**ANALYSIS OF ISO 9001:2015 TOOLS AND TECHNIQUES IMPLEMENTATION TO DEVELOP OPERATIONAL PERFORMANCE AND ITS PROS AND CONS**

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# Chapter 1: Introduction

## 1.1 ISO – ISO 9000 family – Quality management

ISO (International Standardization Organisation) classifies quality management guidelines in a project that delivers a product or service within the principles of this conjecture. These principles are namely relationship management, evidence-based decision-making, improvement, process approach, engagement of people, leadership, and customer focus (ISO, 2021). Through these principles, a project achieves increased market share and revenue, expanded base of customers, enhanced organisational reputation, enhanced business repeat, improved customer loyalty, and increased customer satisfaction. Attracting confidence of customers or clients allows a project-executing organisation to sustain in the UK market. This process delivers a substantial range of market opportunities for these organisations to create value by interacting with customers. However, actively managing relationships with customers requires on the elements that an interested party needs and expects. In this situation, ISO 9000 family provides optimum resource and knowledge for a project manager on the quality guidelines that are possible to achieve within a nominal budget.

In ISO 9001: 2008, communication between management leaders and customers of a project has been determined as a vital criterion for delivering high-quality outcomes. In the perception of Blind *et al.* (2018), a project associate must inform the stakeholders about the regulatory and statutory requirements of a project that aligns with their expectations. Through this process, enhancing customer satisfaction range becomes possible for a management leader or associate. On the contrary, ISO 9001: 2008 had been withdrawal for having 95.99 stages and ISO 9001: 2015 has been introduced with only 90.93 confirmed stages (Javorcik and Sawada, 2018). These stages involve 00 preliminary, 10 proposal with 10.99 new project approved, 20 preparatory, 30 committee, 40 enquiry with 40.00 DIS register, 40.20 DIS initiated ballot: 12 weeks, 40.60 voting close and 40.99 circulation of full report: Approval of DIS for FDIS. Additionally, stage 50 approval consists of 50.00 FDIS approval, 50.20 FDIS initiated ballot: 8 weeks, and 50.60 voting close. These stages with 60 publication for 60.60 international standards published and 90 review with 90.20 systematic review of international standards, 90.60 close of review and 90.93 confirming international standards comprises ISO 9001: 2015 guidelines of quality management. Therefore, these guidelines are essential for a project manage to comply with for delivering high-quality outcomes in a project with nominal stages and low cost.

## 1.2 Description of Goal setting theory

Abiding by the guidelines of ISO 9001: 2015 requires a project manager to understand the significance of quality objectives in a project. In the opinion of Locke and Latham (2019), maintaining customer satisfaction level, achieve on-time delivery criterion, provision of safety aspects, with high efficiency in performance and low defects are the target quality objectives of a project manager. In this scenario, goal-setting theory delivers appropriate elements for project managers to identify and convey these quality objectives to their teams. In the views of Latham *et al.* (2017), the elements of goal-setting theory are inclusion of employees in setting goals, tying goals to working units, processing feedbacks and coaching, with aligning rewards based on results. These aspects can be determined to be appropriate for a project manager to convey and achieve quality objectives based on the guidelines of ISO 9001. Therefore, it can be noticed that application of this theory enhances market opportunities for a project manager to attain success in a project of the UK market.

After setting goals, it is essential to note if the set goals are challenging or not. It enables organisations to identify whether they are prepared to face the challenges that are related to set goals. In order to achieve these goals, organisations can focus on methods that can help in the development of performance. Motivation is highly related to it, as it can create distortions in teams (Schmidt, 2019). Therefore, appropriate application of motivational ideas can improve the conditions for executing the goals. Commitment is a significant matter that is associated with this theory. It states that commitment to achieve the goals is a must for organisations. Despite setting effective goals, lack of commitment can lead to the failure of all plans. These are to be noted while working in teams, as it involves more people.

The commitment of users is followed by the feedback they receive while these goals are set on action. In the words of Landers *et al.* (2017), occasional stoppages to judge the progression can enable organisations to understand the matters that are applicable for attaining goals. Firms can change their strategies considering outcomes of the progression. Finally, the complexity of the goals and the attaining process is noted. The extent of training and mentoring involved with the goals are measured to understand the complexity of all goals.

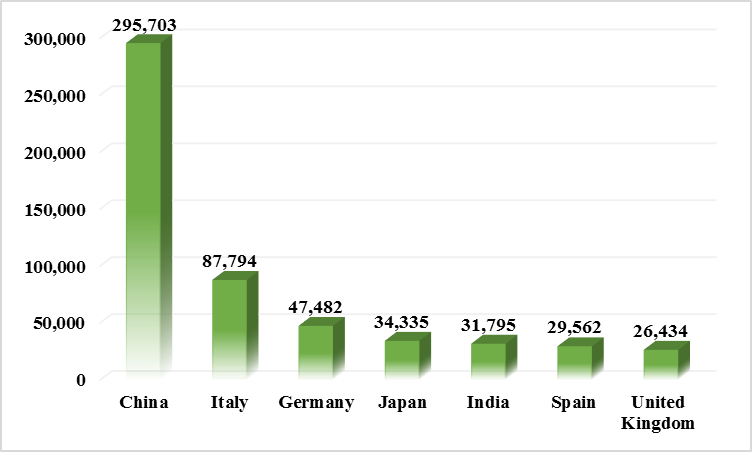
## 1.3 Outline of the industry

The industry that has been selected for this research is the automobile industry. The industry in the UK has flourished since the beginning and has emerged as an essential part of the growth of the UK economy. In UK, there are more than one million industries that are ISO certified (ISO, 2021). Apart from this, ISO 9001:2015 has been used by 170 countries in throughout world. This is a best-known standard for all organisations to maintain all regulation in business. This ISO standard is used for giving best vocabulary and fundamentals to expand in market. It is also used to improve performance level of those automobile industries. UK is trying to maintain all guidelines to increase connectivity with this standard. It is the best quality management process among most of the companies.

In the opinion of Laskurain-Iturbe *et al.* (2020), all guidelines are helping to gain more sustainable success within a short time period. Functional requirements are also provided by increasing performance of a particular design. Any industry can improve their employee engagement by achieving this certification. On the other hand, organisations can achieve a huge number of suppliers by showing a systematic approach of business. This standard creates maximum sense to deal with other industries for business purposes. In the words of Imran *et al.* (2018), automobile industries can use new technologies for increasing their visibility. All those factors are able to grow maximum demands towards this industry in UK.

This gives a good range of services and provides secure, safety, efficient and good information of security management. Automobile industries are improving their practices to create high efficiency in operations. All those factors are increasing total revenue of industries with the help of better performance.

## 1.4 Background

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**Figure 1.4: Countries with the most ISO Certificates**

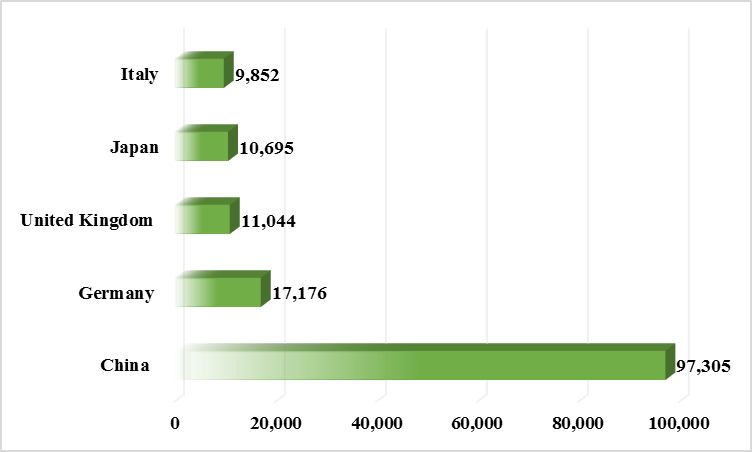
(Source: Paris, 2019)

It is noticeable in the above image that the UK is one of the seventh countries to have been awarded most ISO certificates for the industries. In the words of Paris (2019), the UK just falls after India and Spain with China having the mostly certified country based on ISO 9001. In this respect it can be determined that industries of the UK have been following the quality guidelines appropriately for achieving high quality outcomes in projects based on these guidelines. However, in the automobile industry of this country this certificate has been awarded mostly for projects based on electric vehicles to improve technical specifications recording consistent alignment with the quality management practices. In the opinion of Dmitriev and Tat’yana (2017), the automobile industry has to face the certification process to avoid the lack of coordination between segments and failures that can result in quantified cost to emerge in the production process.

Customers repairing quality to be implemented in their automobiles for improving their service and product experience. Furthermore, companies are becoming keen to deliver high quality products for its customers to enhance their business through word of mouth marketing (Palma *et al.* 2018). In this situation, ISO 9001 provides the appropriate guidelines for the automobile companies to implement quality in services and products appropriately. Substantially this certification in the UK has been useful for managing companies with the elements of control in the manufacturing system by avoiding a multitude of failures. In the vies of Kozel *et al.* (2017), errors in multitude originate due to the lack of rectifications in developing internal communications and relations between the departments of an organisation operating as a fragment of the automobile industry. Hence, ISO 9001 prevents these failures by developing coordination between segments as indicated earlier.

Substantial range of advantages for the application of ISO 9001 in the automobile industry includes transparency in communication. In the perspective of Neves *et al.* (2021), attaining continuous improvements and the process of production and parts automobile industry achieves communication transparency with high quality maintenance of the manufacturing line. This situation allows the companies to analyse and implement technological trends for improving every aspect of the cars at a fast pace. This aspect delivers a competitive benefit to the companies that are able to align their organisational objectives with the guidelines of ISO 9001 (Bornemann *et al.* 2018). Therefore, it can be determined that application of these quality guidelines in the projects and management systems improve organisational performance in the automobile industry.

## 1.5 Rationale

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**Figure 1.5: Countries Losing ISO Certificates**

(Source: Paris, 2019)

The above image highlights that the UK is a third country, which is failing to attend the ISO standards in the international market. In the opinion of Paris (2019), China has significantly acquired the foremost position in losing ISO certificate in its projects, with Germany being the second, and after the UK comes Japan and Italy. In this circumstance it can be determined that maintaining the guidelines of ISO 9001 is critically challenging for the industries especially the automobile industry. In the UK, it seems that a change in technology emerge often in the market that affects corporate image. This aspect changes market trends simultaneously that results in the organisations as a part of the automobile industry to be failing in attempting to follow the ISO 9001: 2015 standards. In the views of Díaz and Martínez-Mediano (2017), the government regulations also are responsible for the changes in law of ISO 9001 standards that have been resulting in many companies to fail in attempting these guidelines. Therefore, it can be detected that critical issues regarding the attempt of following ISO 9001 have been faced by the organisations of the automobile industry resulting in their degradation of operational performance. However, further analysis is essential for determining the link between operational performance and ISO 9001 2015 of the automobile industry in the UK.

## 1.6 Research question

*What are the critical assessments about importance of ISO 9001:2015 in automobile sectors and what are its advantages and disadvantages?*

## 1.7 Aim and objectives

The aim of the study is to give all information about ISO 9001:2015 and quality management of automobile industries in UK. Total process of effectiveness will be analysed in this research study. On the other hand, a better performance level among those industries is also shown in an effective way.

**Objectives:**

In this study, main objectives are

* To critically analyse the important of ISO 9001:2015 among automobile sectors in UK
* To determine total information of ISO 9001:2015
* To critically reviewed about importance of quality management systems in automobile sectors
* To evaluate all advantages and disadvantages of ISO 9001:2015 in business

## 1.8 Outline of dissertation

The structure of the dissertation is an essential matter that states that contents of the entire research. The dissertation includes five chapters that are introduction, literature review, research methodology, findings and analysis, and conclusion and recommendations. The introduction chapter includes detailed information of the theory that is targeted for the research conduction. Furthermore, it includes the knowledge regarding the selected industry. The sector selected for this research is the automobile industry. Thus, the introduction contains the details of the theory and an outline of the sector selected for the dissertation. Moreover, it also contains the objectives for conducting the research, along with the research question.

The second chapter is the literature review, which includes argumentative narration of various literatures related to the topic. It consists of the information that can give out the idea of the total quality management and the standards of ISO 90001:2015. It also includes theories that can enable organisations in the chosen sector to improve their performance. The methodology section includes all the knowledge related to the methods that were undertaken for the conduction of the project. The fourth chapter is the data analysis section that contains an evaluation of all the data that was collected for understanding the things associated with the topic. Finally, the conclusion and recommendation forms the outcome of the project and advices for the sector to improve its performance using the discussed International Standard.

# Chapter 2: Literature Review

## 2.1 Introduction

It is a determination of ISO 9001:2015 tools on automobile sectors in UK. There is discussion about total impact of this ISO 9001:2015 for increasing business performance level. On the other hand, it is analysing various kinds of tools and techniques of ISO 9001:2015 in business performance. Apart from this, there are reviews about some advantages and disadvantages of ISO 9001:2015 as well as TQM process in UK market. There are found some particular techniques and tools to improve performance of automobile organisation. There is discussion some theoretical models to analyse different performance of business. A goal setting theory and principle agent theory is determine by using TQM process. A literature gap is concluded to make a summary of total study.

## 2.2 Impact of ISO 9001:2015

ISO 9001:2015 stands for provide a better workable condition to improve business performance in business. It has some great impact towards all business to maintain their employee and customer engagement. It is an international certification that implements a better opportunities to handle a good standard among all competitors. This ISO 9001:2015 is suitable for all types’ large and small-scale business. It is able to give better management process towards internal systems of business. It is a good system to reduce wastages of products in organization. ISO 9001:2015 always increases level of performance, profits, productivity, and efficiency of business (Sahoo and Yadav, 2018). It is maintaining all requirements of quality management systems by including process of interactions, determination, planning and information techniques. ISO 9001:2015 gives a good impact towards different management by analysing all responsibilities. On the other hand, it is including human resource, management resource and work environment of business. It is also maintaining various types of steps to deliver all products.

Additionally, ISO 9001:2015 is using in measurement, improvement and analysis process of business. It has some internal activities to make a right action for increasing business performance. There are adding some changes after 2015, which are creating maximum adaptation process for different business. It has some new terminology operators and colleting some new information for making a good change in business. ISO 9001:2015 is helping to take risk-based decision to face all critical challenges (Nurcahyo and Habiburrahman, 2021). All organisations can change their techniques of information with the help of ISO 9001:2015. It is impacted total leadership process by increasing motivation and communication with employees and other workers. A business is become more capable to improve quality of services by adopting ISO 9001:2015 in this business. All organisations are able to get a continuous flow of production with the help of efficiency of employees.

This certification has a great factor to reduce various costs as well as save a huge amount of money of business. Those money should use for increasing trainings among employees. It is a great chance to give maximum improvement towards workers for gaining good skills and knowledge. Any business can get better management process by maintaining all guidelines of this certification. ISO 9001:2015 is maintaining all requirements of quality management systems in different business. It maintained all process of documentation and information to increase performance level of business (Bravi *et al.* 2019). It is a huge factor to manage documentation for grabbing maximum chances of business expansion.

TQM systems create a good impact to support a better leadership styles in business. It is very important to improve employees development by determine different points. It is a good chance towards all business to maintain their communication systems among employees and managers. This communication is giving maximum encouragement towards workers for increasing participation in critical task. This encouragement factor is able to improve productivity and performance level of business. It is a good management process to give effective and accurate knowledge for analysing different aspects of critical task. A monitoring process is also provided to create a huge success for business (Laskurain-Iturbe *et al.* 2020). TQM factors are maintaining total systems of turnover rate, purchase rate and inventory products. Those processes are controlling and monitoring total quality management systems in business. It is reducing other cost of business and increasing level of profits. All those factors are helping to improve performance, knowledge, and success of any business.

## 2.3 Tools and techniques of ISO 9001:2015

ISO 9001:2015 has different types of tools and techniques to give a better performance towards all business.One of the most advantageous quality management strategies, according to the needs of ISO 9001:2015, it is especially one that has been made. Within the company or industry, bringing a focus causes continual improvement. The foundation of the ISO 9001:2015 is the quality management principal of the continual improvement (Anttila and Jussila, 2017). The requirements of the standards as it do not tell the organization the process of implementing the requirements. It only tells what the organization-quality management system must contain or take in. To improve and develop the quality management system of an organization, if they are going to find the process, they must have analysing data to acknowledge how these processes or planning executes. First, the organization will analyse the data, by that they can find the points, which can be improved. After that, they should take the requirements and needed operation. Therefore, that will express which improvement actually occurs. Seven essential tools of quality control are admitted by the American society of quality. Bellow discussing about these seven essential tools-

*Tables for data*

In a tabulated format, data table is the method to collect data. Therefore, for trends this can be more easily reviewed. Arrangements of columns and rows that analyses and defines data collected on the production segments of the automobile industry are essential for determining the status of products. According to the view of Khan *et al.* (2017), the organization works on improvement, if they are tabulating per supplier defect type. Through that, it easily becomes clear which defect has which supplier, according to the organization could improve their business. However, misinterpretation of data can lead to the emergence of error in decision-making for management leaders of this industry resulting the depreciation of their production quality.

*Disperse or scatter diagram*

Hence the organization using disperse diagrams differentiate two factors. Therefore, compare between two factors such as time of day and defect quantity, to notice if they have a correlation between these two factors. The organization can simulate investigating to the source or because of it. In the opinion of Martinez *et al.* (2018), scatterplot assists an analyst to detect the linear regression of production units through the analysis of trend line in the diagram. On the contrary, this analysis requires optimum knowledge and skill for a management leader to interpret and detect errors for mitigation of future risks regarding production quality depreciation in the automobile industry.

*Histogram*

Within the data histogram, plot the occurrence frequency, into a distribution curve converting the collections of data points. This diagram indicates the distribution of information sets for determining the validity range of collected data. The industry could understand the management process is functioning abnormally or not through the analysing of this curve (Cox and Tam 2018). However, an equal distribution of data highlights the presence of inefficiency in data assimilation that results in the development of ineffective decisions of quality management in automobile industry. Therefore, if the process is abnormal then improvement of the organizations must be needed.

*Pareto diagram*

This diagram will clasp the data for various types of information such as various defects and problems. Then represent them on a graphical presentation to highest frequency to lowest, which issues happened most frequently, shown by this diagram easily. In the opinion of Efansyah and Nugraha (2019), Pareto diagrams are useful in detecting complains and defects in the production line of an industry. This tool is effective in determining the quality management issues in the automobile industry for alerting management leaders to imply changes in the quality assurance range of production. On the contrary, lack of communication between management leaders and workers develops conflicts between them those results in the degradation of operational performance in this industry of the UK. Therefore, companies can pull out their most problems, which affect the industry.

*Control charts*

For a process, this chart is an ongoing plotting of the data. In the perception of Da-Silva and Barbosa (2017), control charts are the techniques of ISO 9001: 2015 that assists a management leader of an industry to detect its quality control issues through the development of data on changes in trends of the market. When the output of the process starts to shift away from the expected calculation, indicated by it and then allowed for correction.

*Trend analysis*

The graphs and run charts are another name of trend chart. In the views of Parra *et al.* (2019), analysis of trend is a technique that is developed by the Research and Development (R&D) department of an organisation to highlight national and international demands of a market regarding an industry. Therefore, if in the organization that a process requires investigation for developing, this chart gives the raw data to execute this.

*Analysing of effect and cause*

This analysis process is also known as fishbone diagram. In the words of Dmitriev and Tat’yana (2017), cause and effect diagram are useful for anticipating results of a simulated action or decision designed by management leaders of an industry. It is mainly used to investigate the cause of potential issues.

Except those tools, there are other essential tools for supplementary quality control. These are flow charts and map, process of improvement centre.

