IMPROVING BUSINESS PERFORMANCE WITH ISO 9001:
A REVIEW OF LITERATURE AND BUSINESS PRACTICE

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Abstract:
This paper studies the impact of the ISO 9001 on business performance. In addition, the impact on business performance metrics is also investigated. These metrics are product, and service quality, customer satisfaction, financial performance, and operational performance. In the process of selection, 25 out of 110 papers were chosen for further analysis. The sum of samples is 6605. Therefore, the paper has moderate significance and moderate contribution in the domain of ISO 9001 certification. The key findings of this paper indicated that ISO 9001 certification can improve operational performance, customer satisfaction, financial performance, and overall business performance. However, negative impact of ISO 9001 on the mentioned constructs is also noted. For practical implication, companies may use this systematic review as a tool which may help in decision making regarding ISO 9001 standards certification or overall business performance improvement.

INTRODUCTION

In this paper a systematic literature review is conducted in the domain of ISO 9001 standard benefits, and its overall impact on business performance. Now, Sitki Ilkay, & Aslan, (2012) described that there is no statistical difference between ISO 9001 certified, and non-certified companies regarding business performance. The researched metrics in their study included: profitability, turnover, inventory turnover, waste re-processing costs, capacity utilization rate, defective product ratio, manufacturing lead time, employee satisfaction levels, number of complaints from customers, customer satisfaction levels, number of customers returning products, on-time delivery, response speed of technical services, competitive position, regular training for employees, and cost savings.

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In contrast to the research of Sitki Iltkay, and Aslan (2012), Dick, Heras, and Casadesus (2008), argued that ISO 9001 certification positively influences business performance. The measured metrics in their research were product quality, waste control, cost reduction, competitiveness improvement, sale volume, and profitability. However, it is also noted that good performing companies are more likely to start the certification process. Therefore, these companies have an advantage over companies with low business performance.

Further, Aba, Badar, and Hayden (2016) concluded that ISO 9001 certified companies had better operating performance (consistent volume deliveries, productivity, cost savings, defect product reduction) opposite to non-certified companies. In the same study, it is also noted that significant improvement of operating performance was evident only a year prior to the certification year.

Early research of Simmons, and White (1999) argued that there is no significant difference in operating performance (profit, foreign sales, employee communication, productivity) between ISO 9001 certified and non-certified companies. In contrast, Kafetzopoulos, Psomas, and Gotzamani (2015) noted that ISO 9001 positively affects product quality, and operational performance (productivity, cost savings, waste reduction).

There are many more contradictory research results in the domain of ISO 9001 certification. Therefore, the main objective of this review is to analyse various scientific articles regarding the benefits, and impact of the ISO 9001 standard on business performance. The data is collected in the form of full/complete scientific papers. The main research questions that this paper addresses are:

1. What are the ISO 9001 standards certification benefits?
2. Is there a substantial difference in business performance between ISO 9001 certified companies and non-certified companies?

In the next section the review methodology will be described. Further, the results are presented. The results include tables of cross-analysed research articles in order to provide a concise preview of the whole review process.

METHODOLOGY

Literature sources

There are seven (7) major sources/journals from where the articles are obtained. The papers from these seven journals make more than 60% of the overall collected literature that was considered for the systematic review. In Table 1, the seven major journals are presented in more detail.

<table>
<thead>
<tr>
<th>Journal name</th>
<th>ISSN</th>
<th>Publisher</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. International Journal of Quality &amp; Reliability Management</td>
<td>0265-671X</td>
<td>Emerald</td>
</tr>
<tr>
<td>3. Journal of Manufacturing Technology Management</td>
<td>1741-038X</td>
<td>Emerald</td>
</tr>
<tr>
<td>5. The TQM Journal</td>
<td>1754-2731</td>
<td>Emerald</td>
</tr>
<tr>
<td>6. The TQM Magazine</td>
<td>0954-478X</td>
<td>Emerald</td>
</tr>
</tbody>
</table>

Table 1 – Seven major sources of literature

Source: Developed for this research
Literature eligibility criteria

The earliest published article used in this review, dates from 2000, and the newest article is from 2017. This way, article age bias is avoided. All articles are published in journals with moderate to strong significance. The subjects of the articles addressed one or more of the following constructs:

- ISO 9001 certification
- ISO 9001 certification impact on business performance
- Quality management systems
- Case studies addressing ISO 9001
- ISO 9001 product, and service quality
- ISO 9000 standards

Furthermore, articles in a review process for a certain journal, and articles that are accepted but are not published yet, are not taken into consideration for this review. Predatory journals and predatory conferences are avoided.

