

Evaluation of the transition process from ISO 9001:2008 to ISO 9001:2015: a study focused on chemical companies in the State of Rio Grande do Sul, Brazil

Avaliação do processo de transição da ISO 9001:2008 para a ISO 9001:2015: um estudo voltado para empresas químicas do Estado do Rio Grande do Sul

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Abstract: The ISO 9001 norm has been widely used in the implementation and maintenance of Quality Management Systems (QMS) in Brazil and all over the world. This study aims to identify the chemical companies' perceptions of the ISO 9001 transition: version 2008 to version 2015, in the State of Rio Grande do Sul. In this context, the methodology used was a survey research with a structured questionnaire based on the 5-points Likert's scale. This questionnaire was sent to all chemical companies certified in ISO 9001, located in the state of Rio Grande do Sul. In addition, quality managers of three of these companies replied to semi-structured interviews with open questions. In general, the companies agree with the changes brought by the new version of the norm and believe it to be beneficial to the organization. Although some companies haven't made much towards this update and point out difficulties in implementing the new norm's requirements, most of the companies consider the ISO 9001:2015 better than its previous version. It can be asserted that the companies that choose to adopt these modifications due to concerns about a continuous improvement of the QMS will have greater benefits than those companies that choose to implement the modifications only to keep their certificate valid.

Keywords: ISO 9001; Quality management; Management system.

Resumo: A norma NBR ISO 9001 tem sido amplamente utilizada na implantação e manutenção de Sistemas de Gestão da Qualidade (SGQ) no Brasil e no mundo. Este trabalho objetiva identificar as percepções das empresas químicas do Estado do Rio Grande do Sul no processo de transição da ISO 9001:2008 para a ISO 9001:2015. Nesse contexto, a metodologia utilizada foi uma pesquisa tipo survey, com aplicação de questionário estruturado, com base na escala Likert de 5 pontos. Esse questionário foi enviado para todas as empresas químicas certificadas na ISO 9001 localizadas no Estado do Rio Grande do Sul. Como complemento, foram ainda realizadas entrevistas semiestruturadas, com questões abertas, com os gestores responsáveis pelo SGQ de três dessas empresas pesquisadas. De maneira geral, as empresas concordam com as modificações trazidas pela nova versão da norma e acreditam nos seus benefícios para a organização. Apesar de pouco terem feito rumo a essa atualização e apontarem dificuldades na implementação dos novos requisitos da norma, a maioria das empresas considera a ISO 9001:2015 melhor do que sua versão anterior. Pode-se afirmar que as empresas que adotarem essas modificações por estarem preocupadas com a melhoria contínua do SGQ terão maiores benefícios do que aquelas empresas que implementarem as modificações somente para manter o seu certificado válido.

Palavras-chave: ISO 9001; Gestão da qualidade; Sistema de gestão.

1 Introduction

In a reality of globalized and highly competitive companies, conquering and maintaining clients and markets is not a simple task. It is not just about making a product or offering a service, it is necessary to have quality in actions, commitment to the environment

and employees, and have a good relationship with internal and external customers, being able to even predict their current and future needs.

Without being able to use profit margins, the organizations need to reduce costs and waste, increase

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Received June 18, 2017 - Accepted Aug. 15, 2017

Financial support: None.

productivity, and improve time use to be competitive. The Quality Management Systems (QMS) are then applied in this context, where the motto between success and failure is a fragile line.

ABNT NBR ISO 9001 establishes requirements for a Quality Management System and it is widely used in Brazil and worldwide. As this norm is constantly improving, in September 2015 its fifth and most up-to-date version has been released. Concepts and requirements have been reviewed and, the companies certified in the norm have 3 years to compliance with ISO 9001:2015.

In this way, the general objective of this work is to identify the perceptions of the chemical companies of the State of Rio Grande do Sul in the process of transition from ISO 9001:2008 to ISO 9001: 2015. This work has specific objectives:

- Identify the chemical industries certified in ISO 9001, in the Rio Grande do Sul State;
- Collect information from the QMS of these companies, through the application of a structured questionnaire, with closed questions, using the 5-point Likert's scale;
- Realize a face-to-face semi-structured interview with open questions in three of the surveyed companies.

This work is justified by the fact that ISO 9001 is an international norm, recognized worldwide, thus, the certification helps in breaking down some trade barriers and may facilitate international negotiations. ISO 9001 also helps companies to standardize processes, document control, nonconforming product control, customer relationship and company management.