## 2.4 Advantages and Disadvantages of ISO 9001:2015

Operation of ISO 9001 involves internal management of logistics to develop industrial performance for gaining competitive advantage. In the opinion of Mokhlis *et al.* (2019), application of these quality-based guidelines improves industrial performance by providing the management leaders work monitoring capability. This aspect increases operational leverage of an industry that can be accounted for a major advantage of ISO 9001. On the contrary, application of these guidelines regarding quality management requires effective analytical and management skills of the associates in an industry. In the views of Ćoćkalo and Bakator (2018), these analytical skills assist the management leaders to avoid the emergence of marginal errors in data assimilation and calculation from internal logistics. In this scenario, it can be determined that occurrence of missing data or misinterpretation of provided information based on these guidelines causes viable discrepancies between management leaders and workers of an industry. Therefore, it can be stated that this aspect of inefficiency in data management can be indicated as a significant disadvantage for implying ISO 9001.

## 2.5 Operational Performance

Performance level escalation is essential for the industries for delivering optimum range of competition in the market. In the perception of Ferreira *et al.* (2019), application of ISO 9001 delivers the parameters that indicate operational performance of an industry. KPIs (Key Performance Indicators) are generally indicated by these guidelines as customer satisfaction, flexibility, cost, productivity, on time delivery, and quality. However, every KPI is directly related to the quality of services or products delivered by the industry. In the words of Salazar *et al.* (2019), “customer-based perspective” of quality directs the growth of market share, profit level, and sales base of an industry in the market. This circumstance highlights that quality and customer satisfaction are the significant KPIs that is essential for an industry to address. Thus, it can be denoted that through the implementation of ISO 9001 measuring these KPI becomes possible for an industry that delivers high financial outcomes.

## 2.6 Theoretical Discussion

### 2.6.1 Goal setting theory

It is essential for a project manager to follow goal-setting theory for gaining a viable insight on the essentiality of communication to achieve quality management principles as determined in ISO 9001: 2015. In the opinion of Haynes *et al.* (2018), it is essential for a management leader to improve communication base with project team for achieve optimum quality outcomes as indicated in the goal-setting theory. However, achieving these principles requires effective range of commercial awareness for a management leader to identify the unforeseen risks that emerges in a project. Nonetheless, in this scenario, the goal-setting theory assists a project manager to develop tasks for achieving high-quality outcomes as denoted in ISO 9001. These tasks has been determined below that indicates this theory to be appropriate for carrying forward with further analysis.

*Simplicity or clarity*

The objectives should be specific, simple, and clear.

*Commitment*

Workers need to support the objectives they are being assigned to the beginning of the start.

*Challenge*

While performing the work needed to achieve the goals, to keep workers focused and engaged the goal must be sufficiently challenging for them.

*Task complexity*

Aims must be broken or divided into small goals. While each smaller aim is achieved, on the completion of the small goals a review must be performed. It updates the workers on the all over progress towards the large goals.

*Feedback*

On the goal, setting theory feedback is one of the most vital components. To ensure the works stay on track to reach the goal, daily feedback must be provided throughout the process.

Here discussing several steps and processes, the organization can take to implement the goal setting theory into their workplace. Those processes are- recognize the purpose of the goals; develop a plan by using the smart model, meet with the workers, to accomplish the goal make sure the employees have, and supply daily feedback.

This theory is helpful for the TQM within the workplace this theory can increase employee engagement. Through increasing overall motivation and efforts improves workers performance. This aspect, relates with the guidelines provides in ISO 9001. Other side goal is too far above the workers skills.

### 2.6.2 Principal agent theory

Achieving the quality objectives of ISO 9001: 2015 is challenging for management leaders and workers in a project due viable market constraints. These constraints involve limitation of time and budget demanded by clients to achieve high quality output in low fund input. Mitigating these challenges requires the management leaders to elect agents of problem solving in a project. In the opinion of Gong *et al*. (2017), principal agent theory of problem solving denotes that by electing appropriate agents of problem solving relationship between shareholders and executive directors in a project can be enhanced through communication. The agents are responsible for conveying the quality guidelines presented in ISO 9001 for achieving high-quality outcomes in a project. These sets of information are being illustrated by problem solving agents in simple terms and graphs for shareholders to identify their demands as unrealistic targets for a project. Thus, through this aspect achieving the quality objectives of ISO 9001: 2015 becomes possible for project managers in the UK.

The legacy of the principle and agent theory has successfully endured the theory's legacy, with many public sectors since a long period. Even also in the present time many organizations follow principal agent theory and earn respect from the stakeholders. Principal agent theory ensures that the right employee for the organization is generally very proactive for the long run and stays with the organization for a long time (Corgnet *et al.* 2018). Principal agent theory is less risk full than other theories hence it is performed by the organization with trust and effectiveness. Principal agent theory also works very well to maintain communication and friendly relations with stakeholders. However, it seems that principal agent theory does not determine the appropriate agents of problem solving, rather focuses on the self-interest, self-performance, and productivity of a scenario. In this circumstance, it is detectable that this theory does not provide optimum systems for complying with the guidelines of ISO 9001. Thus, it can be determined that conducting further analysis regarding this theory is infeasible for determining the tools and techniques of ISO 9001 that links with operational performance in a project.

## 2.7 Summary

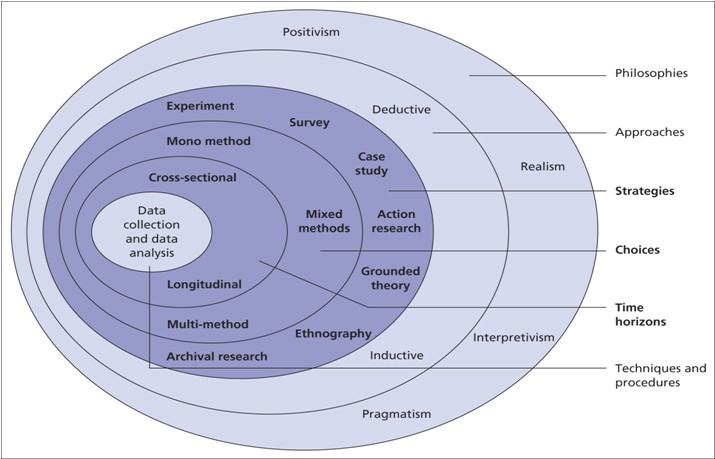
This chapter has indicated that tools and techniques of ISO 9001 has a vital effect on the productivity of a project. Information, planning, determination, and interactions guided in this ISO 9001 seems to be appropriate for an optimum range of performance appraisal from the workers to be expected by the management leaders in a project. Circumstantially, factors of TQM can be achieved in a project through the application of this ISO as demonstrated in this chapter. Substantially, Principal agent theory determines the problem-solving techniques in a project that does not abide by the guidelines presented in this ISO regarding quality objectives. On the contrary, Goal-setting theory seems to be aligning with the ISO 9001 guidelines. Thus, this theory has been determined to be analysed further with the methodologies that is being discussed in the next chapter.

# Chapter 3: Methodology

## 3.1 Introduction

In this chapter, Saunders onion model of research is being demonstrated for utilising it to streamline the data analysis procedure for determining the link between techniques and tools of ISO 9001:2015 with operational performance enhancement in a project. Circumstantially, philosophy, approach, designs and strategy of these data assessment methods is being justified in this chapter. Additionally, ethical aspects and sampling procedures have been justified in this chapter with reference to the data assimilation method.

## 3.2 Method Outline



**Figure 3.2: Research Onion**

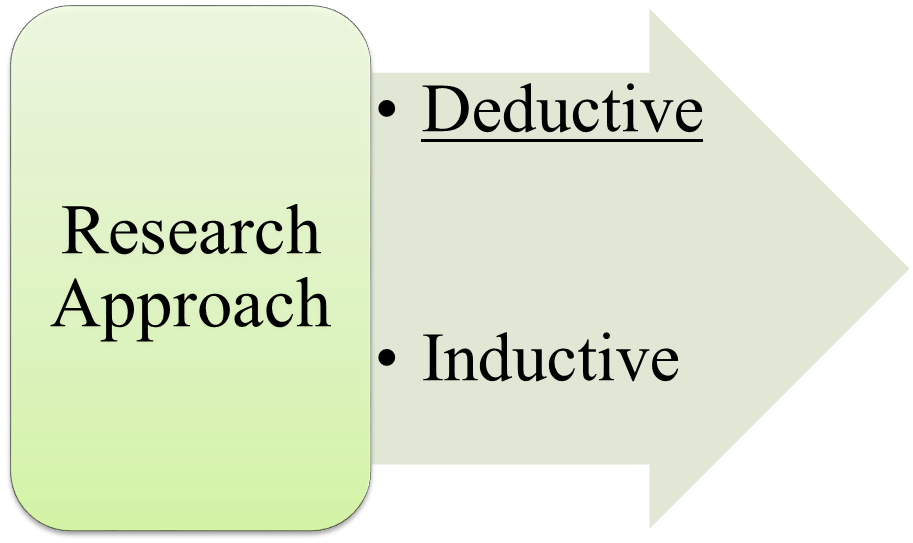
(Source: Saunders *et al.* 2018)

Acquiring vital insights on the essentiality of ISO 9001: 2015’s tools and techniques on operational performance is essential for achieving TQM. Hence, discussion the appropriate methods for acquiring this insight has entitles this study to comply with the outline of onion research model developed by Saunders. In the words of Saunders *et al.* (2018), methodology is the necessary tools for a study that determines scientific materials that are responsible for delivering outcomes based on a research problem. In this aspect, this onion model is appropriate for determining the scientific materials that is essential for finding the impact of applying ISO 9001:2015 tools in operational performance.

## 3.3 Philosophy

Positivism format of philosophy is being applied in this paper to identify the influence of ISO 9001:2015 in the sector of automobile. In the opinion of Melnikovas (2018), application of positivism enhances the research gauge of an analyst or researcher to acquire information from domains to imply empirical analysis. In this technique, gaining a wide range of data for analysing the impact of ISO 9001:2015 becomes possible for enhancing validity range of outcomes within nominal effort. On the contrary, realism format of philosophy requires high time- and budget constraints to perform analysis of assimilated information. Thus, application of positivism is appropriate in this study to understand the influence of ISO 9001:2015 on performance enhancements.

## 3.4 Approach

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**Figure 3.4: Types of Approach**

(Source: Self-created)

Deductive type of approach is being followed in this paper to determine the link between ISO 9001:2015 and operational performance in automobile sector. In the words of Park (2020), deductive type is effective in generating feasible outcomes based on pure observation for an analyst. However, inductive type is useful for developing theories in a paper from concepts. Nonetheless, elements of goal-setting theory are being proven in this paper based on ISO 9001:2015’s influence on operational performance. This aspect determines deductive type of approach to be appropriate for this paper.

## 3.5 Strategy

Survey strategy has been implied in this paper based on 110 employees of EU (European Union) automobile industry. In the words of Snyder (2019), survey through questionnaire is an effective strategy for acquiring latest information from a sample population. In this situation, 25 close-ended questionnaire will be developed for the employees of this industry to understand the essentiality of ISO 9001:2015 on operational performance improvement ***[Refer to Appendix 1]***. Execution of case study strategy could have been effective in reaching conclusion within nominal effort and time. However, survey strategy is being chosen for this paper to generate unbiased information from selected population.

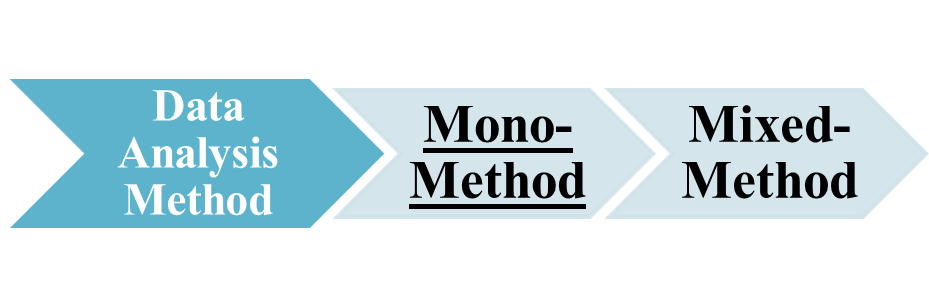
## 3.6 Data Collection Process

Primary information is being collected from 110 employees of automobile sector in the EU through e-mail communication. In the opinion of Swart *et al.* (2019), acquisition of primary information enhances validity range of outcomes in a study as experienced individuals deliver authentic response to a survey. In this study, management leaders of the organisations are being informed by telephone calls to gain their consent regarding the survey. Then 25 questions based on the elements of goal-setting theory have been determined to identify the link between ISO 9001: 2015 and operational performance for collecting responses from the employees through e-mail process of communication.

## 3.7 Sampling Technique

Random technique of sampling is being selected for determining the organisations and employees. In the opinion of Huppatz (2020), random technique is effective for generating unbiased outcome in a study that cannot be achieved through judgemental sampling. Organisations of automobile sector had been selected randomly from their social media pages to acquire the phone numbers of HR (Human Resource) Managers phone number to contact them. Then, the e-mail addresses of 110 employees had been randomly selected from the employee details e-mailed by the managers with their consent. Through the application of random sampling attaining unbiased data for this study to identify the link between ISO 9001: 2015 and operational performance in a project became possible.

## 3.8 Data Evaluation System

****

**Figure 3.7: Format of Data Evaluation**

(Source: Self-created)

Mono-method of quantitative assessment is being conducted on the survey outcomes of this paper linking ISO 9001: 2015 with operational performance enhancement. In the words of Barrick *et al.* (2019), quantitative format of assessment is appropriate for detailing statistical data in a study and identify solutions to a problem through effective data-driven outcomes. Correlation assessment for identifying data distribution range, regression for detecting link between variables based on goal-setting theory and t-test is being conducted through SPSS on the survey outcomes of 110 employees.

## 3.9 Ethical Considerations

Replication of materials is strictly prohibited in the UK legislation that has been abided by in this paper. In the words of McDonagh (2017), *The Copyright, Design, and Patents Act of 1988* restrict a researcher to replicate information from previous article or journals. In this paper, paraphrasing has been conducted regarding the information that has been quoted from previous papers. Additionally a list of reference with the mentions of previous researchers utilised in this paper has been mentioned with proper in-texting for abiding by this law.

## 3.10 Reliability and Validity

This survey is being conducted with anonymity of the employees and originations of EU automobile industry to abide by the data protection law of the UK. In the views of Snyder (2019), complying with the national and international laws is essential for a researcher to enhance reliability and validity range of a study. Hence, the anonymity of employees has allowed them to provide reliable and valid response regarding the link between ISO 9001: 2015 and operational performance that they have experienced in workplace.

## 3.11 Summary

It is understandable that a Saunders model of research onion has been followed in this chapter to determining the appropriate methodologies for assessing the relationship between ISO 9001: 2015 and operational performance. In this chapter, positivism format of philosophy, deductive type of approach, survey strategy with primary information and quantitative assessment has been justified to be appropriate for this paper. Complying with the copyright and data protection laws of the UK this paper has addressed ethical considerations, and enhanced its reliability and validity range.

# Chapter 4: Data Analysis and Findings

## 4.1 Introduction

This chapter is determining the relationship between the variables in this study. This chapter has indicated the survey outcomes of 110 employees of EU automobile sector based on Statistics analysis of correlation regression and T test. In this chapter, effective description on the validity and reliability of Data Collection has been demonstrated for linking ISO 9001 with operational performance of an enterprise during a project. Proving the link between these variables proper justification based on the theoretical perspective has been provided in this chapter. Principal agent theory and goal setting theory have been linked with these variables in 25 questions that have been analysed in this chapter.

## 4.2 Hypothesis

H1: There is a significant relationship between ISO 9001: 2015 and operational performance

H0: There is no significant relationship between ISO 9001: 2015 and operational performance

## 4.3 Survey Outcomes

### 4.3.1 Correlation

It seems that the above correlation output is indicating a strong relationship between the variables based on operational performance and ISO 9001. Analysis of correlation determines the distribution of information based on one tailed or two-tailed analysis (Bach *et al.* 2017). In this conjecture, one tailed analysis has been done to determine that there is a substantial positive relationship between ISO 9001 and operational performance of an organisation in a project. The employees have indicated that self-setting goals with clarity of goals are essential for enhancing their operational performance in a project ***[Refer to Appendix 2]***. In the perception of Li *et al.* (2017), the correlation output has generated high outcome in the perspective of these employees. It has been determined that there is inaccurate alignment of goal setting theory with the guidelines in ISO 9001 that it results in the enhancement of operational performance in an enterprise.

This correlation output has further indicated that the Tools and techniques of ISO 9001 are substantially effective for enhancing their performance in the UK market. In the views of Drăgan *et al.* (2020), generating a high range of Pearson’s correlation output it indicates that there is a strong relationship between variables in an analysis. This correlation results has generated significant output in determining that histograms and tables are strongly favoured by the employees in a project. These tools of ISO 9001 at appropriate for determining that there is a significant relationship between these variables present in the country (Errida and Lotfi, 2020). Evidence based on correlation highlights that substantial range of Tools and techniques are effective in determining the operational performance outputs of these employees acted as a respondent for this research ***[Refer to Appendix 3]***. However, it is visible that the principal-agent theory has a weak relation with the ISO 9001 guidelines.

It is noticeable in this analysis that there is a negative relationship between the operational performance enhancement and principal-agent theory. In the opinion of De-Nadae and de-Carvalho (2017), insufficient range of correlation output highlights of weak relation between variables that can be determined as having indirect outcomes in negative outputs. Within this aspect it is identifiable that implementation of this theory for improving operational performance might fail due to lack of consistent data management system in an enterprise. However it has been determined that conflicting objectives within the organisation needs to be mitigated between the management leaders and employees of a project. It cannot be determined that application of economic men for mitigating issues that arises in an enterprise for conflicting objectives is a suitable opportunity for employees (Müller and Jedličková, 2020). It seems that the mechanics of goal setting theory and having a stronger relationship with ISO 9001 guidelines that enhances operational performance of employees.

Clarity as an independent variable of this study seems to have a strong relationship with the dependent variable of the study. It is noticeable that employees are keen towards development of the performance through clarity between the management leaders and them in an enterprise. In the words of Obradović (2018), development of performance is essential for an organisation to improve its profitability range in the market. On the contrary, effective communication range in an organisation depends on the information transfer rate that can be attained by the management leaders through effective solutions of sharing feedback with employees. This independent variable has been determined in the study in the 25th question that insists on management leaders to gain employee feedback and opinion for the decision making process to set goals in a project based on ISO 9001. In the view of Niederman *et al.* (2018), enhancement of communication between workers and management leaders is essential for enhancing operational performance in an enterprise. In this analysis, it has been defined that there is a strong relationship between ISO 9001 and operational performance enhancement, which can be achieved by management leaders, through effective communication range.

Distribution of data seems to be critically asymmetric in this analysis of correlation that has generated a significant value of less than 50 units. In a correlation analysis, acquisition of significant value more than 50 units indicates that there is asymmetrical distribution of data (Costa *et al.* 2019). In this outcome, data set is considered invalid for having a Biased outcome generated through analysis. substantially it can be determined that these sets of data are valid and reliable to conduct further analysis for determining the effective relationship between variables indicated as ISO 9001 and operational performance in a project. Hence it is understandable that these and Biased outcomes are appropriate for understanding the connection between the independent and dependent variable of the study.

Details of this analysis indicate that a significant range of outcome has been generated in the persistent IV of the study. Strong relationship is considered in a correlation with the progression of higher fairs and significant output in a study (Kostalova *et al.* 2017). It is understandable that this variable has a stronger relationship with the DV of the study. Within this aspect, it is reliable to confirm a strong relationship between goal setting theory and ISO 9001 that generate high operational performance in an enterprise. However, it has been identified that determining an agent for problem solving has been generating low correlation output within this analysis. This situation indicates that there is a weak relationship between these variables in the study. Substantially, principal agent theory has no relationship with the guidelines of ISO 9001 and operational performance.