Protocol diagram

The review was conducted according to a structured protocol diagram. The majority of the scientific papers were searched through the Google Scholar service, and KoBSON service. Next, the articles were downloaded, and the duplicates were removed. Afterwards, a screening process was conducted to determine which articles are eligible for the systematic review. The eligible articles were thoroughly analysed. All irrelevant sources were excluded. Figure 1 depicts the protocol diagram used for the literature review process.

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Figure 1 - Protocol diagram (made in accordance with the PRISMA protocol: Moher, Liberati, Tetzlaff, Altman, & Group, 2010).
Sample independence

Few research articles are published by the same authors, with different years of publication, and similar sample sources. For this, each article is analysed, and it is evident that the samples are independent. This independence is ensured through the difference of countries that the research took place in, difference in the industries of the companies, and randomized selection of samples from independent databases (ex. ICAP database used by Psomas, and Kafetzopoulos). There may be a chance that randomized database sampling can result in double counting. However, in this case the consequences are not severe, as the randomization process ensures a low percentage of sample overlapping. In the next section the research results are presented. Afterwards, the paper discusses the findings, and conclusions are drawn.

RESULTS

Results of individual studies

After a thorough systematic literature analysis, the main findings of each reviewed article were noted. Author details, sample details, and findings are presented in Table 2.