Some chemical industries' customers require an ISO 9001 certified QMS, and in the Rio Grande do Sul State are several ISO 9001:2008 certified companies that need to decide whether they will migrate to the 2015's version or give up from the certification.

2 Theoretical referential

A QMS is an organizational structure created to manage and maintain the quality, where the company is a global system, formed by subsystems (Oliveira, 2004). Nowadays, it is necessary to adapt to the contexts quickly and the QMS can be used as a tool for this purpose (Ballesterro-Alvarez, 2012).

To implement a QMS, procedures, production methods, evaluation and quality improvement are developed. Methods guide the use of resources and the process execution, which are regulated by the norms, such as ISO 9001 (Paladini, 2012). The ISO 9001 is a tool to achieve the objective of a work organization, which requires process focus on the development,

implementation and practice of improvement of a QMS (Bonato & Caten, 2015).

The new and most current edition of the norm was published in 2015 and it was announced as the first major review for ISO 9001 since the 2000's. The transition was justified by the big changes in business, today the access to information is instantaneous and the expectations about the organizations are higher. The ISO 9001 has been revised considering the most complex supply chains and a globally competitive economy (Metal Powder Report, 2015).

ISO 9001:2015 is a great example of continuous improvement, with adaptation signs to the current situation and commitment to universal applicability. The team responsible for its development considered, in the structure of the new version, the recommendations of the international norm ISO 21500:2012: "Guidance on project management". A great effort has been made to facilitate the understanding and application of the norm. The adaptation of certified organizations ends in September 2018, where only certifications based on ISO 9001:2015 will be valid (Pastor-Fernández & Otero-Mateo, 2016).

This version of the norm encourages the company to better understand the quality context in which a company is inserted, identify stakeholders, anticipate risks and seize opportunities to build a sustainable action strategy. Companies will face all these issues, brought by the 2015 version, to obtain or renew their certification ISO 9001 (Barry et al., 2016).

The "process approach" item discusses the risk mentality, which is present from the beginning until the end of this version. The risk mentality is essential in a QMS, and risk is the effect of uncertainty, which can have a positive effect, generating an opportunity, or a negative (ABNT, 2015).

Risk-based thinking, introduced in the norm, gave greater credibility to ISO 9001:2015 within companies. Risk management makes it necessary to systematically evaluate the potential of real issues, with the aim of making the processes more robust and efficient (Fonseca, 2015).

Documentation requirements are now more malleable, and the organization can decide what information will be documented and their storage format (APCER, 2015). Fonseca (2015) emphasizes that the new norm's version gives greater emphasis on the process approach and less on documentation.

There is greater control over access to documented information, such as the use of passwords. Organizations must also have backup systems in case of an accident (BSI, 2015). The quality manual is no longer a specific requirement, but it is possible to maintain it. The new requirement for "documented information" gives greater freedom of how it is implemented (Fonseca, 2015).

Many documents, imposed by the previous norm, instead of serving as ancillary tools, ended up being obstacles, which only provided additional work to the organization. In the new version, documents that do not add value to the final product have been removed (Pastor-Fernández & Otero-Mateo, 2016).

Now the leadership role is clearer, there is no longer a specific requirement for management representative (MR), because the responsibility of maintaining an effective QMS is not only of one individual, therefore, of all the leadership. In the 2015's version, the leadership has greater participation in the QMS; it leads the organization, assumes its legal representation and responds for it in decision-making (APCER, 2015). Carpinetti & Gerolamo (2016) point leadership as a fundamental part for the implementation and maintenance of a QMS. Moreover, they emphasize that the continuous improvement depends heavily on the organizational culture established by leadership.

Organizational knowledge is a new requirement of this version, which approaches competence, awareness and communication from the QMS. Employees need to know the quality policy, understand their contribution to the success of this policy and the implications of nonconformities. Organizations must check if the current knowledge is sufficient when planning changes and if any additional knowledge is needed (BSI, 2015).

The incorporation of knowledge management within ISO 9001:2015 can lead to substantial organizational changes. Knowledge will appear more centrally within quality management policies and will require organizations to systematically consider all phases of the knowledge management cycle (Wilson & Campbell, 2016).

Alignment with other management norms through a common framework is also a new feature of the 2015's version. ISO 19011 is cited in this version as a guideline for management system's audits and ISO 9000, which describes the terms and critical definitions for understanding ISO 9001, has also been reviewed (APCER, 2015).

Great changes were made in the norm 2015's version, the clauses changed, some items were added and others were removed. However, an exclusion does not mean that this item is no longer needed, it is necessary to analyze and understand the needs of the organization. In the new norm, there are no longer any requirements that define specific structure and terminology to be applied to documented information, so the item documentation requirements, present in the 2008's version, no longer appears in the 2015's version (APCER, 2015).