### 4.3.2 Regression

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Model Summaryb** | | | | | | | | | |
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
| P-Value | F Change | df1 | df2 | Sig. F Change |
| 1 | 0.998a | 0.996 | 0.995 | 0.080 | 0.996 | 1085.863 | 22 | 87 | 0.000 |
| a. Predictors: (Constant), feedback, HighQualityOutput, DataTables, ParetoDiagram, clarityofgoals, ScatterDiagram, ToolsandTechniques, Energisingmechanism, conflictingobjectives, Histogram, DirectedObjectives, economicmen, selfsetgoals, attainablegoals, workmanagementmechanism, agent, CauseandEffect, principal, involveemployees, measurabilitycriteria, Persistencemechanism, challenginggoal | | | | | | | | | |
| b. Dependent Variable: OperationalPerformance | | | | | | | | | |

**Table 4.3.3.1: Summary Statistics**

(Source: SPSS)

In the table above the variable has been detected with an appropriate model summary. Histogram analysis of the study indicates that unequal distribution of data has been attained efficiently. In the perception of Cuadros-López *et al.* (2017), it is significant for an analyst to determine the variables of a study await independent variables as predictors and dependent variables that they rely upon. On the contrary, it has been determined in this study that either principal agent theory is related to the operational performance enhancement variable through ISO 9001 or the goal setting theory is related to the same. Analysis of these IVs and DV in the study has indicated that data collected is valid for testing hypotheses based on the Tools and techniques of ISO 9001 and operational performance enhancement. Substantially the summary statistics have also indicated a high change F value that needs to be addressed for addressing hypothesis tests on these variables. In the opinion of Wenu and Tan (2019), an analyst must determine the strength and direction of a relationship established through variables in a research. Hence, it is noticeable that the Tools and techniques of ISO 9001 have a significantly strong relationship with the operational performance of workers in an organisational project with a positive direction.

It is noticeable in the above model summary that R-value is nominally higher than that of R square. In the views of Kanakaris *et al.* (2019), verification of data is possible through regulation that generates high value of R then the R square. On this aspect, it is identifiable that this range of data set based on ISO 9001 is reliable and valid. In addition, it is indicated that there is a nominal standard error of 0.080 units, which needs to be mitigated for avoiding duplication of information. In a data set, standard error defines the duplication of informative variables that have been provided by respondents (Haverila and Haverila, 2019). Substantially this data error is being depreciated from the coefficient outcome that is being described further. However, the significant F change seems to be lower than the standard value of 0.01 units. It is essential for a data set to generate significant F lower than the standard value, which determines that there is no missing data in an analysis.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ANOVAa** | | | | | | |
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 152.400 | 22 | 6.927 | 1085.863 | 0.000b |
| Residual | 0.555 | 87 | 0.006 |  |  |
| Total | 152.955 | 109 |  |  |  |

**Table 4.3.3.2: Regression Outcome**

(Source: SPSS)

It is visible in the above table that regression outcome of this analysis has been generated to be above 50 units in this research. In the opinion of López-Robles *et al.* (2018), it is essential for regression analysis to generate a higher value than standard outcome of 50.0 units to consider a data valid for hypothesis test. In this analysis, it is visible that data is considered valid with the significant value lower than the standard value with the similar outcome of the mean square as determined in the variable statistics. On the contrary it seems that the df value of these regulation analysis depreciating from regression to residual statistics. This aspect indicates that there is a strong relationship between the variables, which has been determined in this study. Therefore, it can be considered that further analysis of coefficients is essential for justifying the appropriate beta level and t-stat value of this analysis.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95.0% Confidence Interval for B | |
| B | Std. Error | Beta | Lower Bound | Upper Bound |
| 1 | (Constant) | -0.006 | 0.013 |  | -0.465 | 0.643 | -0.031 | 0.019 |
| HighQualityOutput | -0.055 | 0.031 | -0.054 | -1.744 | 0.085 | -0.117 | 0.008 |
| ToolsandTechniques | 0.242 | 0.060 | 0.229 | 4.012 | 0.000 | 0.122 | 0.363 |
| DataTables | -0.042 | 0.058 | -0.039 | -0.710 | 0.479 | -0.158 | 0.075 |
| ScatterDiagram | -0.134 | 0.052 | -0.132 | -2.605 | 0.011 | -0.237 | -0.032 |
| Histogram | 0.138 | 0.064 | 0.138 | 2.141 | 0.035 | 0.010 | 0.266 |
| ParetoDiagram | 0.050 | 0.100 | 0.050 | 0.497 | 0.620 | -0.149 | 0.249 |
| CauseandEffect | 0.555 | 0.096 | 0.557 | 5.781 | 0.000 | 0.364 | 0.746 |
| DirectedObjectives | 0.226 | 0.072 | 0.227 | 3.156 | 0.002 | 0.084 | 0.368 |
| Energisingmechanism | -0.023 | 0.102 | -0.023 | -0.227 | 0.821 | -0.226 | 0.180 |
| Persistencemechanism | -1.756E-13 | 0.113 | 0.000 | 0.000 | 1.000 | -0.225 | 0.225 |
| workmanagementmechanism | 9.923E-14 | 0.113 | 0.000 | 0.000 | 1.000 | -0.225 | 0.225 |
| challenginggoal | 0.042 | 0.127 | 0.041 | 0.326 | 0.745 | -0.211 | 0.294 |
| attainablegoals | -1.986E-13 | 0.113 | 0.000 | 0.000 | 1.000 | -0.225 | 0.225 |
| measurabilitycriteria | 2.750E-13 | 0.113 | 0.000 | 0.000 | 1.000 | -0.225 | 0.225 |
| clarityofgoals | -2.769E-13 | 0.113 | 0.000 | 0.000 | 1.000 | -0.225 | 0.225 |
| involveemployees | 2.522E-13 | 0.113 | 0.000 | 0.000 | 1.000 | -0.225 | 0.225 |
| selfsetgoals | -4.738E-15 | 0.113 | 0.000 | 0.000 | 1.000 | -0.225 | 0.225 |
| principal | -2.940E-13 | 0.113 | 0.000 | 0.000 | 1.000 | -0.225 | 0.225 |
| conflictingobjectives | 3.547E-13 | 0.113 | 0.000 | 0.000 | 1.000 | -0.225 | 0.225 |
| agent | -0.020 | 0.100 | -0.019 | -0.202 | 0.840 | -0.218 | 0.178 |
| economicmen | 2.427E-13 | 0.080 | 0.000 | 0.000 | 1.000 | -0.159 | 0.159 |
| feedback | 0.026 | 0.060 | 0.025 | 0.435 | 0.665 | -0.093 | 0.145 |

**Table 4.3.2.3: Coefficients**

(Source: SPSS)

It has been noticed in the table above that the significance value of these outcomes are substantially higher in the Tools and techniques of ISO 9001 with the operational performance variables. Significance value generated high in Coefficients indicates a strong relationship between them in an analysis (Perkins *et al.* 2018). In this scenario, it is detected that the goal setting theory is generating higher outputs based on the response of the employees rather than the principal agent theory. Therefore it can be determined that through the application of elements based on goal setting theory gaining operational performance enhancement through ISO 9001: 2015 becomes possible for an enterprise.

In this analysis conducted above it is noticeable that the confidence interval has been generated below the standard unit of 0.50. In the views of Zhidebekkyzy *et al.* (219), acquisition of upper bound and lower bound limit below 0.50 unit is essential to establish relationship between variables in a study. However, the beta value seems to be substantially lower than the standard unit in every variable. This aspect indicates a strong relationship between every variable of the study. In this scenario for the analysis of hypothesis is essential that has been contacted below for determining the suitable acceptance range of a hypothesis.

### 4.3.3 T Test

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **One-Sample Test** | | | | | | |
|  | Test Value = 0 | | | | | |
| t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
| Lower | Upper |
| HighQualityOutput | 8.882 | 109 | 0.000 | 1.000 | 0.78 | 1.22 |
| ToolsandTechniques | 9.967 | 109 | 0.000 | 1.064 | 0.85 | 1.28 |
| DataTables | 10.598 | 109 | 0.000 | 1.118 | 0.91 | 1.33 |
| ScatterDiagram | 9.449 | 109 | 0.000 | 1.045 | 0.83 | 1.26 |
| Histogram | 9.654 | 109 | 0.000 | 1.091 | 0.87 | 1.31 |
| ParetoDiagram | 9.820 | 109 | 0.000 | 1.118 | 0.89 | 1.34 |
| controlcharts | 9.940 | 109 | 0.000 | 1.127 | 0.90 | 1.35 |
| TrendAnalysis | 9.940 | 109 | 0.000 | 1.127 | 0.90 | 1.35 |
| CauseandEffect | 9.940 | 109 | 0.000 | 1.127 | 0.90 | 1.35 |
| OperationalPerformance | 10.061 | 109 | 0.000 | 1.136 | 0.91 | 1.36 |
| DirectedObjectives | 10.233 | 109 | 0.000 | 1.164 | 0.94 | 1.39 |
| Energisingmechanism | 10.416 | 109 | 0.000 | 1.182 | 0.96 | 1.41 |
| Persistencemechanism | 10.543 | 109 | 0.000 | 1.191 | 0.97 | 1.41 |
| workmanagementmechanism | 10.672 | 109 | 0.000 | 1.200 | 0.98 | 1.42 |
| challenginggoal | 10.803 | 109 | 0.000 | 1.209 | 0.99 | 1.43 |
| attainablegoals | 10.936 | 109 | 0.000 | 1.218 | 1.00 | 1.44 |
| measurabilitycriteria | 11.072 | 109 | 0.000 | 1.227 | 1.01 | 1.45 |
| clarityofgoals | 11.210 | 109 | 0.000 | 1.236 | 1.02 | 1.45 |
| involveemployees | 11.350 | 109 | 0.000 | 1.245 | 1.03 | 1.46 |
| selfsetgoals | 11.493 | 109 | 0.000 | 1.255 | 1.04 | 1.47 |
| principal | 11.638 | 109 | 0.000 | 1.264 | 1.05 | 1.48 |
| conflictingobjectives | 11.786 | 109 | 0.000 | 1.273 | 1.06 | 1.49 |
| agent | 11.937 | 109 | 0.000 | 1.282 | 1.07 | 1.49 |
| economicmen | 11.984 | 109 | 0.000 | 1.300 | 1.08 | 1.52 |
| feedback | 12.034 | 109 | 0.000 | 1.318 | 1.10 | 1.54 |

**Table 4.3.3: T Test**

(Source: SPSS)

In the above analysis, it is visible that there are no significant relationships between the variables based on the theory of principal agent. In the opinion of Grzeszczyk and Czajkowski (2017), it is essential for a variable to generate a minimum upper and lower limit below 1.0 units. In this assessment, it is observable that goal-setting theory has gained a lower output than the principal agent theory in lower and upper limits. Additionally the lowest upper and lower limit has been gained by the operational performance enhancement variable in this study. In the words of Digehsara *et al.* (2018), it is essential that there is a substantial range of mean differences above 1.0 units between the variables to prove a hypothesis. In this analysis mean variance has been obtained above the standard unit as visible in the above table. Further analysis of hypothesis test indicated that there is a strong relationship between goal setting theory ISO 9001 and operational performance of an organisation. Getting a high value of t indicates that there is a significant relationship between variables in a study (Aydin and Dilan, 2017). The above analysis highlights that there is a substantial range of relationship between these variables as indicated earlier proving that H1 is accepted and H0 is rejected.

## 4.4 Discussion

It can be drawn from the analysis that ISO 9001: 2015 has a significant relationship with operational performance in the automobile industry. In the views of Palma *et al.* (2018), application of ISO 9001 significantly improves quality management criteria for an organisation. This benefit delivers optimum production quality for organisations working as a fragment of the automobile industry to gain operational thrust in the market. On the contrary, it has been detected that utilisation of tools and techniques without proper knowledge of data interpretation can lead to the depreciation of organisational performance through ineffective decision-making. Substantially, the proper interpretation of information has been detected in the quantitative analysis of this study, to be effective in advance operational performance in an organisation. In the opinion of Kozel *et al.* (2017), abiding by the quality guidelines of ISO 9001 significantly improves workforce approach of an enterprise with an assurance of improved market presence with the analysis of trends. Thus, it is noticeable that through the application of quality guidelines attaining operational performance enhancement becomes possible for the industry of automobile in the UK as the proven hypothesis earlier.

Simulation of goal-setting theory has been detected to be appropriate for complying with the ISO 9001: 2015 guidelines for the automobile industry as detected in the analysis. In the words of Neves *et al.* (2021), goal-setting theory is adequate for clarifying objectives to the employees related to an organisation project for improving their workforces. This aspect in turn, allows the management leaders of the automobile sector to gain maximum potential through communication enhancement in the workplace. As indicated in the literature analysis that application of communication advancement procedure is a prime objective of ISO 9001. In this circumstance, it is understandable that there is a stagnant connection between goal-setting theory, ISO 9001 and operational performance as detected in the analysis. However, it has also been regarded by the 110 employees of the automobile industry that principal agent theory has no connection with the guidelines of problem solving provided in ISO 9001. In the perception of Bornemann *et al.* (2018), problem solving through analysis of internal data is the only process denoted in the ISO 9001 guidelines for an organisation to improve its quality management system. This conjecture had been detected earlier in the literature analysis segment of this study. Therefore, it is observable that principal agent theory has no subtle connection with the guidelines of ISO 9001: 2015 that improves operational performance of the automobile industry in the UK.

## 4.5 Summary

This chapter has denoted that there is a significant relationship between ISO 9001: 2015, operational performance, and goal-setting theory by accepting H1 and rejecting H0 through hypothesis test. Correlation output detected that the collected data is unsymmetrically distributed that enhance reliability of this information set collected from 110 employee of the EU automobile industry. Regression assessment detected viable links between the IVs and DV determined in this study. Additionally, t test conducted on the related variable proved that there is a strong relationship between ISO 9001 and operational performance in the automobile industry of the UK. However, in this chapter, analysis have displayed that there is no connection between the ISO guidelines and principal agent theory.

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# Appendices

## Appendix 1: Survey Questionnaire

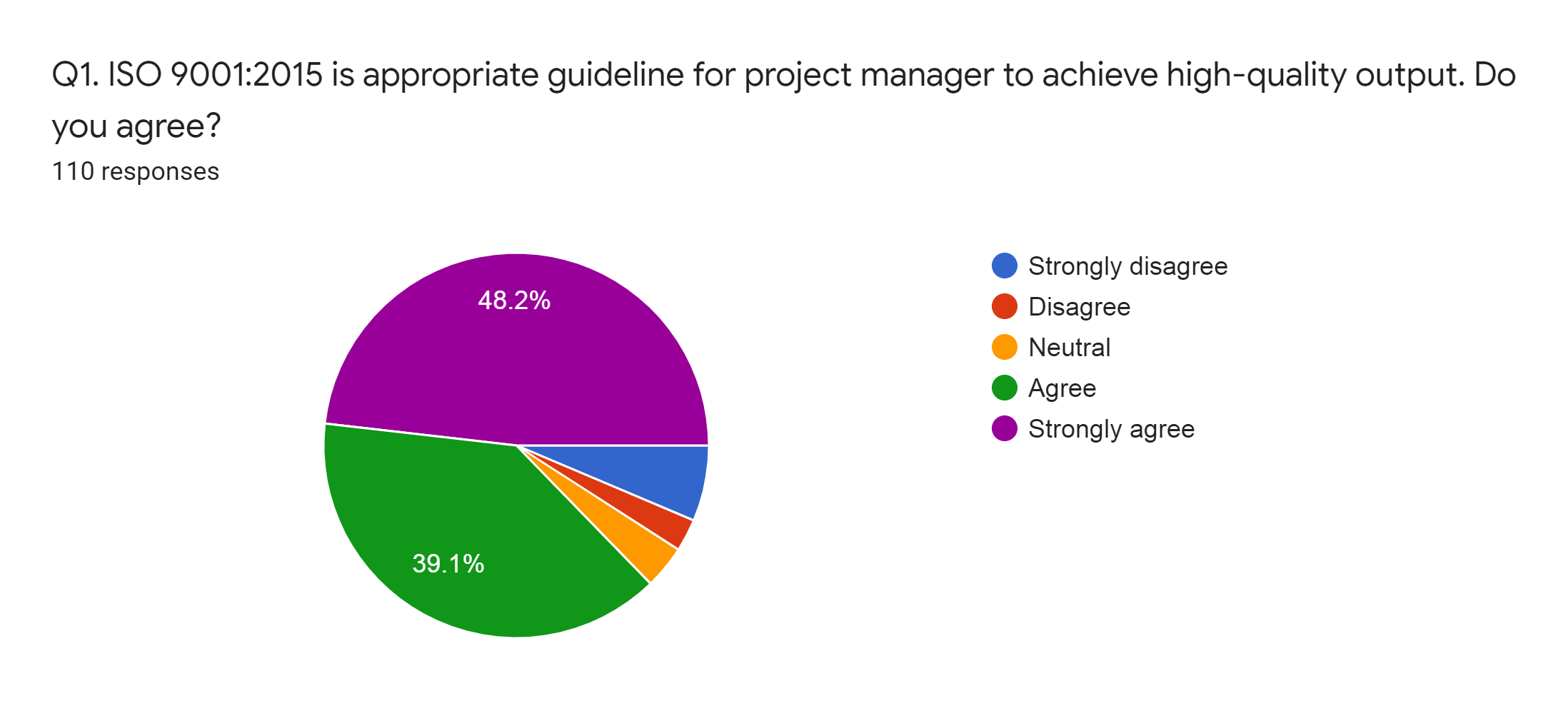
|  |  |  |  |
| --- | --- | --- | --- |
| Q1. ISO 9001:2015 is appropriate guideline for project manager to achieve high-quality output. Do you agree? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |
|  |  |  |  |
| Q2. How much do you agree with the statement that tools and techniques of ISO 9001:2015 are useful for enhancing performance of project employees? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |
|  |  |  |  |
| Q3. Can you agree with the statement that accurate interpretation of data tables as determined in ISO 9001: 2015 can lead to the can improve employee performance? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |
|  |  |  |  |
| Q4. Is scatter diagram a helpful tool of ISO 9001: 2015 that can increase organisational performance in a project? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |
|  |  |  |  |
| Q5. Is it agreeable that histogram is an effective tool of ISO 9001: 2015 that advances performance of workers in a project? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |
|  |  |  |  |
| Q6. Pareto diagram is a suitable technique of ISO 9001: 2015 for improving project performance. Is this verdict agreeable? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |
|  |  |  |  |
| Q7. Do you think control charts are appropriate tool of ISO 9001: 2015 for improving operational performance? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |
|  |  |  |  |
| Q8. Trend analysis as an effective technique of ISO 9001: 2015 develops operational performance in a project. Do you agree? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |
|  |  |  |  |
| Q9. In your opinion, does the cause and effect analysis tool of ISO 9001: 2015 increases operational performance? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |
|  |  |  |  |
| Q10. How much do you agree that the current tools and techniques of ISO 9001: 2015 do not improve operational performance? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |
|  |  |  |  |
| Q11. Does having directed objectives of ISO 9001: 2015 will improve your performance? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |
|  |  |  |  |
| Q12. How much do you agree that the Energising mechanism of Goal Setting theory is appropriate for improving your performance through ISO 9001: 2015? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |
|  |  |  |  |
| Q13. Do you think Persistence mechanism of Goal Setting theory is applicable in the guidelines of ISO 9001: 2015? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |
|  |  |  |  |
| Q14. In which range of agreeableness do you think does discovery of innovative work management mechanism does Goal Setting theory provides based on ISO 9001: 2015? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |
|  |  |  |  |
| Q15. Is a challenging goal of ISO 9001: 2015 achievable through the Goal Setting theory? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |
|  |  |  |  |
| Q16. Do the ISO 9001: 2015 goals have to be attainable for the employees? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |
|  |  |  |  |
| Q17. Application of Goal Setting theory improves measurability criteria of ISO 9001: 2015. How much do you agree? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |
|  |  |  |  |
| Q18. Is clarity of goals essential for achieving ISO 9001: 2015 goals? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |
|  |  |  |  |
| Q19. Should the management leaders involve employees for goal setting on ISO 9001: 2015? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |
|  |  |  |  |
| Q20. Do you agree that employees must be allowed to self-set goals regarding ISO 9001: 2015? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |
|  |  |  |  |
| Q21. Do you think you need to identify the principal of problem solving for enhancing operational performance through ISO 9001: 2015? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |
|  |  |  |  |
| Q22. How much do you agree that conflicting objectives regarding ISO 9001: 2015 must be addressed in an organisation to improve operational performance? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |
|  |  |  |  |
| Q23. In your opinion, determining an agent of problem solving for ISO 9001: 2015 improves operational performance of employees. Do you agree? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |
|  |  |  |  |
| Q24. How much do you agree that economic men are the required human resource for problem solving regarding issues in ISO 9001: 2015 that reduces operational performance? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |
|  |  |  |  |
| Q25. Sharing opinion and implying feedback of employees are appropriate measures to improve operational performance based on ISO 9001: 2015. How much do you agree? | | | |
| Scale | Total Respondents | Responses | Percentage |
| Strongly Disagree | 110 |  |  |
| Disagree | 110 |  |  |
| Neutral | 110 |  |  |
| Agree | 110 |  |  |
| Strongly Agree | 110 |  |  |