<table>
<thead>
<tr>
<th>#</th>
<th>Authors</th>
<th>Sample</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>(Evangelos L. Psomas &amp; Kafetzopoulos, 2014)</td>
<td>140 manufacturing companies in Greece</td>
<td>ISO 9001 certified companies significantly outperform non-certified companies in the domain of product quality, customer satisfaction, operational performance, and financial performance.</td>
</tr>
<tr>
<td>R2</td>
<td>(Evangelos L. Psomas, Fotopoulos, &amp; Kafetzopoulos, 2011)</td>
<td>196 manufacturing companies in Greece</td>
<td>ISO 9001 certified companies achieved significant improvements regarding product quality.</td>
</tr>
<tr>
<td>R3</td>
<td>(Terziovski, 2003)</td>
<td>1500 companies that have been ISO 9001 certified</td>
<td>ISO 9001 certification contributed to business performance. However, this is the case only when the managers were focused on performance, and not only on certification.</td>
</tr>
<tr>
<td>R4</td>
<td>(Withers &amp; Ebrahimpour, 2000)</td>
<td>11 ISO 9001 certified companies from Europe</td>
<td>From 11 European companies, only 2 reported very positive impact on quality. Top management involvement, implementation time, and standard interpretation were reported as main obstacles.</td>
</tr>
<tr>
<td>R5</td>
<td>(Allur, Heras-Saizarbitoria, &amp; Casadesús, 2014)</td>
<td>110 companies in Spain, surveyed in 1999 and 2011</td>
<td>Early ISO 9001 certification that is driven by internal motives doesn’t bring benefits to the company.</td>
</tr>
<tr>
<td>R6</td>
<td>(Zhang, 2000)</td>
<td>10 manufacturing companies in the Netherlands</td>
<td>TQM has a much better effect on business performance in opposite to ISO 9001.</td>
</tr>
<tr>
<td>R7</td>
<td>(Zeng, Tian, &amp; Tam, 2007)</td>
<td>156 companies from China</td>
<td>The negative aspects of ISO 9001 certification are shortsighted goals, lack of commitment from certifying bodies, and excessive competition between certifying bodies.</td>
</tr>
<tr>
<td></td>
<td>Reference</td>
<td>Sample Size</td>
<td>Findings</td>
</tr>
<tr>
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<tr>
<td>R8</td>
<td>(Feng, Terziovski, &amp; Samson, 2007)</td>
<td>613 ISO 9001 certified companies from Australia and New Zealand</td>
<td>A strong positive relationship was found between ISO 9001 certification and operational performance. In contrast, there was a positive, but insignificant relationship between business performance and ISO 9001 certification.</td>
</tr>
<tr>
<td>R9</td>
<td>(Tzelepis, Tsekouras, Skuras, &amp; Dimara, 2006)</td>
<td>1572 manufacturing companies from Greece</td>
<td>ISO 9001 certification is superior to non-certified companies regarding production inefficiency.</td>
</tr>
<tr>
<td>R10</td>
<td>(Paulo Sampaio, Saraiva, &amp; Monteiro, 2012)</td>
<td>6 companies (not specified)</td>
<td>The findings argued that it is not unanimous that ISO 9001 certified companies would have lower financial performance if they had not implemented the ISO 9001 certificate.</td>
</tr>
<tr>
<td>R11</td>
<td>(Paulo Sampaio, Saraiva, &amp; Guimarães Rodrigues, 2009)</td>
<td>Data from across countries was collected including the top ten countries in ISO 9001 certificate growth: China, Italy, Japan, Spain, UK, USA, Germany, India, France, Australia</td>
<td>Companies achieve benefits if the certification is driven by internal motives. There is a positive impact on business performance. Lack of top management involvement in the certification process is considered as a big obstacle.</td>
</tr>
<tr>
<td>R12</td>
<td>(Quazi &amp; Jacobs, 2004)</td>
<td>33 ISO 9001 certified companies from Singapore</td>
<td>ISO 9001 certified companies reported higher business performance.</td>
</tr>
<tr>
<td>R13</td>
<td>(Quazi, Hong, &amp; Meng, 2010)</td>
<td>93 service, and construction companies from Singapore, cross-referenced with 346 companies from Mexico, China, India, and USA</td>
<td>The findings suggest that ISO 9001 certification doesn't have an impact on quality results.</td>
</tr>
<tr>
<td>R14</td>
<td>(Honore, Yaya, Marimon, &amp; Casadesus, 2013)</td>
<td>123 online banking customers</td>
<td>Results indicate that ISO 9001 didn't have an impact on customer satisfaction. However, the customer loyalty and customer satisfaction relationship showed a staggering 47 percent of improvement.</td>
</tr>
<tr>
<td>R15</td>
<td>(Evangelos L. Poulos, Pantouvakis, &amp; Kafetzopoulos, 2013)</td>
<td>100 ISO certified companies from Greece</td>
<td>The results indicate that product, and service quality, and operational performance were significantly influenced by ISO 9001.</td>
</tr>
<tr>
<td>R16</td>
<td>(Pokinska, Eklund, &amp; Dahlgaard, 2006)</td>
<td>3 case studies of small organizations</td>
<td>After certification, minimum change was experienced, as the standard was perceived as a tool for handling documentation. There were external benefits due to the certificate. However, no internal benefits were achieved.</td>
</tr>
<tr>
<td>R17</td>
<td>(Ochieng, Muturi, &amp; Njihia, 2015)</td>
<td>20 organizations from East Africa</td>
<td>Findings argued that ISO 9001 certified companies had higher performance regarding net assets in opposite to non-certified companies. However, there was no significant difference in profit and revenue.</td>
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</table>
The findings indicate that the ISO 9001 certificate doesn't necessarily provide effective performance improvement.

The paper's findings suggest that ISO 9001 can reduce benefits, and profitability.

It is argued that the various internal and external motivators for certification play an important role in achieving higher business performance. Therefore, merely adopting the ISO 9001 certificate, won't bring benefits, if other organizational factors are not included.


The main conclusion is that ISO 9001 certified companies improved process management performance.

The study noted that ISO 9001 implementation improved financial performance, quality awareness, operation execution, market share, customer satisfaction, and sales revenue.

Findings indicated that there is no significant difference regarding financial performance, between companies who lost their ISO 9001 certification, and certified companies.

**Table 2 - Authors, sample details, and findings of reviewed articles**

*Source: Developed for this research*

**Synthesis of results**

For this systematic review, twenty-four (24) research articles, and one (1) review article were investigated. The total number of companies of 6605 is significant enough for a systematic review. The sample details are presented in Table 3.
According to Table 3, the sum of samples, where ISO 9001 certification brought benefits to the company, is 3606. The number of samples where the research showed that there are no benefits of ISO 9001 certification is 2999. Next, on Figure 2, the percentage of positive and negative/no impact research results are presented. In addition, the five factors of improvement are shown, along with the research articles and the sample size details.