ISO 9001:2015 demonstrates the evolution of management principles. In general, customer focus is the primary goal of QMS, as a better understanding of your needs and expectations enables sustainable

performance. In this version, the management responsibility is present at all levels, with strong employees' involvement, competent, trained and involved with the organization. Evidence-based decision making is emphasized in the 2015's version and the best risk management, present from the beginning until the end of this norm, leads to more objectivity and confidence in the system (Lavrat et al., 2015).

Fonseca (2015) believes that companies should not see ISO 9001:2015 as a problem. This update will bring great benefits for the QMS, with less emphasis on documentation and new enhanced and important approaches such as organizational context consideration.

In the organizational context, both internal and external aspects of the organization are analyzed, giving special relevance to the stakeholders, including their expectations and needs, not only the client (Pastor-Fernández & Otero-Mateo, 2016). Fonseca (2015) sees ISO 9001:2015 as a great opportunity to review and improve quality systems and, if it is working well, maybe just adjust it to the new version.

3 Research methodology

As a data collecting form for this work, a questionnaire application has been done. It was sent by e-mail to the companies belonging to the universe of this research. Three face-to-face, semi-structured interviews, with open questions was also done, where the people responsible for the QMS of the chosen companies were interviewed.

The questionnaire applied was elaborated considering the main modifications brought by ISO 9001:2015, it was divided in two sections. The first section, with open questions is used to identify and characterize the respondent company. There are still closed issues with multiple choices, addressing, for example, the size of the company and the time of certification in the norm. Questions about which employees the company had already trained in ISO 9001:2015 and the reasons why the company certified in ISO 9001 could have more than one response option selected.

In the second section, 21 affirmations were made, with 6 options of closed answers, using Likert's scale. The following response's options could be selected: I fully agree, agree, indifferent, disagree, strongly disagree and unable to comment. The level of agreement is variable and there is a neutral point of choice.

The 72 companies received the questionnaire (Appendix A) by e-mail. This was sent on the first Monday of September 2016. Companies that did not respond to the questionnaire received the link again by e-mail on the following week Monday. This process was repeated for a month and a half. That is, the questionnaire data were collected during October 2016.

Before being sent to companies, the questionnaire was previously tested, as it is indicated by Lakatos & Marconi (2010), to verify its proper functioning, if there is inconsistency, complexity or ambiguity of the questions, or whether the number of questions is insufficient or exaggerated.

The pilot test was done face-to-face, with three respondent companies certified in the NBR ISO 9001 norm, belonging to the universe of this study. Through this test, it was possible to identify the points of improvement in the structure and appearance of the questionnaire and improve the writing of some questions.

To complement this research, three face-to-face interviews have been carried out. The interviews were semi-structured and with open questions. From the companies that answered the questionnaire, a small company (from 29 to 99 employees), a medium (from 100 to 499 employees) and a large company (more than 500 employees) were selected to respond to the interview. This classification regarding the size of the company was based on SEBRAE (2016).

The company A corresponds to the large company, the company B of medium size and the company C to the small company. The same questions were asked in the three companies' interviews. The interviews were conducted during October 2015.

It was defined as a universe of this research all the companies located in the Rio Grande do Sul State, certified in ISO 9001 and that work in the chemical industry, including companies in the petrochemical industry, fertilizers, pesticides, adhesives, lubricants, explosives, elastomers and polymers.

The INMETRO (2016) website presents the list of companies that have an active and valid ISO 9001:2008 certificate and this website has been used to select the participating companies from the universe of this research.

Considering these criteria, in the state of Rio Grande do Sul there are a total of 82 companies certified in ISO 9001 (INMETRO, 2016). We adopted a non-probabilistic sample for convenience, once not all companies had the same chance to respond to the survey, seeing that for 10 companies the questionnaire did not reach the electronic address of the person responsible for the QMS. Therefore, the total number of companies that received the questionnaire was equal to 72 companies, which is the universe of this research.

4 Results and discussion

4.1 Questionnaire

Of the 82 companies, it was not possible to contact 10 companies, either because the phone number is non-existent or because it is not possible to obtain company contact information. A total of 32 responses

were received, corresponding to 44% of the companies contacted and 39% of the total companies selected.

The size of this sample corresponds to a confidence level of 90%, with a sampling error of 10%. For this calculation, the sample size of 82 firms and 25% heterogeneity has been considered. The number of 32 respondents was the recommended sample size.