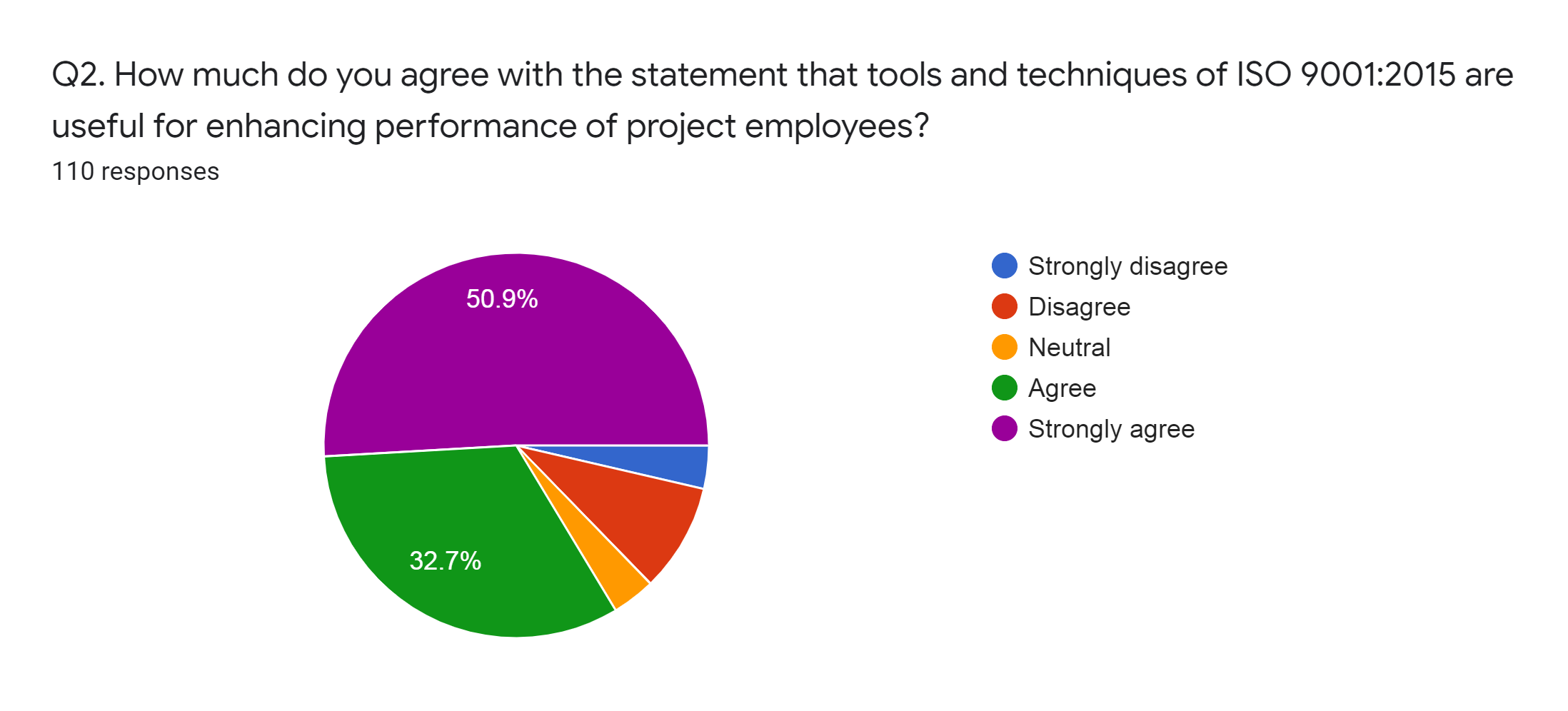
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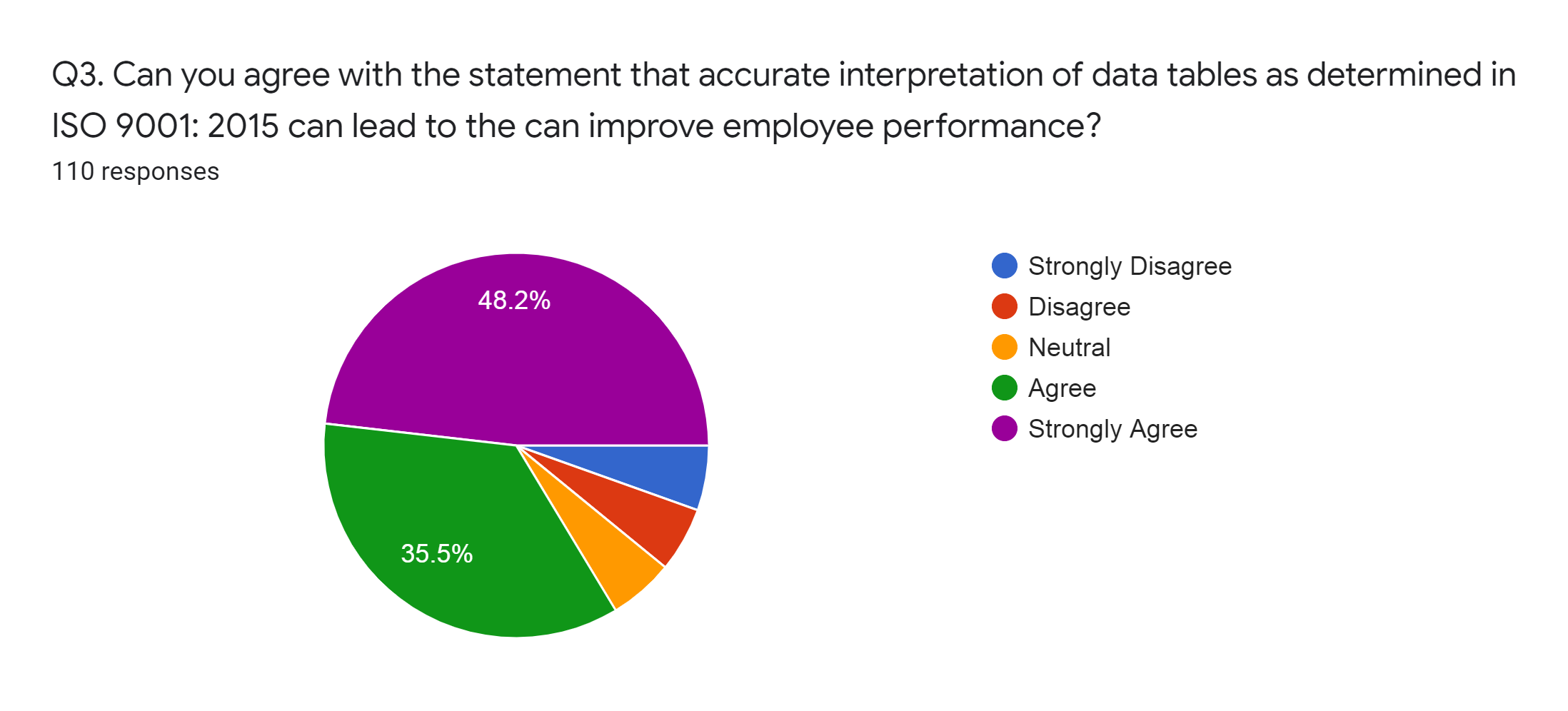
## Appendix 2: Survey Outcomes

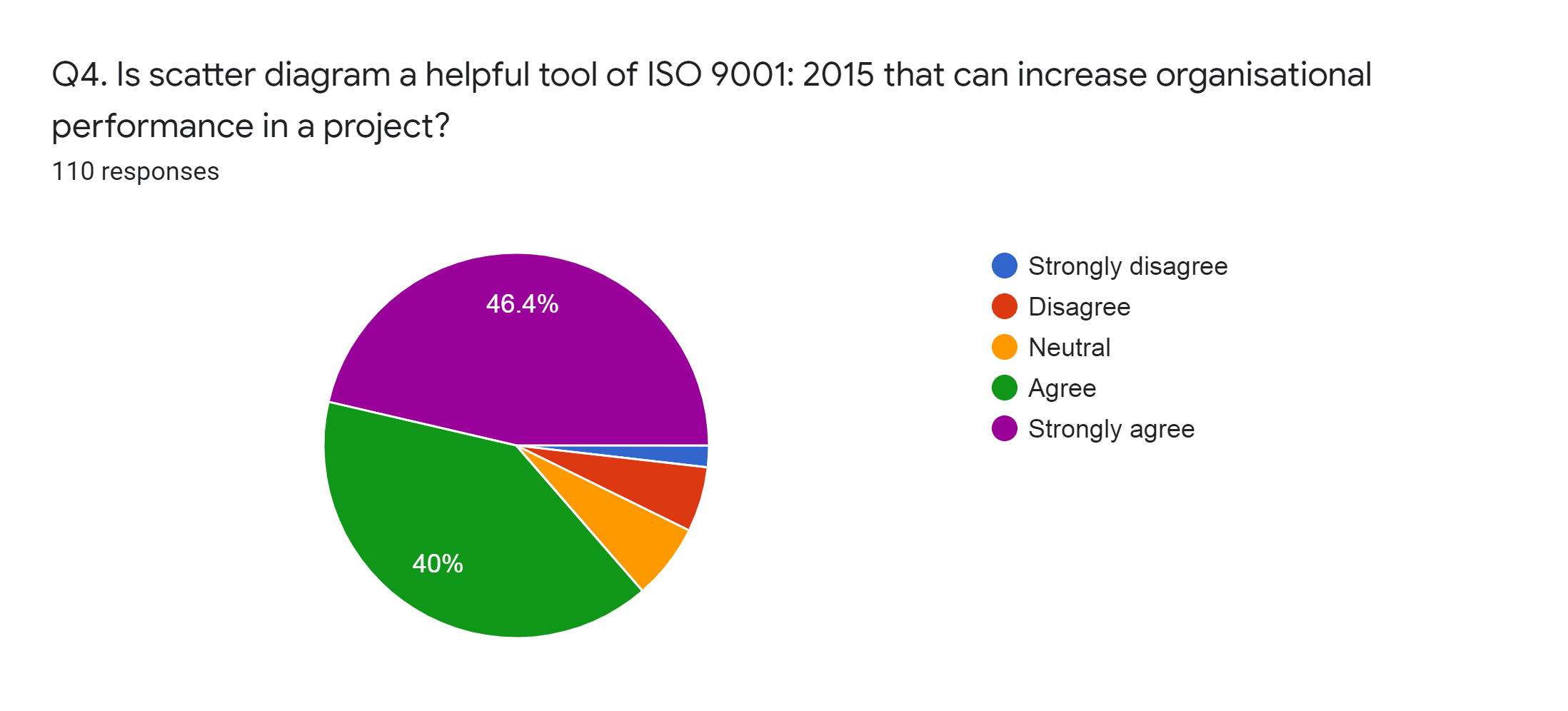
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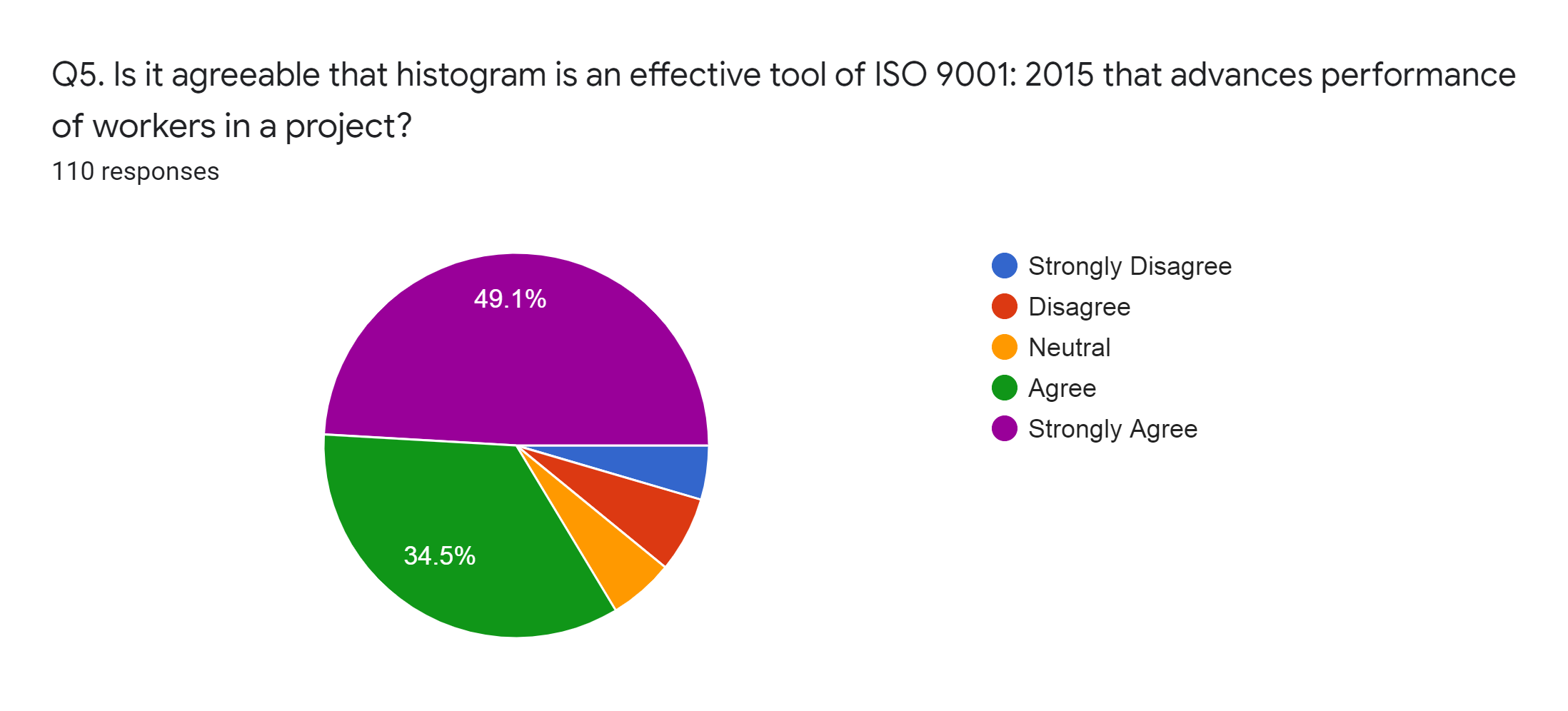
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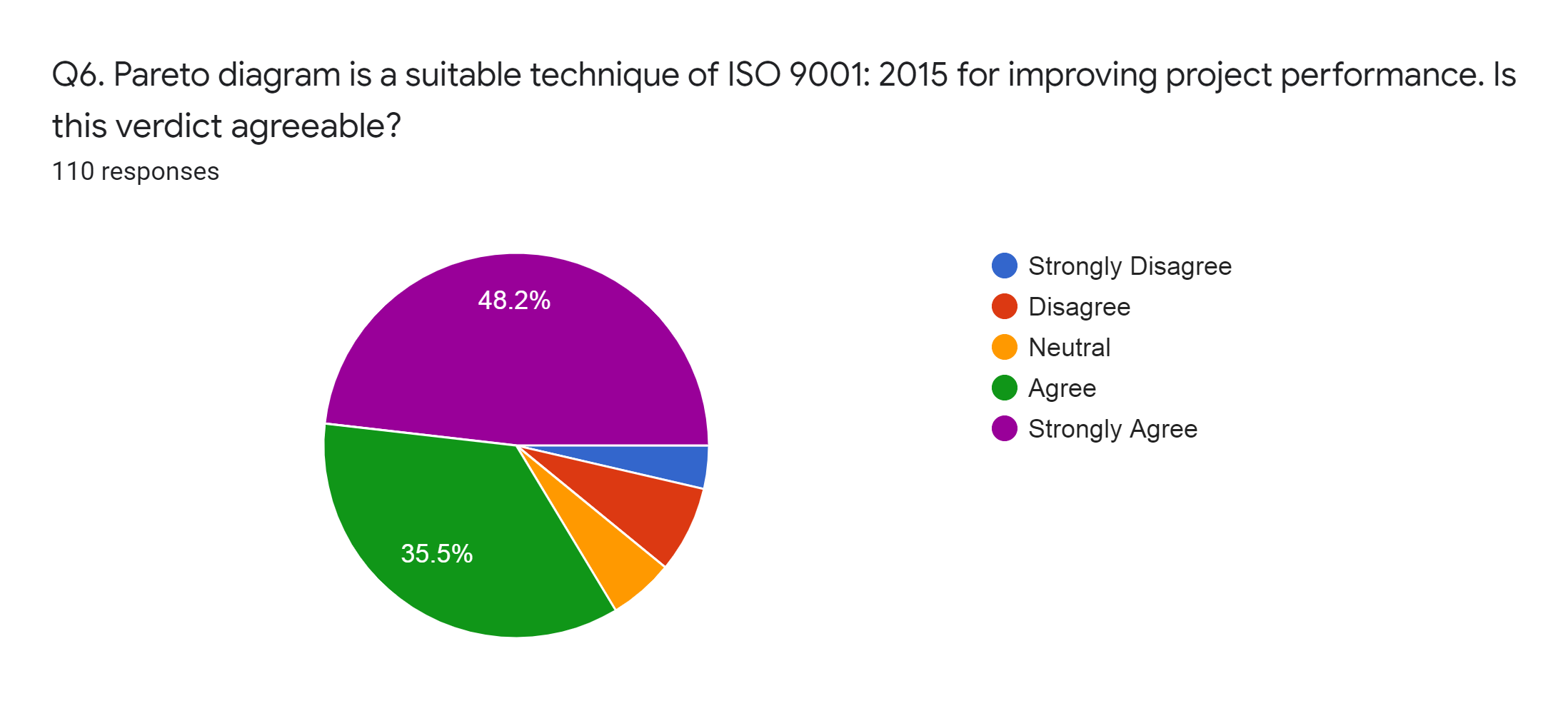


