, for instance quality (ISO 9001) and environmental (ISO 14001) MSs only in 18% of the cases. As expected, the smallest fraction (16%) was formed by service organizations which did not integrate any two or more MSs.

Table 5. Management Systems Integration in Service Organizations (Frequency)

	Number of Service Organizations
No MSSs	7
All MSSs	27
ISO 9001 and ISO 14001 only	8
ISO 9001, ISO 14001 and OHSAS 18001 only	1
Total	43

Source: own elaboration

3.3 Internal Auditor Integration

According to Table 6 below, service organizations used the same internal auditors or audit teams for auditing all MSSs in 77% of the cases. 5% used a single auditor or audit team for certain standards only, while 19% applied different internal auditors or audit teams for each MSS.

When these percentages are compared with the ones obtained from the non-service organizations (i.e., 65% for the single and 19% for different internal auditors or audit teams), as Table 6 also demonstrates, it can be seen that both types of organizations have very similar MS audit human resource integration characteristics.

Table 6. Internal Audit Human Resource Integration in Services and Non-Services (Frequency)

	Services	Non-Services	Total
Same auditor / team for ISO 9001 and ISO 14001 only	1	3	4
Same for ISO 9001, IFS Logistic, BRC and ISO 22000 only	0	1	1
Same for ISO 9001, ISO 14001, OHSAS 18001 and RSC	1	0	1
Same audit team or auditor for all MSSs	33	17	50
Different audit teams or auditors for each MSS	8	5	13
Total	43	26	69

Source: own elaboration

Table 7 below shows the testing results for the integration of internal MS auditors or audit teams, with the relationship between service and non-service organizations being non-significant at $p < 0.05$.

Table 7. Internal Audit Human Resource Integration in Services and Non-Services (Testing)*

Mann-Whitney U	495.500
Wilcoxon W	846.500
Z	-1.016
Asymptotic Significance (2-Tailed)	.310

* SPSS® output

3.4 Audited MS Integration

The results indicated in Table 8 are related to how service organizations registered to at least ISO 9001 and ISO 14001 in Murcia did internal audits with respect to the integration of the audited MSs. Namely, 58% of those firms internally audited their MSs as unique integrated systems, while 29% audited them as interrelated systems. Nevertheless, only 13% of service organizations conducted internal audits of completely independent MSs.

Table 8. Internally-Audited MS Integration in Service Organizations (Frequency)

	Number of Service Organizations
Completely independent MSs	5
Interrelated MSs	11
Unique integrated MSs	22
Total	38

Source: own elaboration

3.5 Augmentative MSSs Application

As one of the purposes of the overall 2013 study mentioned before in the methodology section was to investigate the application of augmentative MSSs, selected results related to the five such standards focused on customer satisfaction, namely ISO 10001 (codes), ISO 10002 (complaints), ISO 10003 (disputes), ISO 10004 (measurement) and ISO 10008 (e-commerce), as well as three other standards relevant for services, specifically UNE 166000 (innovation), ISO 20000 (information technology) and ISO 27001 (information security), are presented here. Table 9 illustrates that a large number of organizations are unaware of either the customer satisfaction standards, with the related percentages ranging from 35% for ISO 10002 and ISO 10003 to 68% for ISO 10008, or the other mentioned standards, for example UNE 166000 at 45% and ISO 22000 at 32%. The highest percentage of service organizations indicating that it would be important to implement an augmentative standard was for ISO 10001 at 19%.

Table 9. Awareness and Importance of Augmentative MSSs in Service Organizations (Frequency)

	UNE 166000	ISO 20000	ISO 27001	ISO 10001	ISO 10002	ISO 10003	ISO 10004	ISO 10008
Unknown	20	12	18	15	13	12	14	23
Already Implemented	0	1	1	2	2	1	2	1
Important to Implement	4	5	4	7	5	0	6	4
Not Important to Implement	15	16	14	10	14	18	9	13
Not SURE	5	4	7	2	3	3	4	3

Source: own elaboration

3.6 MSSs Type Priorities

This study has affirmed that the order of priority for the service firms are to introduce new augmentative standards (e.g., for complaints and measurement), with 32% indicating this type as the first priority, followed by the introduction of new organizational standards (e.g., for social responsibility and occupational safety), at 28%. The lowest priority (fourth-ranked) for the majority of service organizations (73%) was not to add any new MSSs or models.

Table 10. Priority to Introduce New Standards by Type in Service Organizations (Frequency)

Priority	Organizational Standards	Augmentative Standards	Excellence Models	No New MSSs or Models
1	9	12	8	9
2	9	10	8	1
3	7	8	15	1
4	7	7	5	24

Source: own elaboration

*Scale 1=highest priority; 4=lowest priority

4. Conclusions

The 44 service organizations from Murcia in Spain that participated in the survey and were registered to both ISO 9001 and ISO 14001 had implemented ISO 9001 by itself as the first MSS in the majority of cases (65%), although a significant number (13) had applied ISO 9001 and ISO 14001 simultaneously as well. 84% had integrated their standardized internal MSs and 87% also audit those MSs as integrated or interrelated. Internal audits of three quarters of these service organizations are conducted by single auditors or audit teams. While a third (for ISO 10002) to two thirds (for ISO 10008) of the respondents were unaware of customer satisfaction standards, compared to three other MSSs-related possibilities, the largest fraction, namely almost a third, indicated the first priority to implement new augmentative standards.

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