4.1.1 First section

The questionnaire's first section identifies and characterizes the companies participating in this research. Regarding the size (Figure 1) of the 32 companies, most respondents are medium-sized companies (47%).

The next question addresses how long the company has been certified in the norm. Of the companies, 62% answered that they have been certified in ISO 9001 for over 10 years and no company has indicated that it has been certified recently, that is, less than a year ago, as shown in Figure 2.

Regarding the Integrated Management System (IMS), of companies, 21% have an IMS implemented. Of these, 60% are certified in ISO 14001, an Environmental Management System norm, 13% in OHSAS 18001, an Occupational Health and Safety norm, and the remaining 27% in other management norms.

The great majority of companies (94%) are aware that ISO 9001 was updated in 2015. Even though the percentage is low, there are still companies that do not know about this update. Updating to ISO 9001:2015 requires time and dedication from all employees. However, most respondents (60%) are only planned to implement, that is, they have not begun implementing the new version of the norm yet, as can be seen in Figure 3.

It is possible to realize that companies are not worried about updating their QMS yet, seeing that the deadline is just beginning, with two years remaining (until 2018) to implement the changes introduced by the norm's new version. This fact is also proved, because, in 31% of the companies surveyed, no one was trained in ISO 9001:2015. Figure 4 shows the companies members that received training in the norm's new version. In this question, it was possible to select more than one answer option.

Of the respondents, only one company has already trained all employees in the new version of the norm. Among those who have been trained, the QMS' manager has already received training in 59% of the companies, followed by the management representative in 44% and internal auditors in 38% of the companies.

Certifications can be motivated by internal or external issues (Poltronieri et al., 2015). When questioned about the reasons why companies certified themselves in ISO 9001, where it was also possible to select more

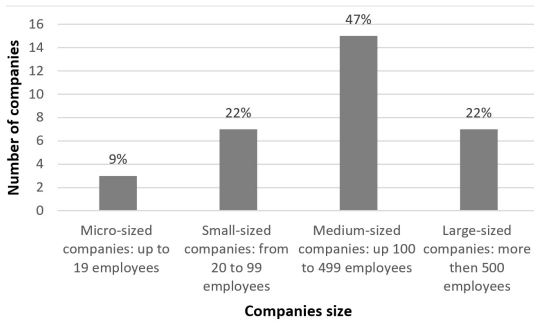


Figure 1. Companies size. Source: Prepared by the author.

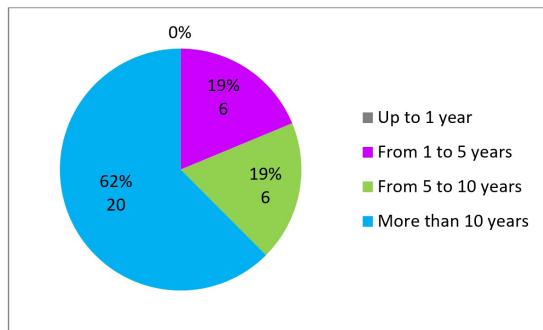


Figure 2. Certification ISO 9001 time. Source: Prepared by the author.

than one answer option, the most pointed reason for the companies is the organizational improvement, answered by 91% of the organizations. This is one of the internal motivations pointed out in Ribeiro’s (2012) study. However, meeting the requirements demanded by customers and markets, as pointed out by the respondents of Ribeiro’s (2012) study as external motivation, has also been highly selected in 81% of the companies in this study.

The possibility of working in new markets (47%) and improving the organization’s image (47%) are other external motivations, as observed by Ribeiro (2012), which appear in high percentage in this study, as well as productivity growth (41%), which is pointed out as internal motivation.

In the Maekawa et al. (2013) study, most of the companies approached, do not see the pressure of competitors as motivation for the implementation of quality programs. The same occurred in this research, where no company pointed this motivation. Figure 5 shows the number of companies that pointed out each motivation.

In general, the motivations perceived in this study are divided into internal and external motivations. Confirming this statement, Moreira (2012) stresses that there is not only one type of motivation, but a mixture of both, even if one of them is eminent.

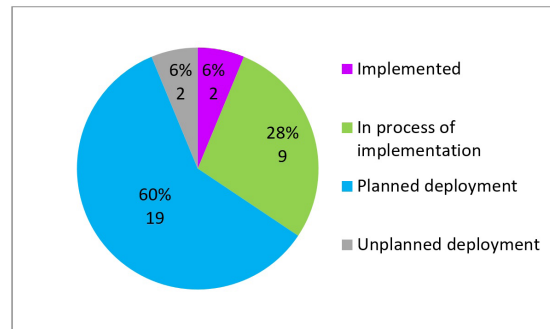


Figure 3. Stage of ISO 9001:2015 implementation. Source: Prepared by the author.