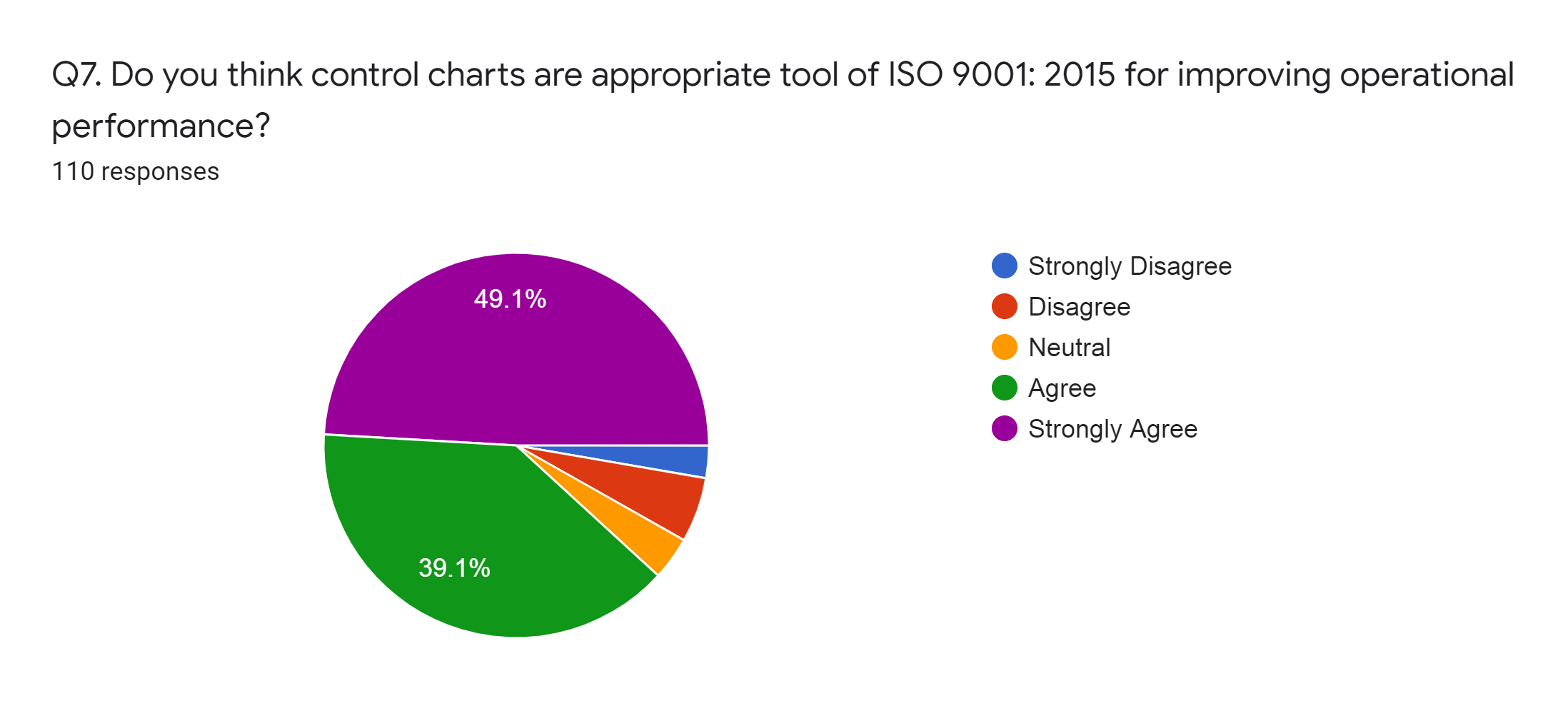


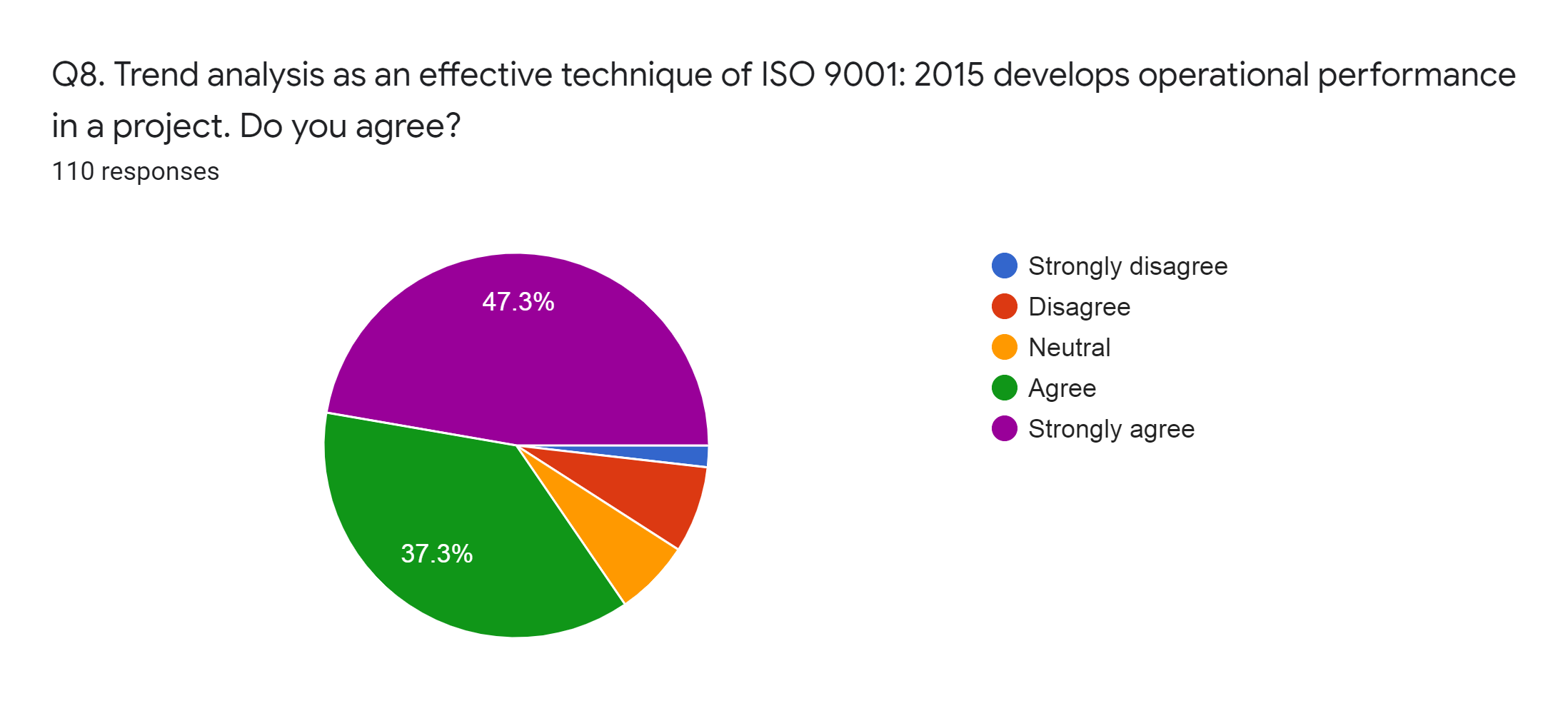


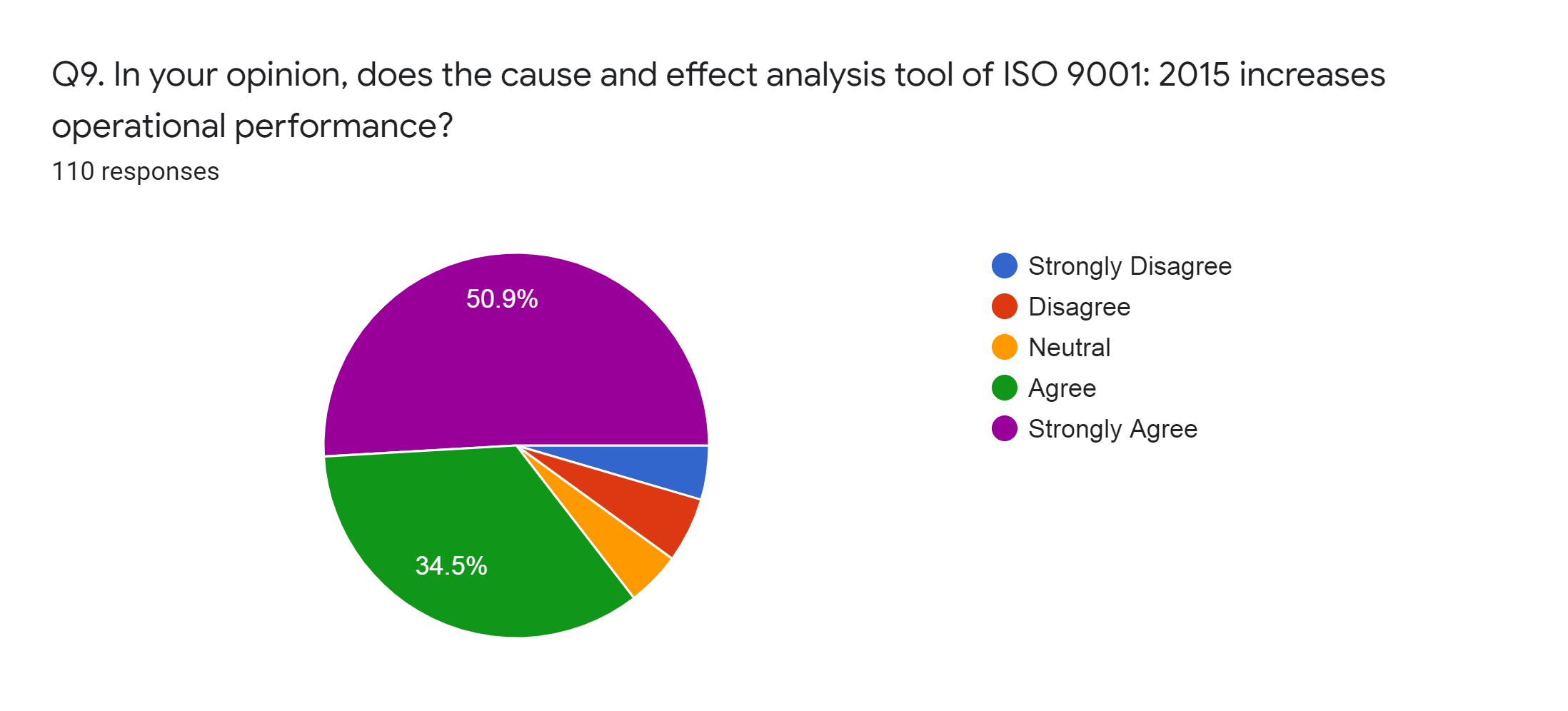


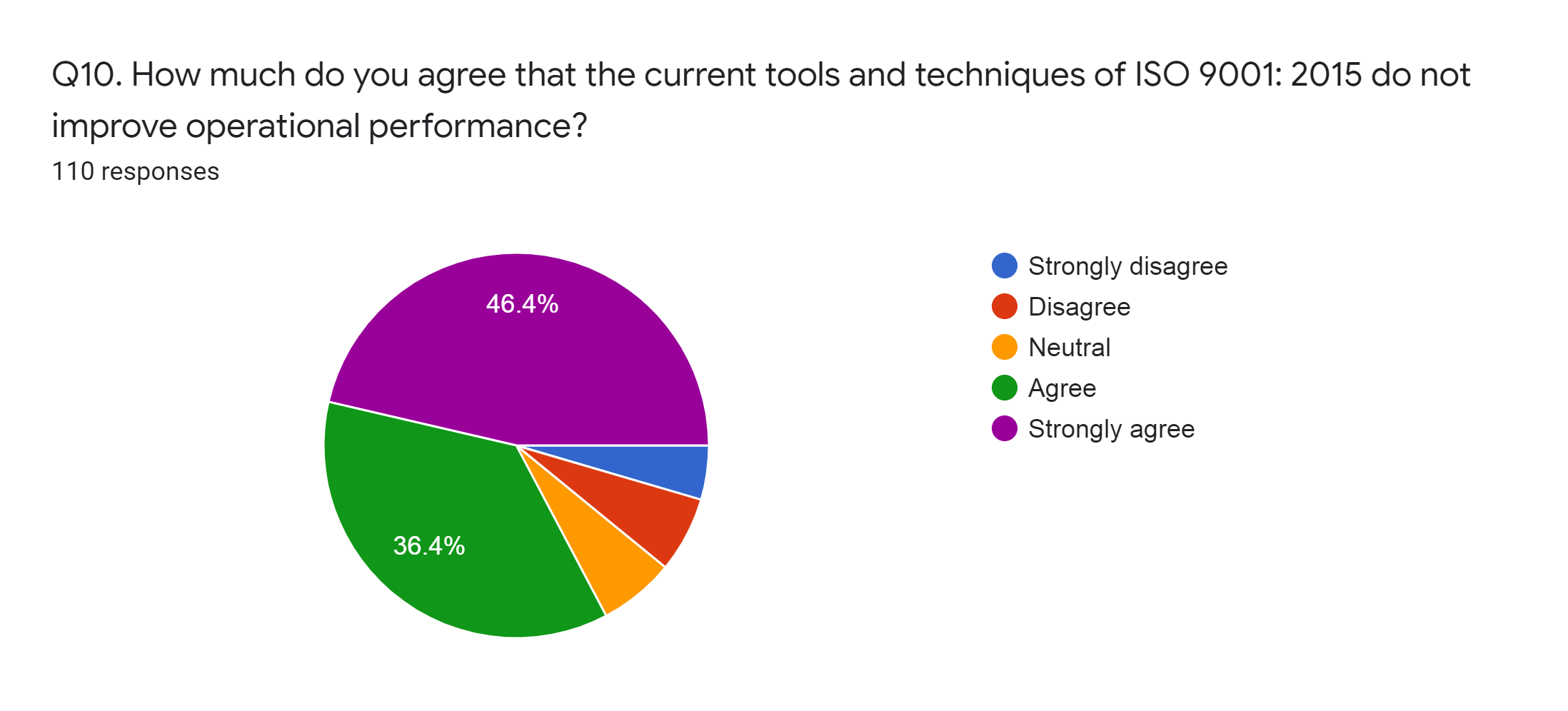


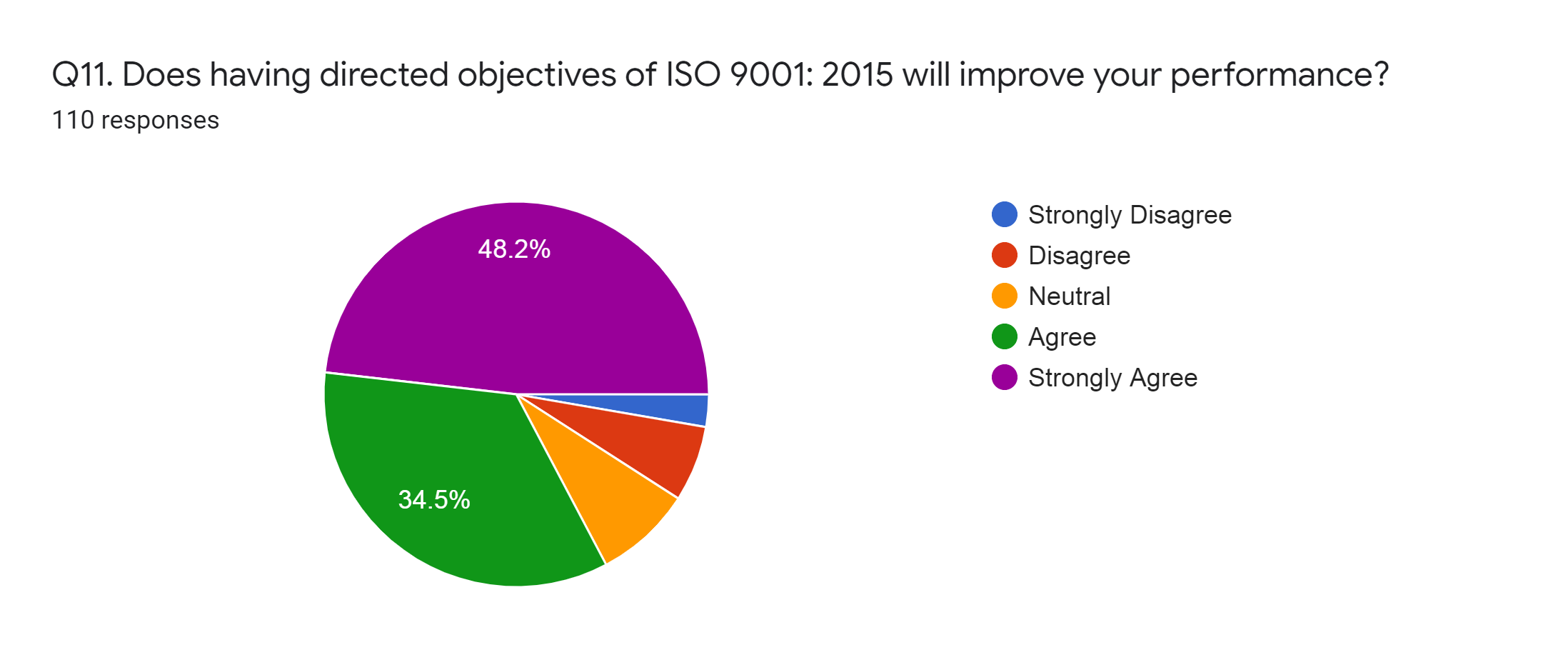


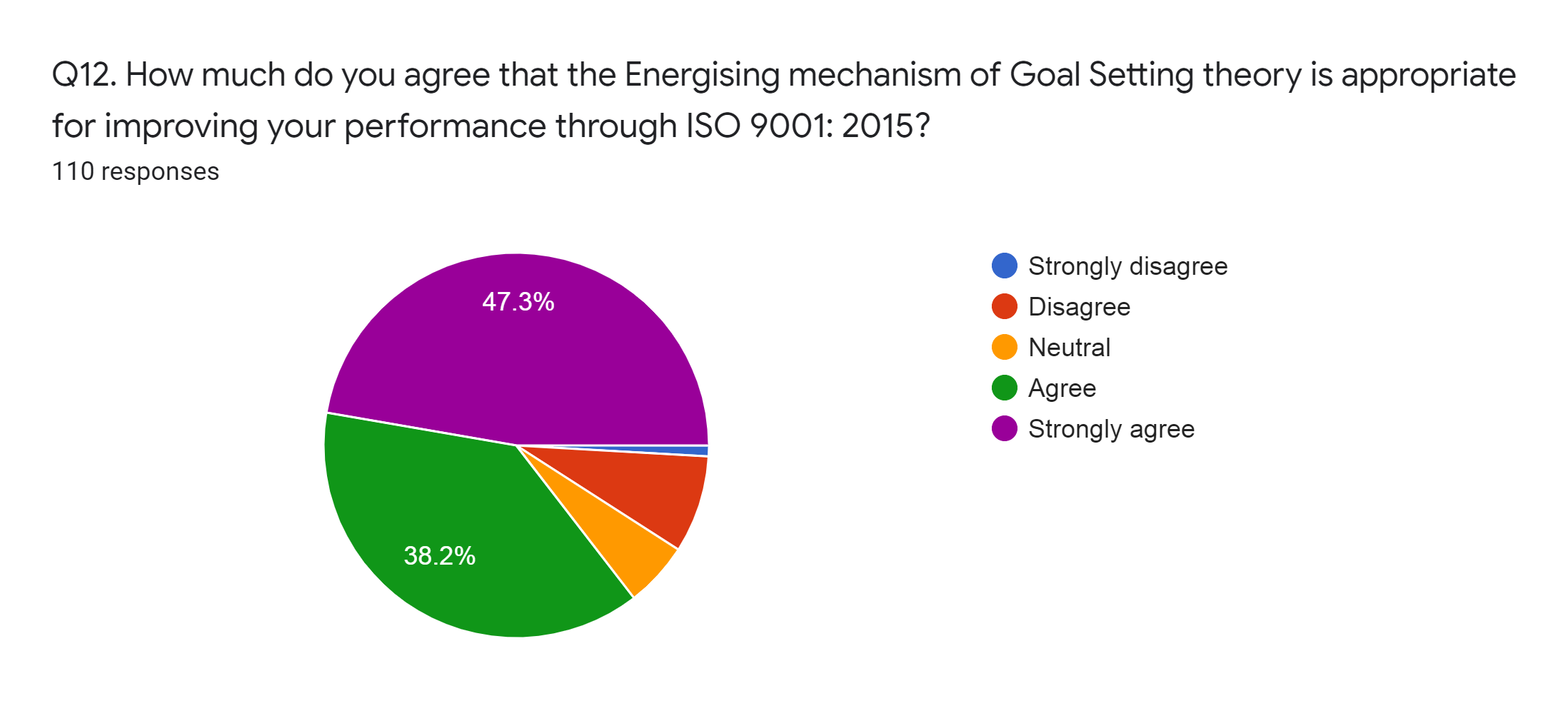


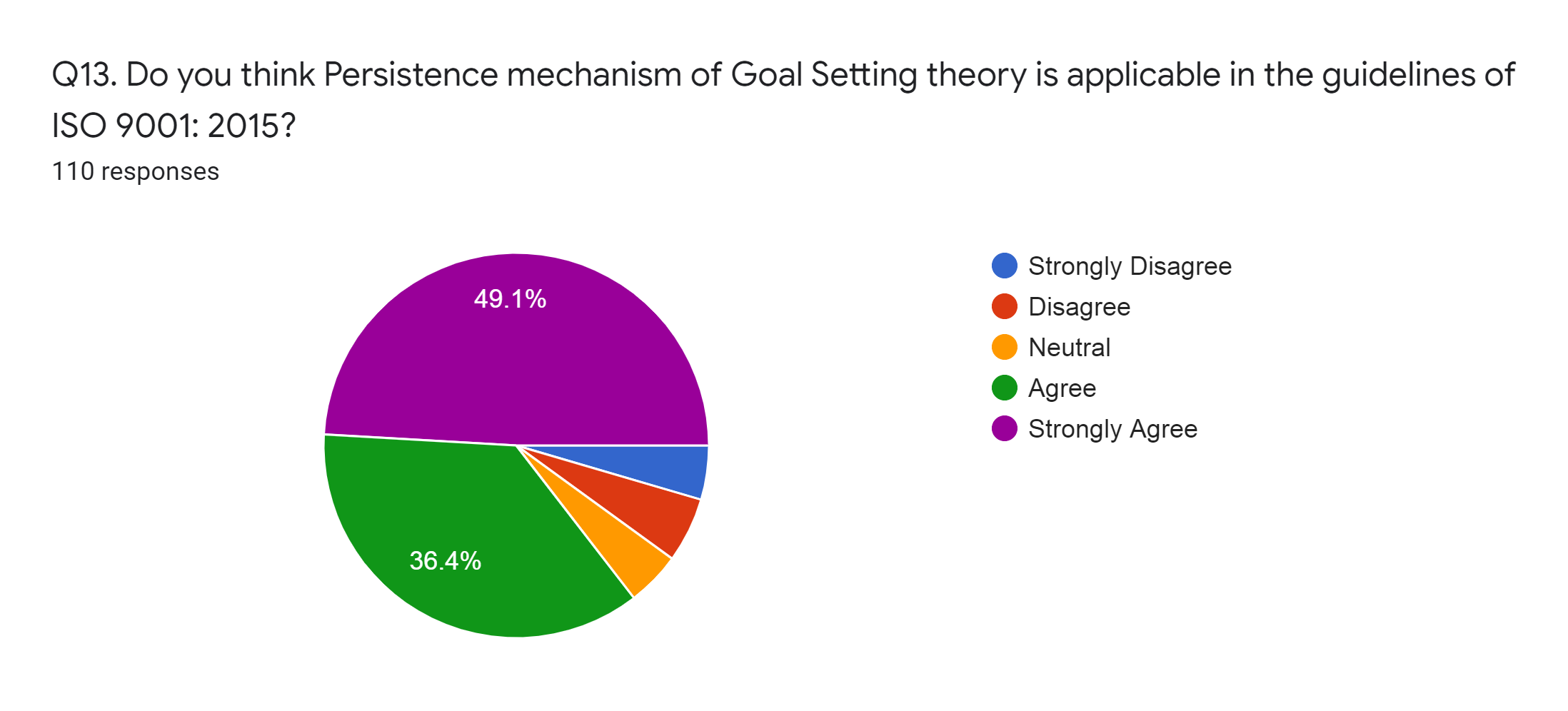


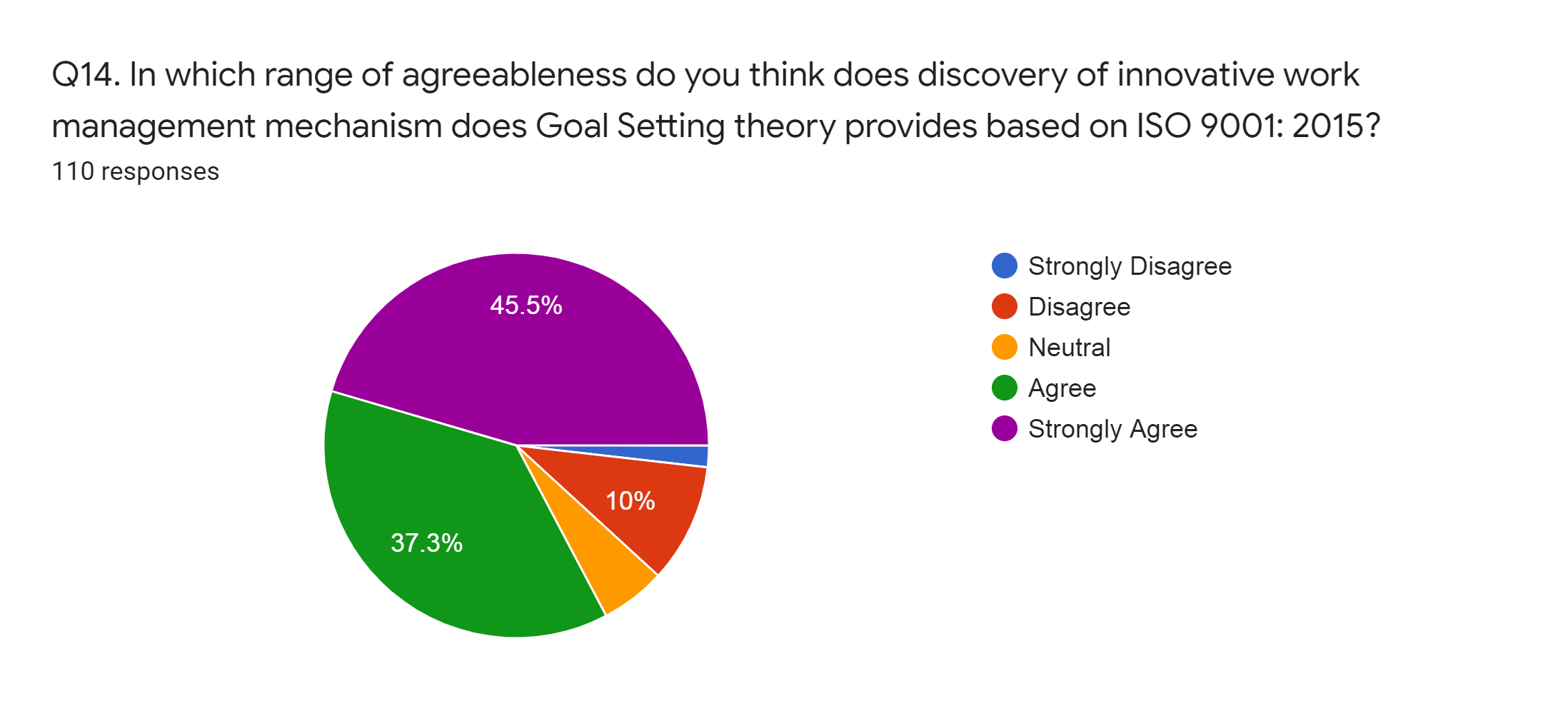


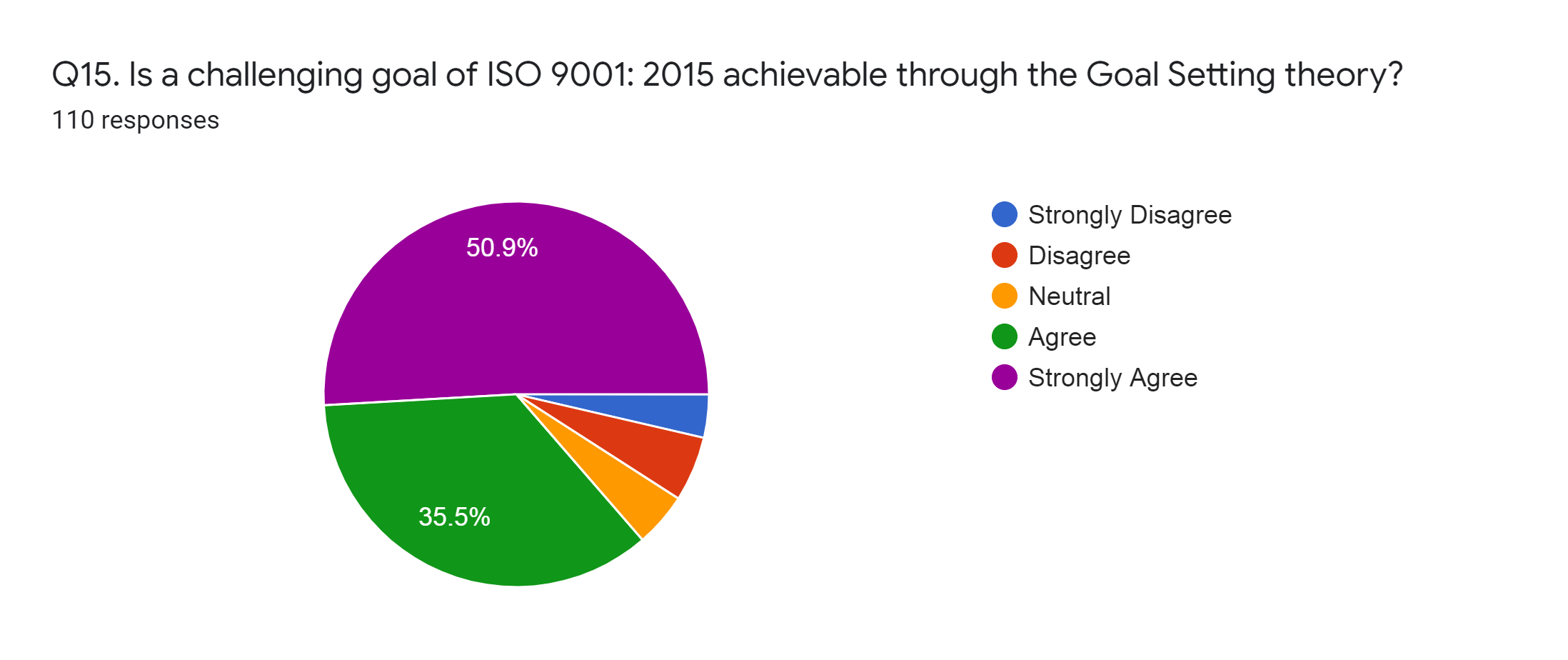


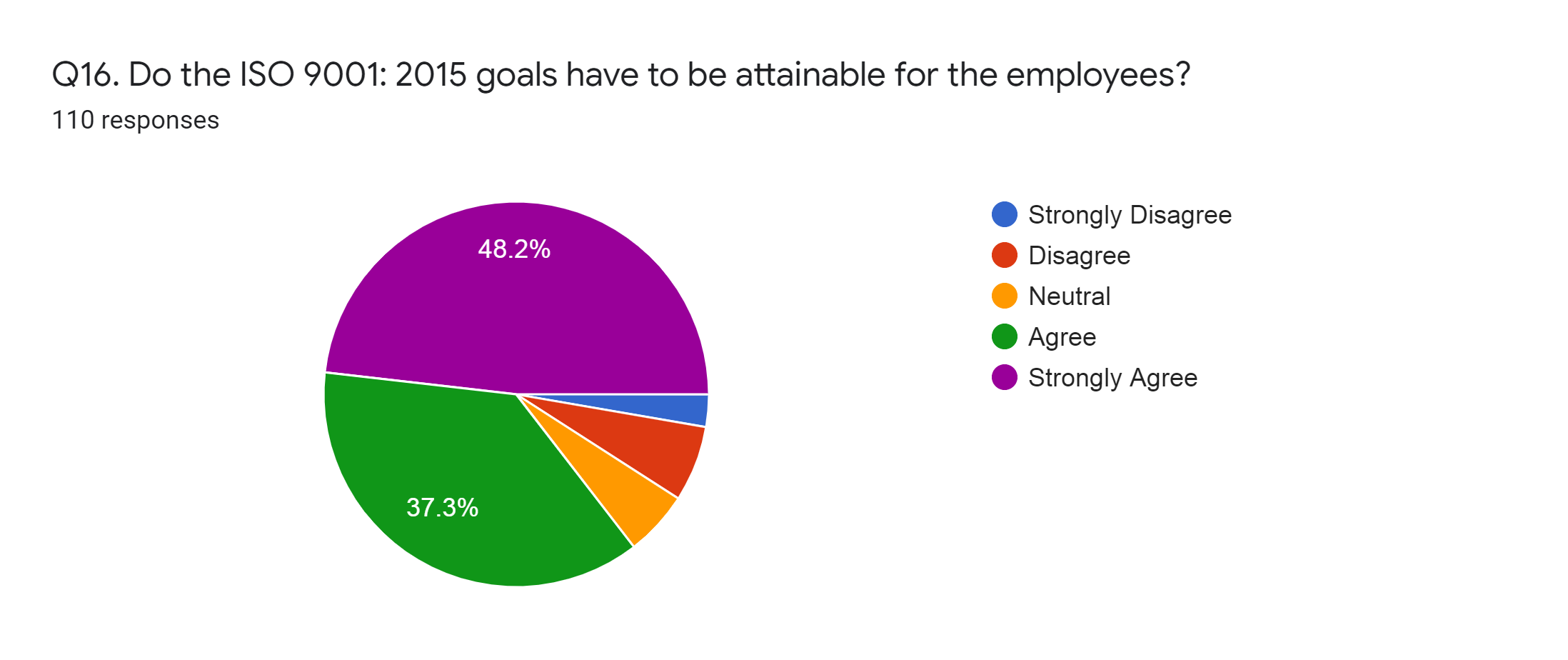


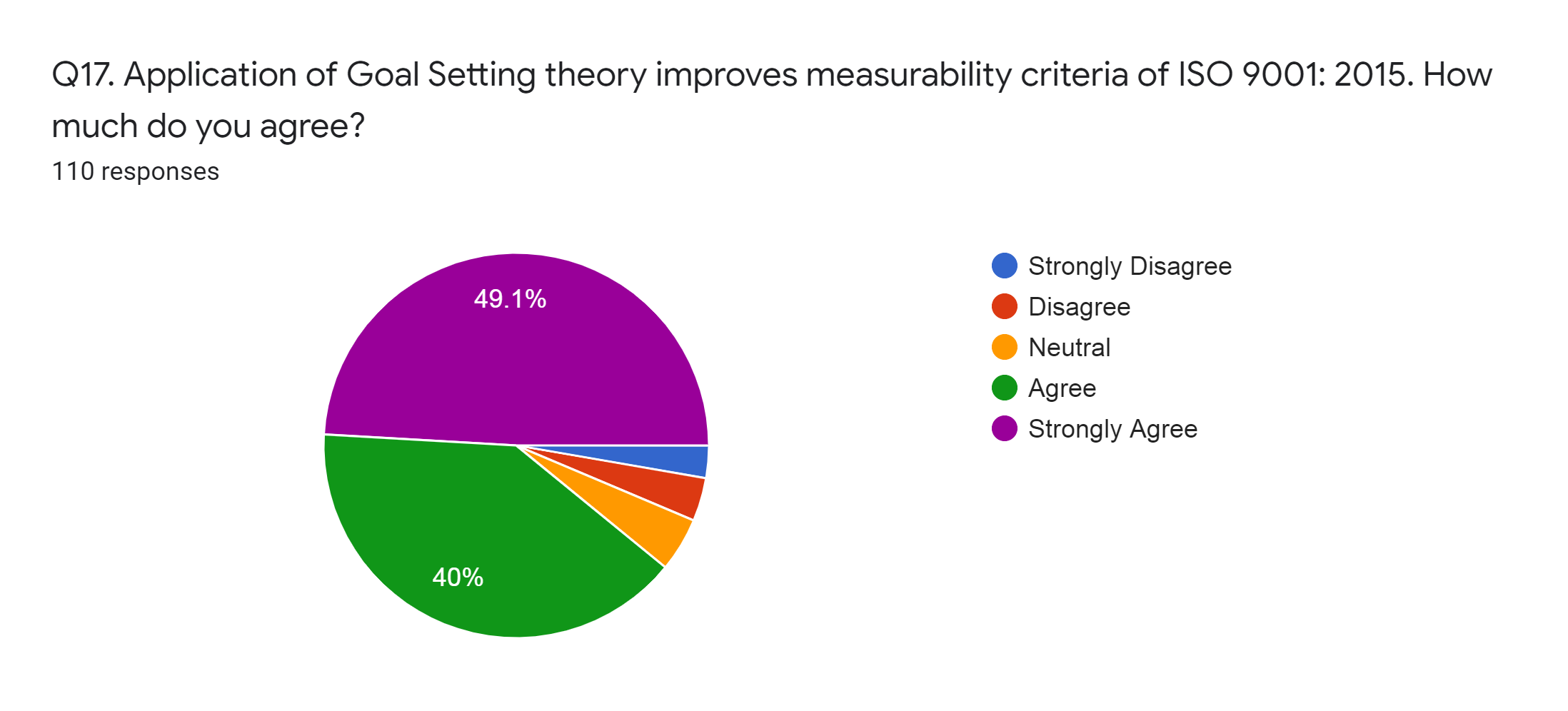


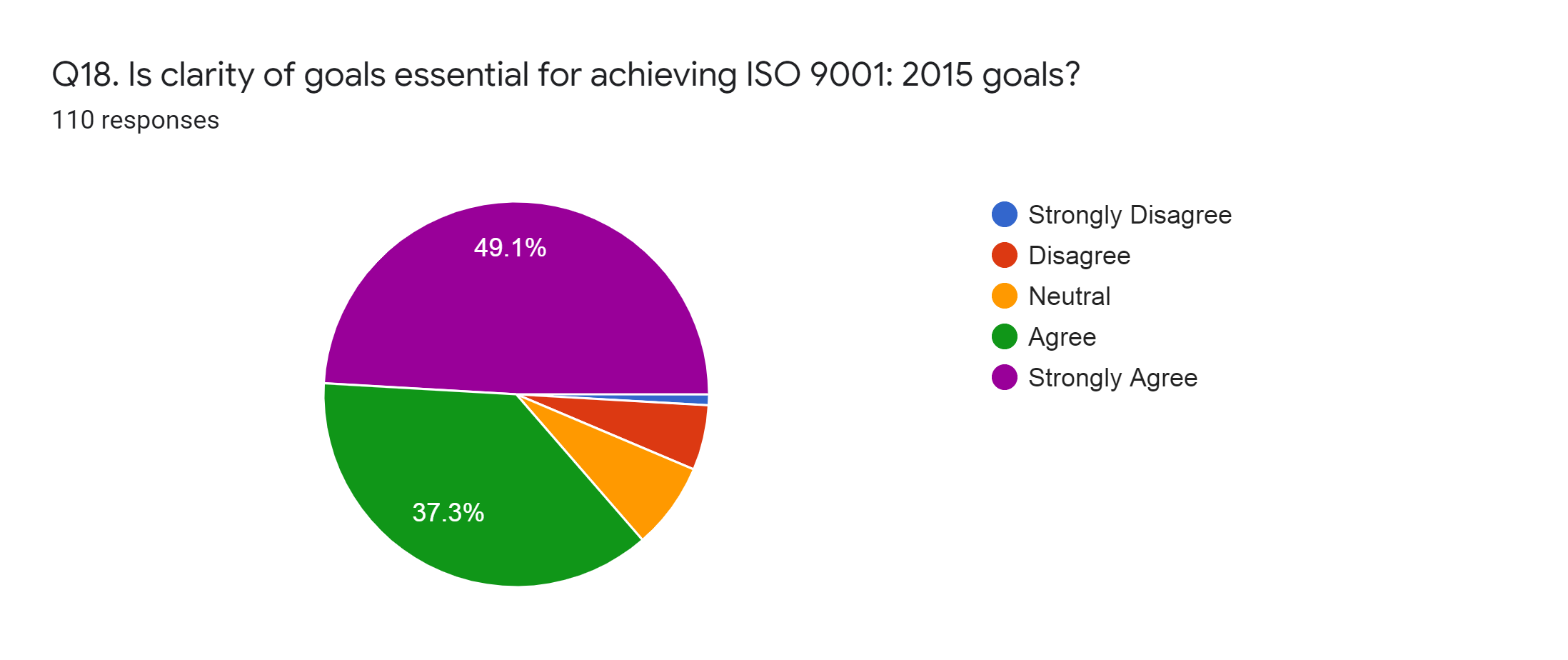


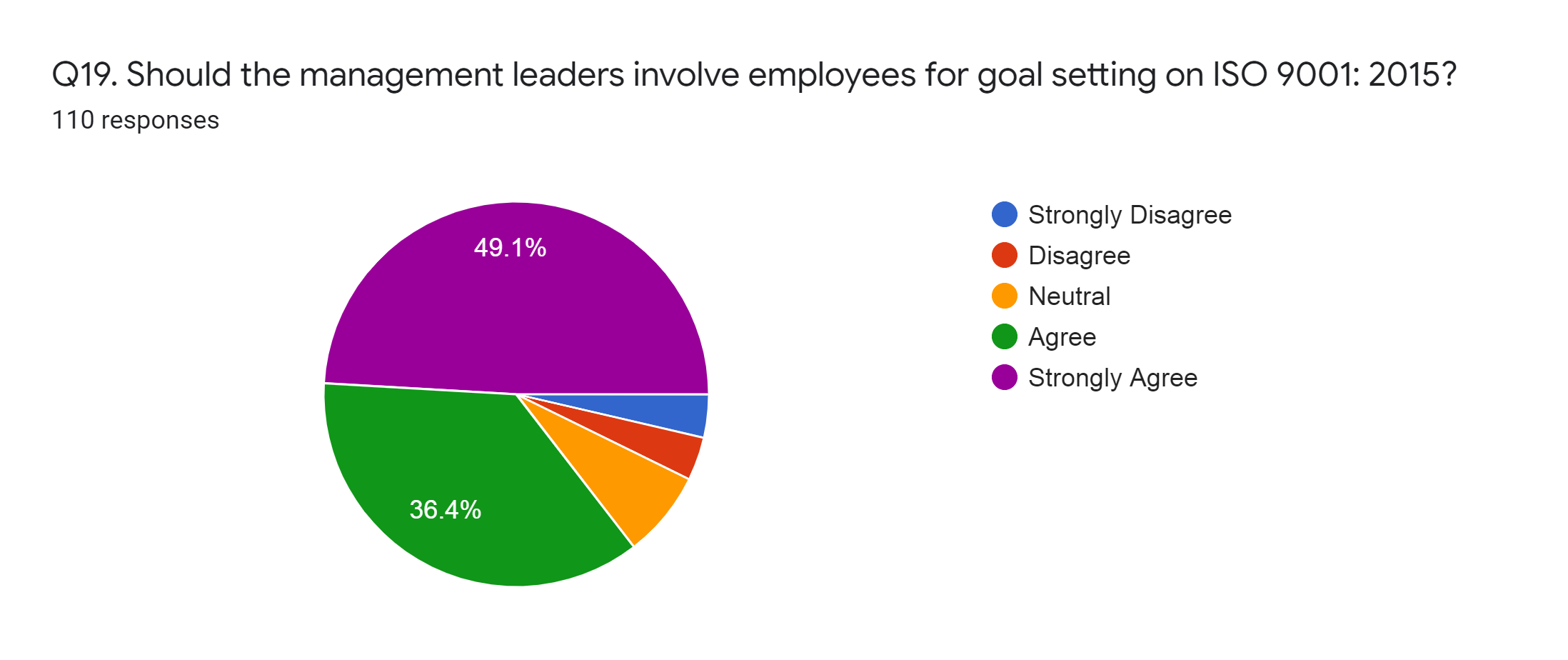


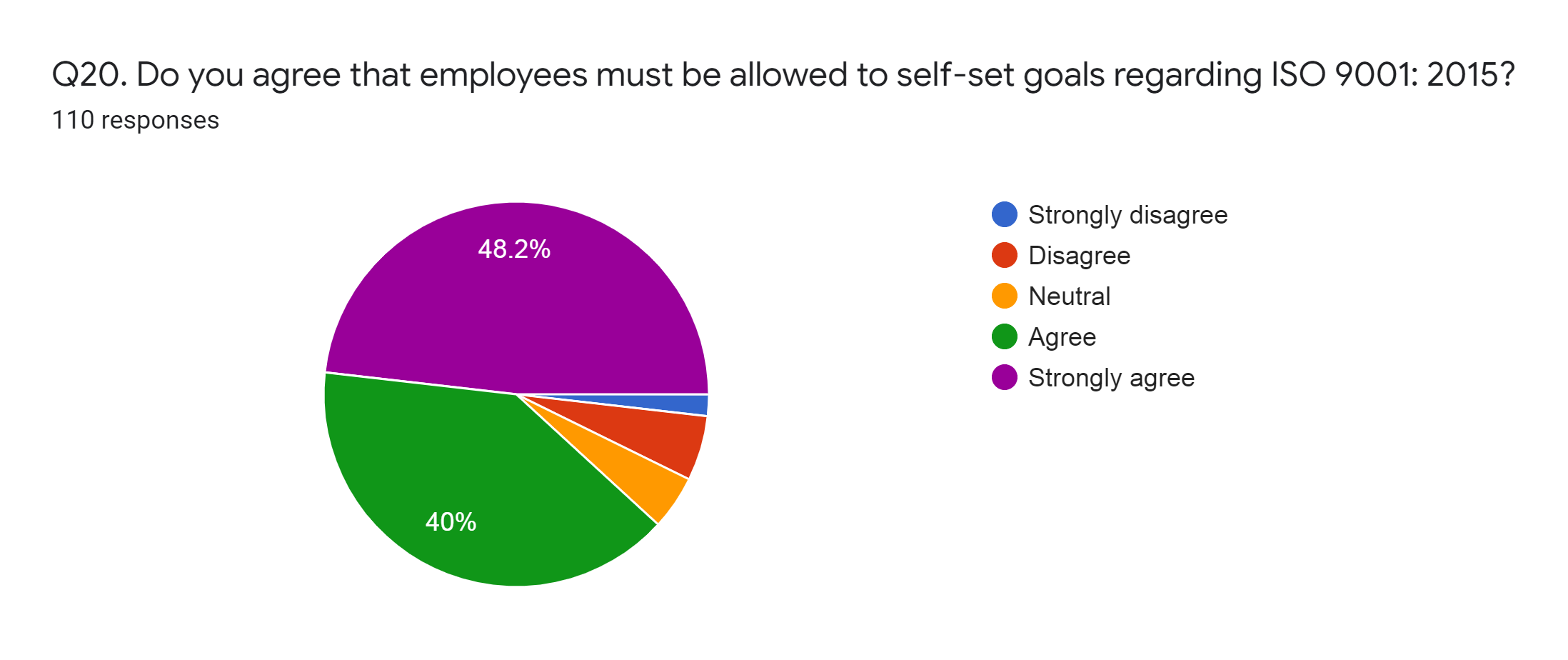


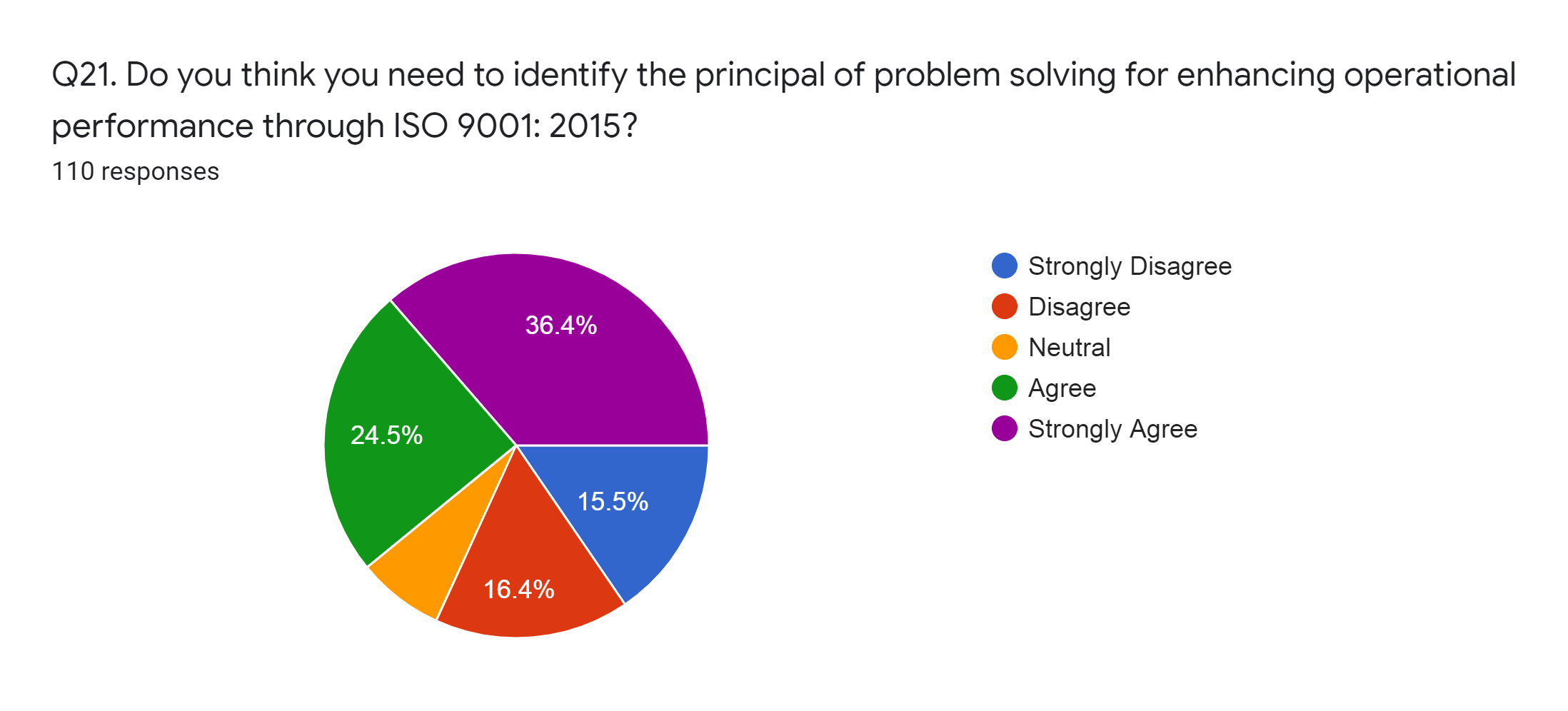




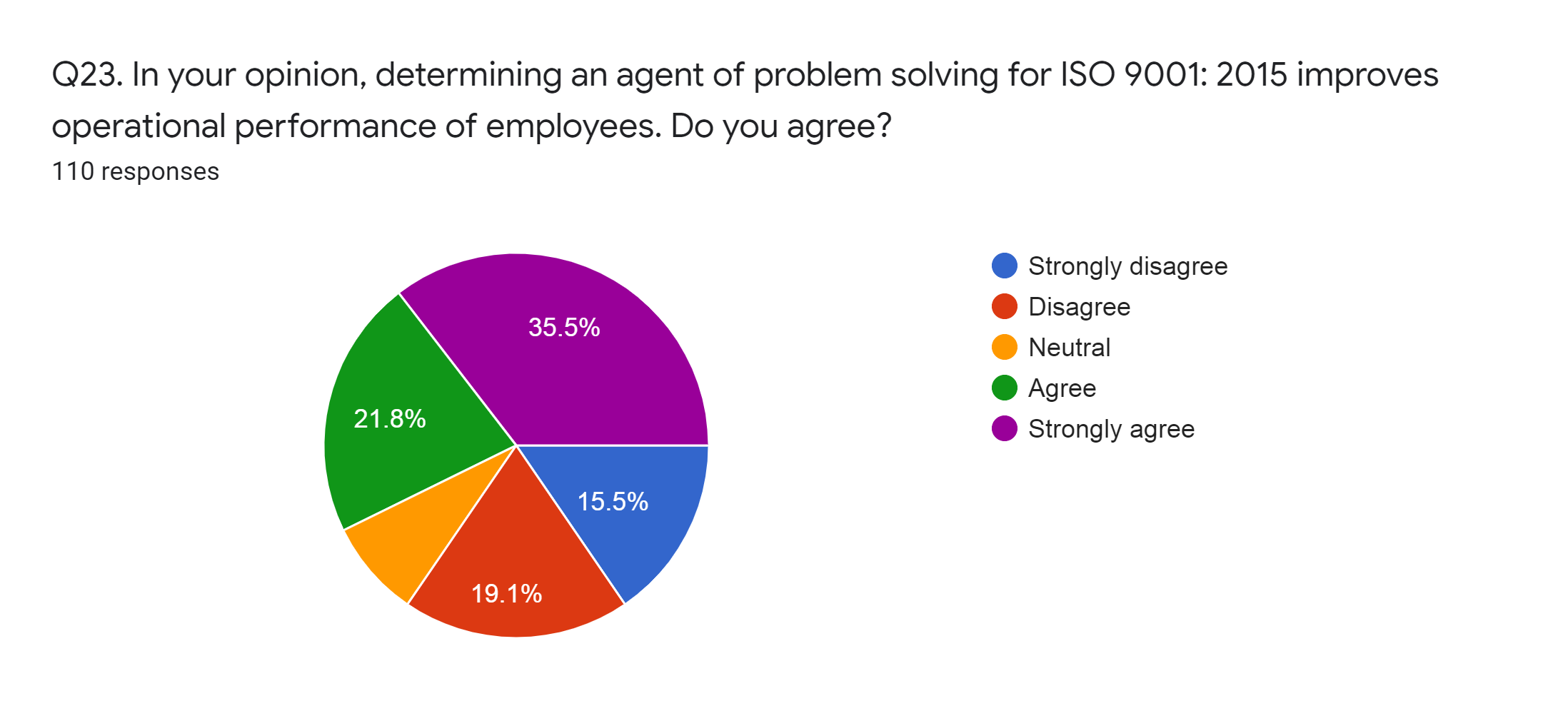


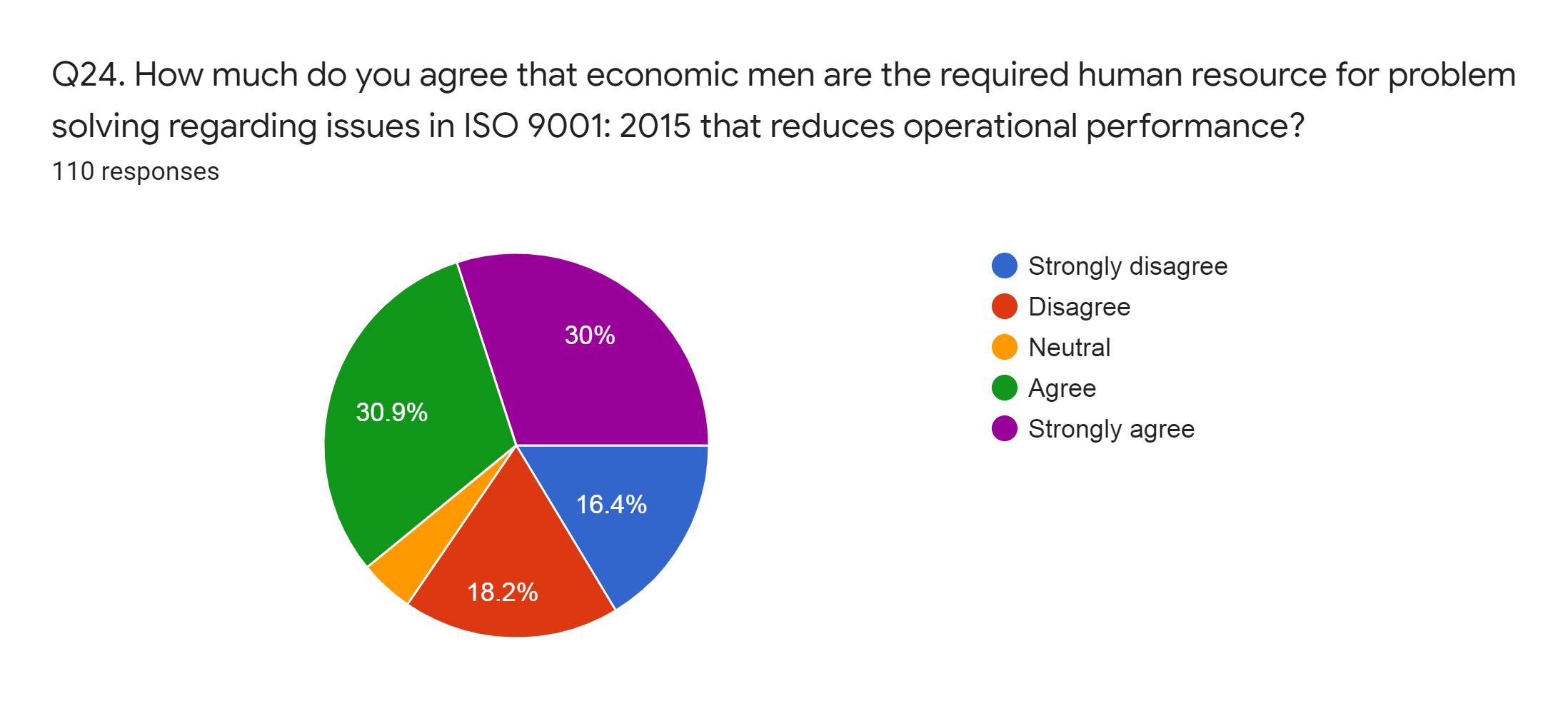


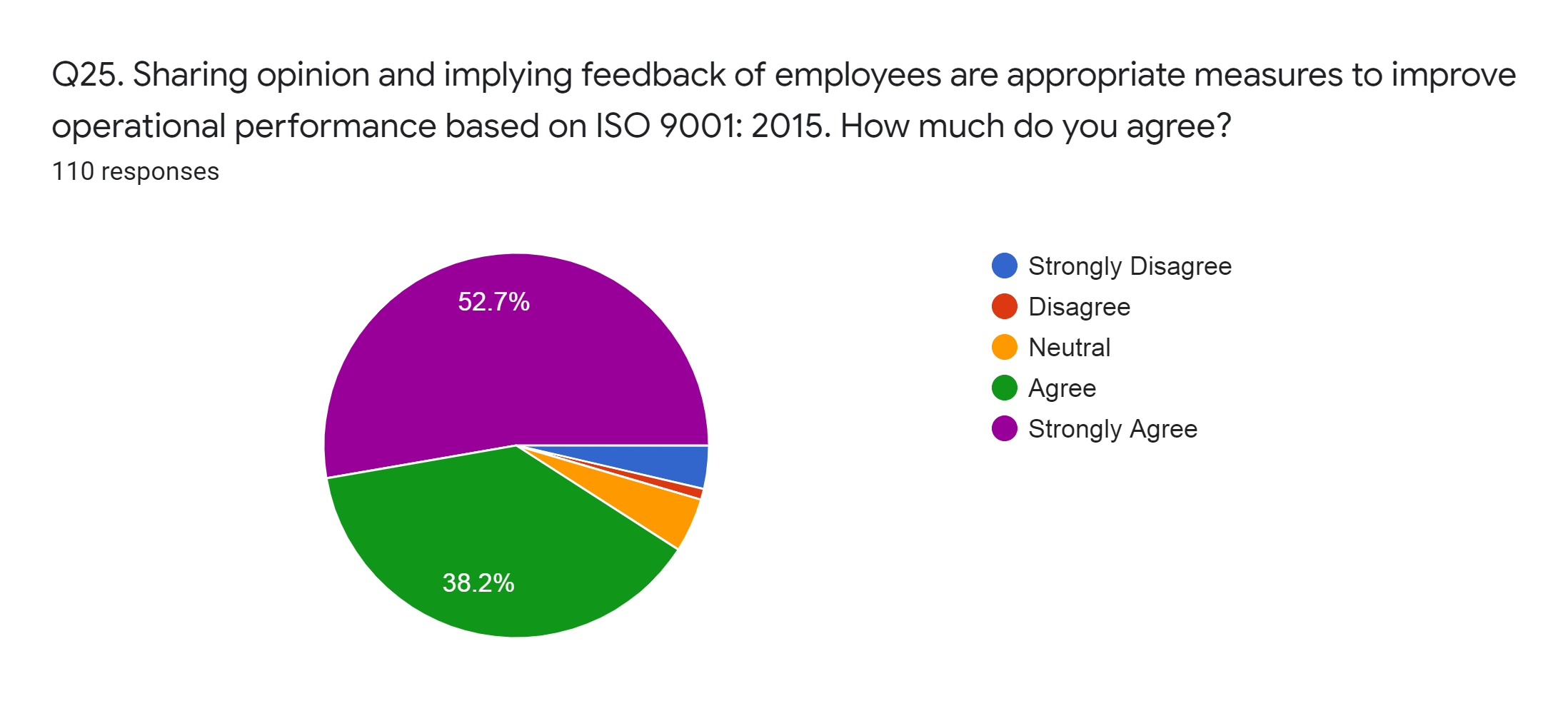












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## Appendix 3: Correlation output

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Correlations** | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | HighQualityOutput | ToolsandTechniques | DataTables | ScatterDiagram | Histogram | ParetoDiagram | controlcharts | TrendAnalysis | CauseandEffect | OperationalPerformance | DirectedObjectives | Energisingmechanism | Persistencemechanism | workmanagementmechanism | challenginggoal | attainablegoals | measurabilitycriteria | clarityofgoals | involveemployees | selfsetgoals | principal | conflictingobjectives | agent | economicmen | feedback |
| HighQualityOutput | Pearson Correlation | 1 | 0.965\*\* | 0.948\*\* | 0.971\*\* | 0.951\*\* | 0.937\*\* | 0.934\*\* | 0.934\*\* | 0.934\*\* | 0.931\*\* | 0.918\*\* | 0.914\*\* | 0.912\*\* | 0.909\*\* | 0.907\*\* | 0.904\*\* | 0.902\*\* | 0.900\*\* | 0.898\*\* | 0.896\*\* | 0.894\*\* | 0.892\*\* | 0.890\*\* | 0.895\*\* | 0.899\*\* |
| Sig. (1-tailed) |  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| ToolsandTechniques | Pearson Correlation | 0.965\*\* | 1 | 0.979\*\* | 0.980\*\* | 0.964\*\* | 0.955\*\* | 0.959\*\* | 0.959\*\* | 0.959\*\* | 0.962\*\* | 0.947\*\* | 0.942\*\* | 0.939\*\* | 0.935\*\* | 0.932\*\* | 0.929\*\* | 0.926\*\* | 0.924\*\* | 0.921\*\* | 0.918\*\* | 0.915\*\* | 0.913\*\* | 0.910\*\* | 0.907\*\* | 0.904\*\* |
| Sig. (1-tailed) | 0.000 |  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| DataTables | Pearson Correlation | 0.948\*\* | 0.979\*\* | 1 | 0.967\*\* | 0.950\*\* | 0.940\*\* | 0.943\*\* | 0.943\*\* | 0.943\*\* | 0.946\*\* | 0.938\*\* | 0.938\*\* | 0.941\*\* | 0.945\*\* | 0.948\*\* | 0.945\*\* | 0.942\*\* | 0.938\*\* | 0.935\*\* | 0.932\*\* | 0.929\*\* | 0.926\*\* | 0.923\*\* | 0.919\*\* | 0.916\*\* |
| Sig. (1-tailed) | 0.000 | 0.000 |  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| ScatterDiagram | Pearson Correlation | 0.971\*\* | 0.980\*\* | 0.967\*\* | 1 | 0.978\*\* | 0.963\*\* | 0.960\*\* | 0.960\*\* | 0.960\*\* | 0.957\*\* | 0.942\*\* | 0.937\*\* | 0.935\*\* | 0.932\*\* | 0.929\*\* | 0.927\*\* | 0.924\*\* | 0.921\*\* | 0.919\*\* | 0.917\*\* | 0.914\*\* | 0.912\*\* | 0.910\*\* | 0.907\*\* | 0.904\*\* |