![Figure 2 - Percentage of positive, and negative/no benefits of ISO 9001 certification with detailed factors, and article details (Source: Developed for this research)](image-url)
Figure 2 shows that 55 percent of the total sample size, experienced benefits from ISO 9001 certification. Product/service quality was recorded in six reviewed papers, operational performance in seven, customer satisfaction in three, business performance in four, and financial performance increase in two reviewed papers. In the next section the results are discussed, and conclusions are drawn.

DISCUSSION AND CONCLUSION

In their meta-analysis Psomas, and Fotopoulos (2009) noted that the ISO 9001:2000 certificate generally contributed to business performance, and operational performance. Complementary to their meta-analysis, this systematic review obtained similar results. Next, Casadesús, and Karapetrovic (2005) investigated the possible long-term benefits, and the negative impact of ISO 9001 certification. They noted that the ISO 9001 standard is limited regarding implementation time, and overall benefits. In addition, Ataseven, Prajogo, and Nair (2014) discussed that ISO 9001 certification improves business performance through improved processes.

The ISO 9001:2015 standard brought improvements over the previous ISO 9001:2008 standard. These improvements include greater leadership engagement, simplified language and terms, structured organizational risks and opportunities, user friendly documentation, and the supply chain management is more effectively defined (International Organization for Standardization, 2015). The newer ISO 9001:2015 standard is more risk oriented in opposite to previous editions. It holds accountable the top management for risk management (Rybski, Jochem, & Homma, 2017). Similarly, Sari, Wibisono, Wahyudi, and Lio (2017) noted that ISO 9001:2015 has a risk-based approach. Therefore, organizations can formulate their implementation strategies in such a manner that the negative impact of ISO 9001:2015 certification is minimal.

Furthermore, the findings answered the previously defined research questions. These are the following:

1. What are the ISO 9001 standards certification benefits?

The benefits may include higher product, and service quality, strong improvement in operational performance, moderate improvement in financial performance, moderate improvement in customer satisfaction, improved overall business performance.

2. Is there a substantial difference in business performance between ISO 9001 certified companies and non-certified companies?

The results of this review paper suggested that in some findings there is no difference between certified and non-certified companies regarding business performance. In addition, some articles noted that there are no benefits before, and after ISO 9001 certification. Other research findings indicated that there were mild external benefits regarding the certificate itself, while minimal internal improvement was reported. There are many factors that influence the results of ISO 9001 certification. These factors may include type of organization, size, industry, market, customers, and organizational culture.

Furthermore, the contributions of this paper are moderate. Qualitative insight is obtained in the domain of ISO 9001 certification. The reviewed articles provided a large sum of samples, and the size of the samples further strengthened the contribution of the final results.

The main limitation of this paper is the non-analytical approach regarding the quantitative results of individual research papers. However, the qualitative data obtained from the analysed literature gives a insight when it comes to the impact of ISO 9001 certification.
Furthermore, this review paper concisely shows the findings of 25 scientific articles. According to the synthesis of the results, there is a chance that ISO 9001 certification brings benefits in 50% of all cases. It is important to note, that this represents only the sample size of individual research articles. The exact number of companies that reported positive or negative impact of ISO 9001 certification is not presented. In the majority, companies reported that they experienced improved product/service quality, and operational performance. Moderate improvement was noted in the domain of customer satisfaction, financial performance, and overall business performance.

As mentioned before, the significance of these percentages must be taken with appropriate reservation. The samples are viewed as a whole. This excludes the number of companies that reported benefits, when the majority responded negatively, and vice-versa. Practical implications of this systematic review may include improved decision making of managers regarding ISO 9001 certification.

For future research, other factors should be included in the review. It is recommended to address a larger body of literature, and define the development and certification of ISO 9001 within defined time frames including a minimum time span of 30 years, where various versions of ISO 9001 standards are analysed.

REFERENCES


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**UNAPREĐENJE POSLOVNIH PERFORMANSI UVOĐENJEM STANDARDA ISO 9001: PREGLED LITERATURE I POSLOVNE PRAKSE**

**Rezime:**


**Ključne reči:**

ISO 9001, uticaj, benfiti, sertifikacija, performanse