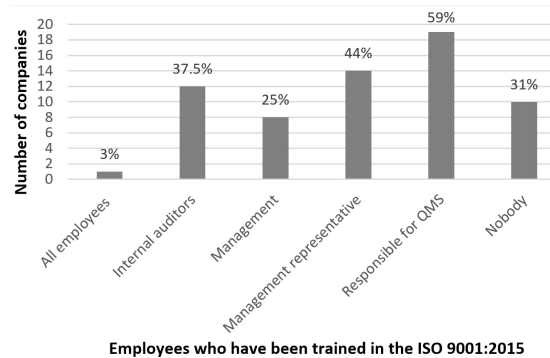


Figure 4. Employees who have been trained in the ISO 9001:2015. Source: Prepared by the author.



Figure 5. Reasons why the company was certified in the ISO 9001:2015. Source: Prepared by the author.

In the first section, it was possible to identify characteristics of the companies, such as the size of the organization and certification time in the norm. Important considerations have been observed, such as the reasons that led companies to become certified in the norm, in which phase the implementation of the new version is and which were the first collaborators to be trained in ISO 9001:2015.

4.1.2 Second section

The questionnaire’s second section is composed of 21 statements, with answers varying the degree of agreement, using Likert’s scale. In question 1,

the answers about the need of hiring a consultant to adapt to the new version of the norm are quite divided. The percentage of companies that agree or fully agree with the hiring of consultants (40.5%) is the same as those who disagree or strongly disagree (40.5%). The percentage of those who are indifferent to this issue is also quite high (19%).

In question 2, many of the surveyed companies reported that they will adapt the QMS' documentation to the new ISO 9001:2015's nomenclature, since 85% agree or fully agree with this statement. Although, according to Carpinetti & Gerolamo (2016), ISO does not require this adequacy, no company in this study disagreed with the statement.

Issue 3 deals with the greater facility, in the norm's new version of implementing an IMS. Of the respondents, 57% showed some degree of agreement with this statement, in consensus with APCER (2015), which stresses the alignment of the 2015's version with other management norms, through a common structure. The percentage of 22%, who said they could not comment, is justifiable, because of the 7 companies that marked this option, 5 did not have an IMS implemented, so they thought they could not comment.

The fourth question states that the norm's new version promotes better control of company processes. Many respondents agreed with this statement (56%), so Fonseca (2015) points out that the norm's new version places greater emphasis on the process approach. However, many companies (25%) were indifferent.

On reducing bureaucracy in the 2015's norm version, in question 5, 50% of the respondents agreed with this statement. Many authors, such as Fonseca (2015), APCER (2015) and Pastor-Fernández & Otero-Mateo (2016) also agree that the new norm is more malleable.

A controversial theme of the new version was addressed in question 6, which deals with keeping the management representative figure. Despite divided responses, 56.5% of companies agreed, in some degree, to maintain MR. Following this view, Carpinetti & Gerolamo (2016) believe that companies will maintain this figure for a long time.

As for the hypothesis of maintaining the quality manual mentioned in question 7, there was a high percentage of agreement. Of the respondents, 88% agree or fully agree to maintain it, showing that companies value this document within their QMS.

Fonseca (2015) emphasizes that the quality manual is no longer a specific requirement, but it is possible to maintain it. Carpinetti & Gerolamo (2016) agree with most respondents, believing that maintaining a quality manual keeps being a good practice and the best choice for QMS documentation, especially if the organization integrates, in a single management system, more than one norm.

Issue 8 states that the non-mandatory of some documents in ISO 9001:2015 weakens the norm. 75% of the companies disagreed or fully disagreed with this statement, favoring a more flexible norm. Likewise, in question 9, about the non-obligatory nature of some documents hinder the implementation of the norm, most companies (65%) did not agree with the statement. Confirming, once again, that the companies support a more flexible norm.

Issue 10 is about the greater involvement of leadership in ISO 9001:2015. The great majority of companies (72%) agree or fully agree that the norm increases this involvement. Metal Powder Report (2015) and APCER (2015) have similarly stated that the requirement, in this norm's version, of leadership being more involved and more accountable increases their participation in the QMS.

Of all the questions in this questionnaire, question 11 obtained the highest percentage of agreement (97%) of the companies. This issue relates the leadership involvement with the QMS' success. It might be realized that although some companies do not agree or do not know if the new norm increases this involvement, the clear majority of companies agree that a high involvement and acting leadership is essential to a successful QMS.