| Sig. (1-tailed) | 0.000 | 0.000 | 0.000 |  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| Histogram | Pearson Correlation | 0.951\*\* | 0.964\*\* | 0.950\*\* | 0.978\*\* | 1 | 0.991\*\* | 0.987\*\* | 0.987\*\* | 0.987\*\* | 0.984\*\* | 0.969\*\* | 0.964\*\* | 0.961\*\* | 0.958\*\* | 0.956\*\* | 0.953\*\* | 0.950\*\* | 0.948\*\* | 0.945\*\* | 0.943\*\* | 0.941\*\* | 0.938\*\* | 0.936\*\* | 0.932\*\* | 0.929\*\* |
| Sig. (1-tailed) | 0.000 | 0.000 | 0.000 | 0.000 |  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| ParetoDiagram | Pearson Correlation | 0.937\*\* | 0.955\*\* | 0.940\*\* | 0.963\*\* | 0.991\*\* | 1 | 0.997\*\* | 0.997\*\* | 0.997\*\* | 0.994\*\* | 0.985\*\* | 0.979\*\* | 0.976\*\* | 0.973\*\* | 0.970\*\* | 0.968\*\* | 0.965\*\* | 0.962\*\* | 0.960\*\* | 0.957\*\* | 0.955\*\* | 0.953\*\* | 0.950\*\* | 0.946\*\* | 0.942\*\* |
| Sig. (1-tailed) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| controlcharts | Pearson Correlation | 0.934\*\* | 0.959\*\* | 0.943\*\* | 0.960\*\* | 0.987\*\* | 0.997\*\* | 1 | 1.000\*\* | 1.000\*\* | 0.997\*\* | 0.988\*\* | 0.982\*\* | 0.979\*\* | 0.976\*\* | 0.973\*\* | 0.970\*\* | 0.967\*\* | 0.965\*\* | 0.962\*\* | 0.960\*\* | 0.957\*\* | 0.955\*\* | 0.952\*\* | 0.948\*\* | 0.944\*\* |
| Sig. (1-tailed) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| TrendAnalysis | Pearson Correlation | 0.934\*\* | 0.959\*\* | 0.943\*\* | 0.960\*\* | 0.987\*\* | 0.997\*\* | 1.000\*\* | 1 | 1.000\*\* | 0.997\*\* | 0.988\*\* | 0.982\*\* | 0.979\*\* | 0.976\*\* | 0.973\*\* | 0.970\*\* | 0.967\*\* | 0.965\*\* | 0.962\*\* | 0.960\*\* | 0.957\*\* | 0.955\*\* | 0.952\*\* | 0.948\*\* | 0.944\*\* |
| Sig. (1-tailed) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| CauseandEffect | Pearson Correlation | 0.934\*\* | 0.959\*\* | 0.943\*\* | 0.960\*\* | 0.987\*\* | 0.997\*\* | 1.000\*\* | 1.000\*\* | 1 | 0.997\*\* | 0.988\*\* | 0.982\*\* | 0.979\*\* | 0.976\*\* | 0.973\*\* | 0.970\*\* | 0.967\*\* | 0.965\*\* | 0.962\*\* | 0.960\*\* | 0.957\*\* | 0.955\*\* | 0.952\*\* | 0.948\*\* | 0.944\*\* |
| Sig. (1-tailed) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| OperationalPerformance | Pearson Correlation | 0.931\*\* | 0.962\*\* | 0.946\*\* | 0.957\*\* | 0.984\*\* | 0.994\*\* | 0.997\*\* | 0.997\*\* | 0.997\*\* | 1 | 0.991\*\* | 0.984\*\* | 0.981\*\* | 0.978\*\* | 0.976\*\* | 0.973\*\* | 0.970\*\* | 0.967\*\* | 0.964\*\* | 0.962\*\* | 0.959\*\* | 0.957\*\* | 0.954\*\* | 0.950\*\* | 0.945\*\* |
| Sig. (1-tailed) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| DirectedObjectives | Pearson Correlation | 0.918\*\* | 0.947\*\* | 0.938\*\* | 0.942\*\* | 0.969\*\* | 0.985\*\* | 0.988\*\* | 0.988\*\* | 0.988\*\* | 0.991\*\* | 1 | 0.994\*\* | 0.991\*\* | 0.987\*\* | 0.984\*\* | 0.982\*\* | 0.979\*\* | 0.976\*\* | 0.973\*\* | 0.970\*\* | 0.968\*\* | 0.965\*\* | 0.962\*\* | 0.957\*\* | 0.953\*\* |