This was also the issue with the highest percentage of companies responding to the option fully agree (75%). Likewise, Carpinetti & Gerolamo (2016) affirm that management theories are unanimous in pointing out leadership's attitudes and practices as the root cause of success or failure of managerial actions. And they complement: the implementation and maintenance of a QMS depends fundamentally on leadership.

Most companies, in question 12, were in favor of risk management, a concept introduced in ISO 9001:2015, because a percentage of 94% of them agreed, in some degree, that risk management contributes to increase efficiency and effectiveness of processes. Metal Powder Report (2015) supports this position because it states that risk-based thinking encourages continuous improvement.

Although many companies agree on the benefits of risk management, in question 13, 47% of them admit having difficulties in its application. Probably those companies that do not have difficulties with risk management (28%) already have some tool in this sense implemented in their processes, seeing that, according to Carpinetti & Gerolamo (2016), although it is new in the norm, risk and opportunities analysis is a classic approach to the strategic planning theory.

Companies in general (81%) agree, in some degree that defining the context of the organization helps in its success. No company disagreed with this statement, which is contained in question 14 of the questionnaire. Fonseca (2015) also agrees, because

it emphasizes that the organizational context is an important approach.

Question 15 assumes that the planning of changes hinders the evolution of the company, this question was proposed in view of the immediacy of the current world. Most companies (78%) disagreed, in some degree, with this statement, showing themselves willing to use part of their time with planning.

This issue is reinforced by question 16, where 91% of companies agree or fully agree that planning helps avoid contingencies. Carpinetti & Gerolamo (2016) argue that change planning, together with risk and opportunity analysis, contribute to risk reduction, that is, they also agree on the issue 16.

Even agreeing that change planning helps avoid unforeseen events and that it does not hinder the company's evolution, yet 53% of respondents say in question 17 that they have difficulties in their implementation. Barry et al (2016) warned that companies must address these issues, such as change planning and risk management, to maintain or implement their ISO 9001 certification.

The clear majority of the companies (94%) agree, in some degree, on question 18, that knowledge management is important for project realization. This issue had no response with the fully disagree or disagree options selected. Pastor-Fernández & Otero-Mateo (2016) reinforce this statement, emphasizing that the management of knowledge proves the ability of people to perform the functions assigned to them within the organization, which is very important in the realization of products and projects.

As for the difficulty in implementing this knowledge management process, addressed in question 19, the results were quite divided, with 34% agreeing or fully agreeing and 37% disagreeing or fully disagreeing with the statement. Carpinetti & Gerolamo (2016) claim that knowledge management has gained considerable relevance in recent decades in organizations, that is, despite being a new requirement in ISO 9001, this concept is already applied in many companies. This fact justifies split results, since it is probable that companies that think they have no difficulty in this implementation have already some process related to knowledge management in operation.

Issue 20 deals with the competitive advantages brought by ISO 9001:2015, 47% of companies agree or fully agree that the new version brings greater advantages to the organization. No company does not agree with this statement, but the total of people who were indifferent, along with those without an opinion, totaled 53%. It is likely that some companies chose not to comment because they did not have indicators on the application of the new version of the norm yet.

To conclude, question 21 states that the new version of the norm is better than the previous version. Most respondents favored this assertion (72%) and many

others (19%) claimed they could not comment. Many authors also agree with this statement, such as Carpinetti & Gerolamo (2016), Pastor-Fernández & Otero-Mateo (2016) and Fonseca (2015), who declare that ISO 9001:2015 is an example of continuous improvement. The percentage that did not comment, probably did not have knowledge in the new version, since only two companies are with ISO 9001:2015 implemented.

In general, companies have been in favor of the new version of the norm and its amendments. However, many admit to having difficulty applying new factors, such as knowledge and risk management.

4.2 Interviews

The interviews were conducted in person, in 3 companies, small, medium and large, with the managers responsible for the QMS of each company. The first question in the interview addresses how long companies have been aware of updating the norm. Company A learned in November 2015, while companies B and C said it was already said that the norm would be updated a long time before the official release of the new version. But it was in 2014 that these companies learned that the update was official, about a year before its release.

When questioned about the actions that the companies have already carried out in search of adequacy, the three companies agreed that they did few. While companies A and C sought to report on the updates through the certification body and the internet, company B had already purchased the standard and trained its quality management analyst. Company B also held a meeting with the quality committee to discuss the update of the norm, its degree of difficulty, what already exists in the company and what needs to be done to fit the new version.