| Sig. (1-tailed) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| Energisingmechanism | Pearson Correlation | 0.914\*\* | 0.942\*\* | 0.938\*\* | 0.937\*\* | 0.964\*\* | 0.979\*\* | 0.982\*\* | 0.982\*\* | 0.982\*\* | 0.984\*\* | 0.994\*\* | 1 | 0.997\*\* | 0.994\*\* | 0.991\*\* | 0.987\*\* | 0.984\*\* | 0.981\*\* | 0.979\*\* | 0.976\*\* | 0.973\*\* | 0.970\*\* | 0.968\*\* | 0.962\*\* | 0.957\*\* |
| Sig. (1-tailed) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| Persistencemechanism | Pearson Correlation | 0.912\*\* | 0.939\*\* | 0.941\*\* | 0.935\*\* | 0.961\*\* | 0.976\*\* | 0.979\*\* | 0.979\*\* | 0.979\*\* | 0.981\*\* | 0.991\*\* | 0.997\*\* | 1 | 0.997\*\* | 0.994\*\* | 0.990\*\* | 0.987\*\* | 0.984\*\* | 0.981\*\* | 0.978\*\* | 0.976\*\* | 0.973\*\* | 0.970\*\* | 0.964\*\* | 0.959\*\* |
| Sig. (1-tailed) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| workmanagementmechanism | Pearson Correlation | 0.909\*\* | 0.935\*\* | 0.945\*\* | 0.932\*\* | 0.958\*\* | 0.973\*\* | 0.976\*\* | 0.976\*\* | 0.976\*\* | 0.978\*\* | 0.987\*\* | 0.994\*\* | 0.997\*\* | 1 | 0.997\*\* | 0.994\*\* | 0.990\*\* | 0.987\*\* | 0.984\*\* | 0.981\*\* | 0.978\*\* | 0.975\*\* | 0.973\*\* | 0.967\*\* | 0.962\*\* |
| Sig. (1-tailed) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| challenginggoal | Pearson Correlation | 0.907\*\* | 0.932\*\* | 0.948\*\* | 0.929\*\* | 0.956\*\* | 0.970\*\* | 0.973\*\* | 0.973\*\* | 0.973\*\* | 0.976\*\* | 0.984\*\* | 0.991\*\* | 0.994\*\* | 0.997\*\* | 1 | 0.997\*\* | 0.993\*\* | 0.990\*\* | 0.987\*\* | 0.984\*\* | 0.981\*\* | 0.978\*\* | 0.975\*\* | 0.969\*\* | 0.964\*\* |
| Sig. (1-tailed) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| attainablegoals | Pearson Correlation | 0.904\*\* | 0.929\*\* | 0.945\*\* | 0.927\*\* | 0.953\*\* | 0.968\*\* | 0.970\*\* | 0.970\*\* | 0.970\*\* | 0.973\*\* | 0.982\*\* | 0.987\*\* | 0.990\*\* | 0.994\*\* | 0.997\*\* | 1 | 0.997\*\* | 0.993\*\* | 0.990\*\* | 0.987\*\* | 0.984\*\* | 0.981\*\* | 0.978\*\* | 0.972\*\* | 0.966\*\* |
| Sig. (1-tailed) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| measurabilitycriteria | Pearson Correlation | 0.902\*\* | 0.926\*\* | 0.942\*\* | 0.924\*\* | 0.950\*\* | 0.965\*\* | 0.967\*\* | 0.967\*\* | 0.967\*\* | 0.970\*\* | 0.979\*\* | 0.984\*\* | 0.987\*\* | 0.990\*\* | 0.993\*\* | 0.997\*\* | 1 | 0.997\*\* | 0.993\*\* | 0.990\*\* | 0.987\*\* | 0.984\*\* | 0.981\*\* | 0.975\*\* | 0.969\*\* |
| Sig. (1-tailed) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| clarityofgoals | Pearson Correlation | 0.900\*\* | 0.924\*\* | 0.938\*\* | 0.921\*\* | 0.948\*\* | 0.962\*\* | 0.965\*\* | 0.965\*\* | 0.965\*\* | 0.967\*\* | 0.976\*\* | 0.981\*\* | 0.984\*\* | 0.987\*\* | 0.990\*\* | 0.993\*\* | 0.997\*\* | 1 | 0.997\*\* | 0.993\*\* | 0.990\*\* | 0.987\*\* | 0.984\*\* | 0.977\*\* | 0.971\*\* |
| Sig. (1-tailed) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| involveemployees | Pearson Correlation | 0.898\*\* | 0.921\*\* | 0.935\*\* | 0.919\*\* | 0.945\*\* | 0.960\*\* | 0.962\*\* | 0.962\*\* | 0.962\*\* | 0.964\*\* | 0.973\*\* | 0.979\*\* | 0.981\*\* | 0.984\*\* | 0.987\*\* | 0.990\*\* | 0.993\*\* | 0.997\*\* | 1 | 0.997\*\* | 0.993\*\* | 0.990\*\* | 0.987\*\* | 0.980\*\* | 0.974\*\* |
| Sig. (1-tailed) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| selfsetgoals | Pearson Correlation | 0.896\*\* | 0.918\*\* | 0.932\*\* | 0.917\*\* | 0.943\*\* | 0.957\*\* | 0.960\*\* | 0.960\*\* | 0.960\*\* | 0.962\*\* | 0.970\*\* | 0.976\*\* | 0.978\*\* | 0.981\*\* | 0.984\*\* | 0.987\*\* | 0.990\*\* | 0.993\*\* | 0.997\*\* | 1 | 0.997\*\* | 0.993\*\* | 0.990\*\* | 0.983\*\* | 0.977\*\* |
| Sig. (1-tailed) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| principal | Pearson Correlation | 0.894\*\* | 0.915\*\* | 0.929\*\* | 0.914\*\* | 0.941\*\* | 0.955\*\* | 0.957\*\* | 0.957\*\* | 0.957\*\* | 0.959\*\* | 0.968\*\* | 0.973\*\* | 0.976\*\* | 0.978\*\* | 0.981\*\* | 0.984\*\* | 0.987\*\* | 0.990\*\* | 0.993\*\* | 0.997\*\* | 1 | 0.996\*\* | 0.993\*\* | 0.986\*\* | 0.980\*\* |
| Sig. (1-tailed) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  | 0.000 | 0.000 | 0.000 | 0.000 |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| conflictingobjectives | Pearson Correlation | 0.892\*\* | 0.913\*\* | 0.926\*\* | 0.912\*\* | 0.938\*\* | 0.953\*\* | 0.955\*\* | 0.955\*\* | 0.955\*\* | 0.957\*\* | 0.965\*\* | 0.970\*\* | 0.973\*\* | 0.975\*\* | 0.978\*\* | 0.981\*\* | 0.984\*\* | 0.987\*\* | 0.990\*\* | 0.993\*\* | 0.996\*\* | 1 | 0.996\*\* | 0.990\*\* | 0.983\*\* |
| Sig. (1-tailed) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  | 0.000 | 0.000 | 0.000 |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| agent | Pearson Correlation | 0.890\*\* | 0.910\*\* | 0.923\*\* | 0.910\*\* | 0.936\*\* | 0.950\*\* | 0.952\*\* | 0.952\*\* | 0.952\*\* | 0.954\*\* | 0.962\*\* | 0.968\*\* | 0.970\*\* | 0.973\*\* | 0.975\*\* | 0.978\*\* | 0.981\*\* | 0.984\*\* | 0.987\*\* | 0.990\*\* | 0.993\*\* | 0.996\*\* | 1 | 0.993\*\* | 0.987\*\* |
| Sig. (1-tailed) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  | 0.000 | 0.000 |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| economicmen | Pearson Correlation | 0.895\*\* | 0.907\*\* | 0.919\*\* | 0.907\*\* | 0.932\*\* | 0.946\*\* | 0.948\*\* | 0.948\*\* | 0.948\*\* | 0.950\*\* | 0.957\*\* | 0.962\*\* | 0.964\*\* | 0.967\*\* | 0.969\*\* | 0.972\*\* | 0.975\*\* | 0.977\*\* | 0.980\*\* | 0.983\*\* | 0.986\*\* | 0.990\*\* | 0.993\*\* | 1 | 0.993\*\* |
| Sig. (1-tailed) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  | 0.000 |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| feedback | Pearson Correlation | 0.899\*\* | 0.904\*\* | 0.916\*\* | 0.904\*\* | 0.929\*\* | 0.942\*\* | 0.944\*\* | 0.944\*\* | 0.944\*\* | 0.945\*\* | 0.953\*\* | 0.957\*\* | 0.959\*\* | 0.962\*\* | 0.964\*\* | 0.966\*\* | 0.969\*\* | 0.971\*\* | 0.974\*\* | 0.977\*\* | 0.980\*\* | 0.983\*\* | 0.987\*\* | 0.993\*\* | 1 |
| Sig. (1-tailed) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  |
| N | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| \*\*. Correlation is significant at the 0.01 level (1-tailed). |

(Source: SPSS)