The third question asks about the internal auditors and their training. Companies B and C maintain a group of internal auditors, but these are not trained in the new version of the norm yet. Both said that the training is planned for 2017. Company A, a large company, trains employees in ISO 9001, but internal audits are outsourced because the company believes that, in this way, makes the audit more thorough.

As for hiring consulting for the process of compliance with ISO 9001:2015, the answer "no" was unanimous, the three companies believe to be able to do the adjustment without consulting help.

Regarding the greatest difficulty that companies think they will have in adapting, company A pointed to the management of knowledge, understanding the entire workforce and the people's need to get involved with quality, and states: "[...] *it is also a change of thinking, because everyone must understand the importance of quality and embrace it*".

Company B states that the more challenging task is the norm being more focused on company strategy, since many items linked to strategic planning were added in every norm.

Company C also points out strategic planning. It emphasizes: “[...] *the economic difficulty, in which the country is passing, hinders the forecasts, because you cannot predict the long and medium term.*” Another challenge pointed out by company C is the involvement of leadership, because recognizes that the guidelines should come from top management, but believes that a person, whether MR or responsible for quality, is necessary, forcing this involvement of the board.

In the question regarding the estimated time for the adequacy process, the answers were varied. Company A spoke in 6 months, while B in 1 year and C in 2 years.

Regarding in how to implement the risk management requirement, companies A and B have already strategic planning in the company and intend to adapt it to the new norm. Company A complements:

Today planning is general, we want to direct it to each sector, considering each investment, costs, training, risks. We believe that it will not be difficult to implement this requirement of the norm, because the system is already planned and working in the company. This requirement comes to help companies and gives credibility to the norm.

Company B intends to purchase the ISO 3100 norm on risk management as a guideline for implementing this requirement. Company C wants to involve the board in risk management because it believes that to define the risks it is necessary to know the strengths and weaknesses of the company and thus use the strengths in its favor and improve the weaknesses.

On the implementation of the knowledge management requirement, company A has already some tools in this regard. Companies B and C want to work together with the human resources’ sector.

Company B points out:

It is necessary to define the knowledge that the company needs to maintain, to mature the work instructions, to define how to pass the information of a collaborator to the others and in what way this knowledge will be stored, maintained in the company.

Company C will reassess the existing process, making a restructuring and procedures reduction. It intends to work on planning, in each position put into practice the description of positions, with the requirements for the function.

The possibility of maintaining or not the RM was discussed in the interviews. Companies A and C will maintain this role because they believe it is important

to have a “quality figure” leading the QMS. Company C also points out that RM is a person that connects leadership to the productive chain and stimulates the involvement of top management with the quality.

As for company B, it seems to be more adequate to what the norm preaches. Although not knowing for sure yet, at first, the company will not maintain the RM, and the company justifies the choice:

[...] the company has a committee, with 5 managers from different areas, which meet and debate to reach the best decisions together, it is probable that this committee will exist and not just the responsibility of a single person.

Regarding the decision to keep or not the quality manual, the 3 companies agree to keep it. Company A emphasizes that the manual is a present and working tool within its QMS and intends to add into it the new requirements of the norm, such as risk management and knowledge management. Companies B and C want to revise the document and maintain what they say really adds value to the company.

When approached about the new version of increasing the QMS commitment by leadership, company A is skeptical:

I believe the new version of the norm tries to involve the most top management, but I do not think it will work in its entirety. I miss a mandatory requirement on top management training, because it is often not for lack of will but rather for lack of knowledge about the subject. It would be interesting for leadership to undergo mandatory training, as it does for internal auditors, so that it would be prepared and would understand even more the importance of engaging with QMS.

Companies B and C have agreed that the norm is much more emphatic about the commitment of leadership with QMS.

Companies were asked if they wanted to change their current system of performance indicators. Companies A and C said yes, they will add indicators to measure how knowledge management and risk analysis are affecting the bottom line. Company C said it will review them.

To finish the interview, we were asked what each company found of the norm in general. Company A understands that:

[...] ISO 9001:2015 has improved on its concept, adding risk management, knowledge management and attempted to increase leadership involvement. However, it has lost ordering by topics, a norm needs mandatory basic requirements required for it to work.

According to company B:

[...] overall, it has improved. The norm has become more challenging, if the company is not mature, it will have difficulty to maintain a system certified to ISO 9001:2015. I think it was an important development and it will be good for companies that know how to use these changes in their favor.

Company C believes in the benefits of strategic planning for the company's success and that this was a big gain in the 2015's norm version. But he points out:

[...] perhaps if the economic moment was more favorable, it would be a little easier for companies to make these adjustments. I do not know if the great majority of entrepreneurs are able to assimilate this form of administration, because today people are acting very immediacy and planning takes time.

Another issue that Company C emphasized is the bureaucratization of the norm, because it makes the company work in what really adds value to its business. Company C classified the new version better than the previous one.

In general, the three companies are not very advanced in the process of implementing the norm and their answers are in line with the results obtained in the questionnaire. The fact that Company A does not have a team of internal auditors is striking. Company B is the one closest to what the new version preaches, involving leadership in quality committees and re-evaluating existing documentation. Although the company C is small and admits difficulties in the application of the new items of the norm, it proves itself interested and in favor of the changes.

5 Conclusion

This work aims to identify the perceptions of chemical companies from the Rio Grande do Sul State in the transition process from ISO 9001:2008 to ISO 9001: 2015. At the end of this research, it is possible to affirm that the companies surveyed are aware of the updating of ISO 9001:2015's norm and its adaptation period that ends in September 2018. However, for the most part, until the data collection of this research, they did few in search of this update. It is interesting not to leave this update for the end of the adjustment period because, depending on the proportion of the updates, the company may not be able to meet all the new requirements.

Most companies agree with the changes proposed by the norm's new version. They believe that the new approach, considering, for example, risk management, knowledge management, organization context definition and change planning, contributes to better process control and brings competitive advantages to the

organization. Nevertheless, a considerable number of companies admit to having difficulties in applying these requirements. It can be said that companies that adopt these modifications because they are concerned about the continuous improvement of the QMS will have greater benefits than those companies that will implement the modifications just to keep their certificate valid.

The companies agree that the norm had a significant reduction of bureaucracy, a fact that was very well accepted by them. However, many of them claim that they will maintain the requirements of the previous version of the norm, such as the quality manual and the management representative, although the new version does not require them. Although they prefer a less bureaucratic norm, companies are still very attached to the requirements of the previous version, preferring to maintain them, since the updating of the norm is still very recent.

Concerning the involvement of leadership, the clear majority of organizations agree that it is essential to the success of the QMS and that the norm strives to increase it. Despite this, companies are still not sure that this effort will be enough for a high acting and involved leadership with the QMS. The norm's effort in this sense is clear, but it only depends on the organization itself putting this involvement into practice.

In general, companies believe that the 2015's norm version is better than the previous version, but as with any kind of change, many companies are not prepared to deal with some requirements and get rid of others yet.

As a suggestion of future work we can cite a broader approach, involving other segments of companies and other regions of the country. It is also possible to carry out a case study to report the process of adapting a company to the new version of ISO 9001. After the deadline for adequacy, it would be interesting to conduct a survey to evaluate the satisfaction of companies with the new version of the standard.

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Appendix A. Second Section of the Questionnaire.

Answer options for each statement:

- I fully agree
- I agree
- Indifferent
- I disagree
- Strongly Disagree
- No Comment Conditions

Affirmations:

1. It is necessary to hire a consultant to implement ISO 9001:2015.
2. The company will adapt the documentation to the new ISO 9001:2015 nomenclature.
3. Compared with the previous version of ISO 9001:2015, it is easier to implement an Integrated Management System.
4. Compared to the previous version, ISO 9001:2015 promotes better control of company processes.
5. When compared with the previous version, ISO 9001: 2015 reduces bureaucracy in company processes.
6. The company will maintain the figure of the management representative (MR).
7. The company will maintain the quality manual.
8. The non-binding of some documents in ISO 9001: 2015 weakens the standard.
9. The non-binding of some documents in ISO 9001: 2015 makes the implementation of the QMS more difficult.
10. When compared to the previous version of ISO 9001: 2015, the involvement of leadership in the QMS increases now.
11. The involvement of leadership with the QMS is fundamental to the success of the QMS.
12. Risk management helps to increase the efficiency and effectiveness of processes.
13. The company has difficulties in the application of risk management.
14. Defining the organization context helps the organization succeed.
15. Planning changes makes it difficult for the company to evolve.
16. Planning changes helps the company avoid unforeseen events.
17. The company has difficulty implementing change planning.
18. Knowledge management is important for the realization of projects.
19. The company has difficulties in implementing and maintaining a process that assures the knowledge management.
20. When compared with the previous version to ISO 9001:2015, it brings greater competitive advantages to the organization.
21. ISO 9001: 2015 is better than the previous version.

Comment on ISO 9001:2015: