

TİM
TÜRKİYE
EXPORTERS
ASSEMBLY

TÜRKİYE
INNOVATION
MAP



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PREFACE



MUSTAFA GÜLTEPE
PRESIDENT OF TİM

The global economy is going through a period of great change and transformation. As part of the export fraternity, we are steadfastly striding towards our objectives amidst this epoch of change, fully cognizant of the responsibility incumbent upon us. As Turkish industrialists, it is imperative for us to augment our production, infuse value into our creations, and amplify our exports.

The way to secure a foremost position in the global race is through high-tech production and exports. Presently, a mere 3.1% of our exports comprise high-tech products, with the proportion of medium-high technology products standing at 33.8%. We aspire to elevate the share of high-tech products in our exports to 10% because it is solely through this endeavor that we can elevate our average unit value in exports from \$1.5 to \$3. Had our average unit value been \$3 today, we would not be discussing \$255 billion in exports but rather \$500 billion. Hence, we attach paramount importance to increasing the unit export value. We are cognizant that the path to enhancing unit value is through high technology, R&D, innovation, design, and branding, and we act upon this consciousness.

Innovation is a culture that necessitates the innovation adoption of all parties, all stakeholders. Only thus can we engender added value, place one stone upon another through this collective

approach, and carry Türkiye towards a brighter future. In this context, as the export fraternity, we are exerting significant effort towards fostering the development of the innovation ecosystem in Türkiye. We approach innovation holistically, embracing all stakeholders, from SMEs to conglomerates, from students to individual entrepreneurs.

As TİM, we are concurrently executing numerous projects in this domain. Through initiatives such as İnovaLIG, İnoSuit, İnovaTİM, and TİM-TEB Startup Houses, we bolster innovation in every sector and at every scale. We have succeeded in reaping the fruits of our endeavors over the past decade. In collaboration with the Republic of Türkiye Ministry of Industry and Technology, we have ascended 35 steps in the Global Innovation Index over a decade. We have achieved an unparalleled leap within this index. We have made significant progress towards making innovation a way of life.

With the support of our Ministry of Trade, we have been organizing the Türkiye Innovation Week, the most comprehensive event in our country and neighboring regions, for the past decade. The Innovation Week also stands as a beacon of pride for our nation. Over the past decade, we have brought together over 500,000 participants with pioneers of innovation from Türkiye and the world.

We have garnered the most prestigious organizational awards worldwide. To entrench this brand on a global scale, in our tenth year, we have taken another step forward. We have commenced organizing our event under the appellation ‘Türkiye Innovation Week’. We harbor grand aspirations for the Türkiye Innovation Week, which will contribute to the realization of our objectives. Over the next decade, we aim to transmute our event into the largest innovation gathering in Eurasia.

The Türkiye Innovation Map, first and specially compiled for the 10th anniversary of Türkiye Innovation Week, has become a guiding beacon, guiding us in the proliferation of innovation in our country and the development of effective policies. Our export companies will be able to assess their innovation capacities with this report, conduct comparative analyses, and focus on enhancing their capacities.

I firmly believe that the Türkiye Innovation Map will contribute to fortifying the innovation ecosystem in our country and will usher in entirely new horizons for the formulation of innovative projects and strategies. I extend my congratulations to all who contributed to the preparation of this work and express my gratitude to participating companies.

“Exports Will Rise with Innovation, Türkiye Will Rise with Exports!”

EXECUTIVE SUMMARY

Türkiye Innovation Map has been carried out within the framework of the 2023 Türkiye Innovation Week activities of Turkish Exporters Assembly. 105 exporting companies from 24 different provinces in Türkiye, representing 6 main sectors, by mainly top managers, participated in the survey. The data have been examined with an original model (CISNAT), containing 13 company attributes, 7 Dimensions, 20 Goals and 103 activity areas that were measured by using a 5-point Likert criterion and statistical methods that showed high reliability (Cronbach alpha value 0.994). Comprehensive and detailed analysis were carried out with the overall evaluation score (innovation capacity), which is the average of all dimensions, was found to be 2.74 / 5.00, in other words 54.80%. The evaluation corresponding to this score is between “Partially Started” and “Started”. Considering the sample at hand, it can be concluded that the country average is still at the beginning level in terms of corporate innovation system. **Although studies on innovation have begun in companies, the systematic approach to the innovation management is seen as an area open to significant improvement.**

In the InoSuit Impact Analysis studies carried out using the same model and similar measurement method, the general average of innovation capacity of the companies that completed the InoSuit Program between 2019 and 2022 was found to be 85.05%. As a result of the comparative analysis, the positive impact of programs aimed at developing the corporate innovation system on the innovation capacities of companies is clearly seen. Among the participating companies, the strategy dimension has a relatively high score, but on the other

hand the governance dimension appears to be noticeably a lower score. When we look more closely at the governance dimension, it is noteworthy that among the four relevant targets, the targets that emphasize the systematic approach receive lowest scores.

Among the dimensions, the highest score is the culture dimension with 59.4%. This score signifies that innovation awareness is present among employees in our companies.

The lowest average score appears to be open innovation with 42.00%. Compared to other dimensions, the Open Innovation dimension shows a relatively higher correlation with the number of Innovation Projects. This result confirms that open innovation competence has a significant impact on the company’s innovation results. For this reason, it becomes important to carry out activities that will create the Open Innovation ecosystem among institutions and stakeholders.

The Corporate Innovation System and programs aiming to propagate innovation management are important for improving the systematic approach. InoSuit Program, an Innovation-Focused Mentoring Program, can be given as an example for these programs.

In addition to the distribution of the number of White-Collar and Blue-Collar employees, which are among the characteristics data collected from the participating companies, a correlation analysis was conducted between these two distributions and a strong correlation was observed. For this reason, it can be concluded that the companies included in the sample are not focused on low value-added production (predominantly blue collar), but rather companies with

medium and high added value.

The correlation between the number of innovation projects and the sales rate from innovation products is relatively low (0.317) and shows that it is not significant. However, these two attributes are expected to have a meaningful relationship with each other. The most prominent reason for this can be that tracking the sales from innovation products is an area open to development. A similar result emerged in the InoSuit Program Impact Analysis studies. Lessons learned meetings are carried out to raise awareness on this subject within the scope of the InoSuit Program. **For this reason, it would be beneficial to expand similar information sharing regarding tracking companies' innovation sales rate data.**

Despite high exports figures, Patents and Trademarks of the companies have shown low values. **It is important to raise awareness about brand and patent management and further increase the share of high added value in exports.**

When we look at the targets related to the creation of an idea and suggestion pool, recognition and reward, Innovation Management Processes, we see once again that there is room for improvement in ensuring the participation of blue-collar personnel in the processes. Programs should be developed to ensure more effective participation of blue workers an innovation process innovation process.

When looking at the results regarding innovation organization; It is seen that the mean and median of the questions related to R&D are relatively higher compared to the overall innovation questions. When we look at the developments of R&D and innovation approaches in Türkiye, we see that the result corroborates

THE CORPORATE INNOVATION SYSTEM AND PROGRAMS AIMING TO PROPAGATE INNOVATION MANAGEMENT ARE IMPORTANT FOR IMPROVING THE SYSTEMATIC APPROACH.

with our expectations. Programs and incentives are widely implemented to increase the number of R&D centers and develop R&D competence. On the other hand, there are no similar programs for the development of innovation management departments and innovation competencies. **Implementing programs similar to those implemented for R&D and Design Centers for Innovation Centers will be very useful in accelerating development in this regard.**

The Türkiye Innovation Map study will be positioned as the main source that will guide the future of innovation in Türkiye in terms of the dissemination of innovation in our country and the development of effective policies. In addition to nationwide findings and action recommendations, company-specific reports have been shared with participating companies. In this way, it is aimed that participating exporting companies will be able to identify their own innovation capacity, make comparative analysis, and direct their efforts towards awareness and improvement actions to increase their innovation capacity.

TÜRKİYE INNOVATION MAP METHODOLOGIES

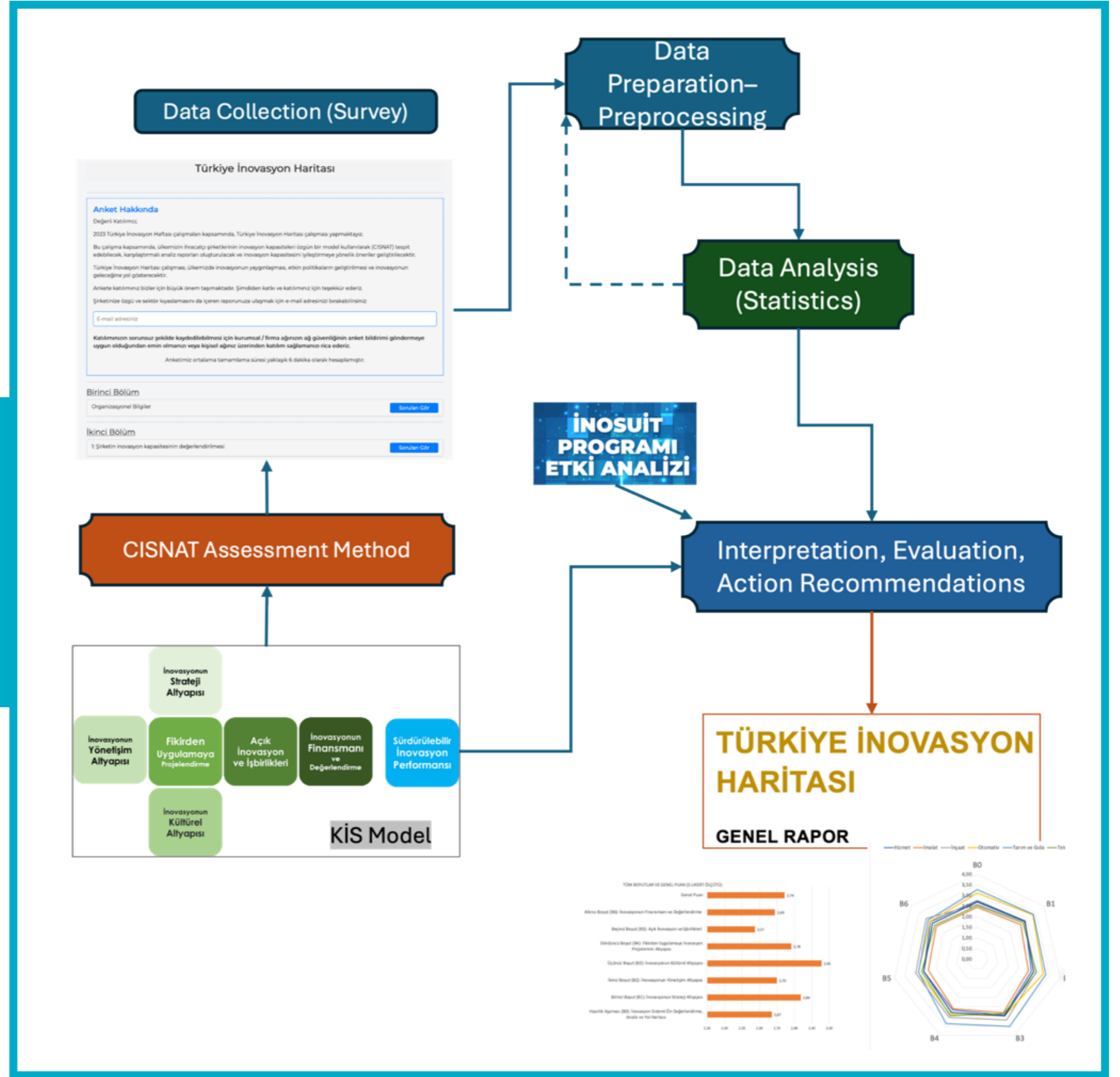


Figure 1: Türkiye Innovation Map Study Framework

Corporate Innovation System (KİS) Model

KİS MODELİ

In order to make the innovation capacity and performance of firms “systematic” and “create sustainable added value”, to design corporate vision, strategies and practices with an innovation focus, to create and implement a corporate innovation project portfolio, to eliminate well-cited weaknesses and failure factors, “Corporate Innovation System – Global Compact™” model has been defined (Pasin & Ekmekci, 2014). The model consists of the following

dimensions: 1) “Strategic Infrastructure”, 2) Cultural Infrastructure, 3) Governance Infrastructure, 4) Management of Innovation Projects from Idea to Implementation, 5) Open Innovation and Collaborations, 6) Financing and Evaluation of Innovation. The model puts an emphasis on the holistic aspect of innovation process and is aimed to increase sustainable innovation performance through the efforts related to each dimension (Figure 2).

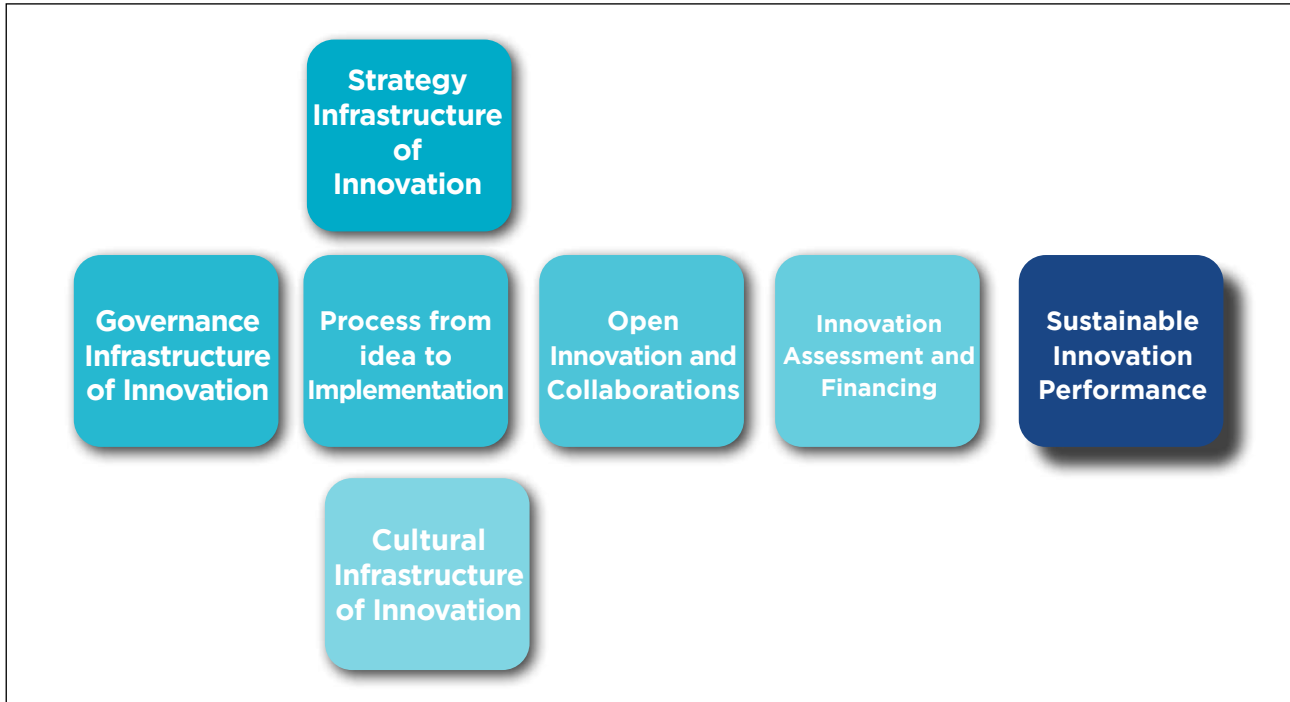


Figure 2: Corporate Innovation System – KİS™ Model Dimensions

Corporate Innovation System (CIS) is based on the “system” approach, which has been emphasized and understood in innovation studies and literature, especially since the 1980s. One can trace back to the roots of the “system” approach in the seminal works of the renown German Economist Friedrich List (The National System of Political Economy - 1841) in the 1800s. In the

following years, models such as the “system approach”, first the “national innovation system” at the macro level, and then the “sectoral innovation system”, “regional innovation system” and “technology systems” at the other levels were studied to surface the underpinnings of high innovation capacity and performance. The body of knowledge on Innovation Management

Pasin, M. ve Ekmekci, U. (2014); Türkiye ihracatçılar Meclisi, İnoSuit Programı.

is rich and included various influential studies such as the works of Christopher Freeman, one of the most cited research in Innovation Management / Policies, on the Japanese economy (1987), the studies of Richard Nelson and Sydney Winter (1993),

the publications of Bengt Ake Lundvall on Scandinavian innovation systems (1992). Franco Malerba's analyzes of different sectors and his emphasis on sectoral innovation systems have enabled the importance of the concept of "innovation system" to be

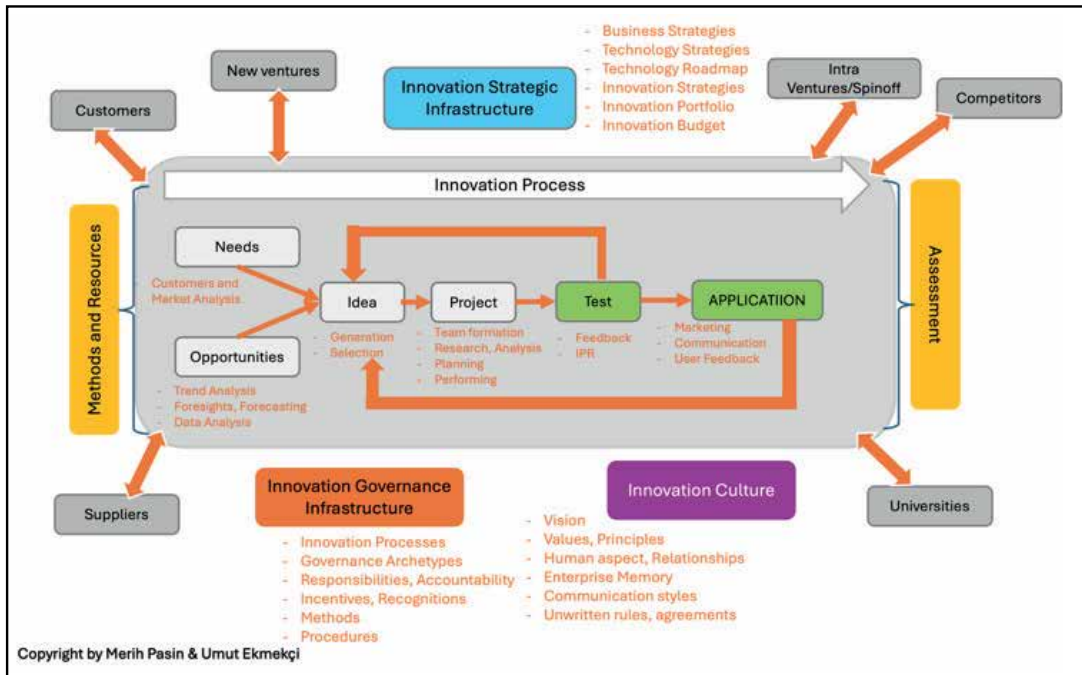


Figure 3: Corporate Innovation System - KIS™ Model

better understood and widely discussed. In the following years, the model formed the basis of many studies of umbrella organizations such as the EU and OECD to develop national innovation capacities.

“Corporate Innovation System” Model asserts the argument that increasing the innovation capacity of companies in a sustainable way is possible not with single investments, activities, practices or processes dependent on individuals, but by creating a supporting infrastructure and a holistic system that addresses different dimensions of innovation. The model requires each of the dimensions of “strategic infrastructure” - “cultural infrastructure” - “idea and project cycle” - “organizational infrastructure” - “external collaborations and open innovation” - “investments and evaluation” to be designed specifically for the institution and handled in a holistic manner. In this way, it

aims to create the infrastructure that will provide knowledge and competence development with a collective approach and to implement the customized processes that will transform this knowledge accumulation into value-creating applications.

The targets to be achieved by implementing the model are as follows:

1. Assessment of the company’s innovation capacity
2. Designing an innovation system specific to the firm needs and targeted development areas,
3. Creating the internal and external communication plan of the corporate innovation project and its implementation,
4. Determining the company’s innovation strategy,
5. Determining the company’s technology road map and future needs,

6. Creating and prioritizing the innovation project portfolio based on the company's current and future needs,
7. Determining the innovation organization of the company,
8. Preparing the company's innovation management directives and describing its processes,
9. Creating a pool of ideas and suggestions to which all company employees will contribute,
10. Establishing an incentives and reward system,
11. Integration of an innovation system into the company's HR management practices,
12. Developing applications that foster internal collaboration and information sharing, ensuring corporate memory management,
13. Providing trainings on different subjects to establish internal competences for innovation management system and its processes,
14. Forming teams for prioritized innovation projects,
15. Management of innovation projects; carrying out the stages of problem definition - research - analysis - decision making - test application - final implementation,
16. Defining, creating and managing innovation processes based on collaboration with the company's external stakeholders,
17. Preparation of the intellectual property rights directive,
18. Development of R&D projects based on University-Industry Collaborations
19. Determining and allocating the innovation budget and ensuring the use of internal and external financial resources,
20. Monitoring, evaluation and revision of the corporate innovation system development.

CISNAT - Capacity Measurement Model

In the CISNAT evaluation, 6 Basic Dimensions plus Preparatory Phase Dimension, 103 statements regarding 20 targets were evaluated by a scale of 1 to 5 along the following meas-

urement: 1-Not started at all, 2-Partly Started, 3-Started, 4-Partly Completed, 5-Completed. 105 participating companies provided their degree of agreement for each of 103 items.

İkinci Bölüm

1: Şirketin inovasyon kapasitesinin değerlendirilmesi [Soruları Gör](#)

| | Hiç başlanmadı | Kısmen başlandı | Başlandı | Kısmi tamamlandı | Tamamlandı |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. Şirketin inovasyon kapasitesi ve performansına ilişkin bir ön değerlendirme daha önce yapılmıştır. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. İnovasyon kapasitesi ve performansı, belli aralıklarla ve belli bir yöntemle değerlendirilmektedir. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. İnovasyon performansını değerlendirmek üzere makro seviyede ve birimler bazında ölçülebilir hedefler tanımlanmıştır. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

2: Gelişim alanlarına göre, kuruma özgü bir inovasyon sisteminin tasarlanması [Soruları Gör](#)

3: Kurumsal inovasyon projesinin iç ve dış iletişim planının ve içeriğinin oluşturulması, bu planın uygulanması [Soruları Gör](#)

4: Şirketin inovasyon stratejilerinin belirlenmesi [Soruları Gör](#)

Figure 4: A screenshot of 105 measuring item of the survey (in Turkish)

Overall scores (aka the General Innovation Capacity and Performance scores) were calculated from the total score average of all items, and “CIS Dimensions scores” were also calculated along the 20-targets associated for each dimensions. The scores obtained for each dimension were then normalized out of 100. The average of the 7 dimensions is calculated as the General Innovation Capacity and Performance score. According to this evaluation, the General Innovation Capacity and

Performance score was 2.74 / 5.00, in other words, a total score of 54.80 (out of 100). Regarding an overall evaluation for the CIS model dimensions, it was found that the scores for all dimensions were below 60, in other words, the scores of all dimensions indicate the fact that the innovation and performance of the participating firms is below the starting level. Therefore, it would be realistic to interpret that the effort needed for each dimension is high.

Data Collection and Preparation Method

An online survey form was prepared for data collection in the Türkiye Innovation Map study. In order to improve user experiences, design updates were made by collecting feedback from a number of the selected users regarding their use of online surveys. Based on the randomly selected sample approach, different invitation messages and formats were prepared for the survey participation invitation and companies were tried to be reached through various channels including TİM website. The data collection time period was between September 6, 2023 and October 29, 2023. These channels include sending e-mails to all TİM members, sending e-mails to companies that are members of Exporters' Associations, and showing a special pop-up window on the home page of the TİM website, where high visitor traffic occurs.

On the website where the online survey was available, user information was recorded anonymously and analytics metrics such as visitor traffic, survey initiation and completion were used to monitor the survey participations. All records were kept in a database system specifically designed for this study. The data in the system was then converted into different formats such as csv and excel and transferred as raw data to the IBM SPSS

(version 27) environment, where external analysis was performed. Cleaning of the raw data was carried out systematically by two senior researchers, taking into account criteria such as noise and inconsistency of the records. The data cleaning process performed on the raw data and the retrospective data preparation process were repeated, taking into account some exploratory metrics in the pre-processing analysis, and the data preparation phase was completed after the researchers agreed. A total of 111 records were added to the system, one of which was evaluated as a test record, four as anomalous records (for example, all values being 5), and one as outlier (the number of patents being 2132, the maximum value being 280 among others). Another issue during the data preparation phase is the encoding or transforming of values in the “Other” data entry (for example, company headquarter Antalya/Alanya data is Antalya, Fethiye-Muğla is Muğla, İstanbul/İzmir is İstanbul, TEKSTİL HAZIR GİYİM data is Textile, similarly “Other Title” “ data into existing categories). Regarding the sector variable, the data was transformed by defining 6 upper categories (Service, Manufacturing, Construction, Automotive, Agriculture and Food, Textile) in order to make the standard sector category (60 units) suitable for analysis.

STATISTICAL METHODS

Statistical Analysis for Reliability and Validity

Cronbach alpha test results are presented in Table 1. These tests are performed to see whether multi-question (20 variables for impact analysis) Likert scale surveys are reliable. Cronbach's alpha shows whether the test you designed accurately measures the variable of interest. The Cronbach alpha test result for 20 variables is 0.980 (Table 1), indicating the reliability of the measure-

ment. In addition, Table 2 shows the effect of each variable when all variables (103 subexpressions) are taken into account (0.994), showing that the internal consistency of the variables is high. These results are parallel to the measurement reliability results of companies participating in the Inosuit Program with a similar model.

Table 1. 20 Reliability Test Result for Main Targets

| RELIABILITY TEST RESULT (20 KEY TARGET GOALS) | | |
|---|---|--------------------|
| Cronbach's Alpha | Standardize edilmiş olarak Cronbach's Alpha | Number of measures |
| 0,979 | 0,980 | 20 |

Table 2. Reliability Test Result for Sub-Targets

| RELIABILITY TEST RESULT | | |
|-------------------------|-------------------------------|-----------------------------|
| Cronbach's Alpha | Standardized Cronbach's Alpha | Number of measurement items |
| 0,994 | 0,994 | 103 |

Table 3. Analysis with KMO and Bartlett Test for KİS Model Dimensions

| KMO AND BARTLETT'S TEST | | |
|--|----------------------|----------|
| Kaiser-Meyer-Olkin Sampling Adequacy Scale | | 0,941 |
| Bartlett's Test of Sphericity | Predicted Chi-Square | 2608,063 |
| | df | 190 |
| | Sig. | 0,000 |

KMO and Bartlett tests were also performed using the results (Table 3). The accuracy of the model has been proven by showing that the test value for the 20 targets used in the Model, the 6 Basic dimensions to which these targets are associated, and the Preparation Phase dimension is 0.941, with

a very high explanatory value. The Impact Analysis results conducted specifically for the companies participating in the Inosuit Program (0.748 for the Impact Analysis Report 2016-2019 and 0.748 for the 2019-2022 report) also showed similar results, and the reliability of the model was confirmed. The

Kaiser-Meyer-Olkin Adequacy Scale is a statistic that shows the proportion of variance your variables might cause by underlying factors. High values (close to 1.0) generally indicate that a factor analysis with your data may be useful. The statistical value in this study is 0.941, and the factor analysis results are shown in the APPENDIX tables. If the value is less than 0.50, the results of the factor analysis will probably not be very useful. Both test results show that factor analysis is useful. For the correlation analysis carried out for the dimensions and targets, other tests, Kendall's tau (b) and Spearman's r values, are taken into account since they do not

meet the condition of normal distribution of the data. However, for the final correlation results, Kendall's tau (b) r values, which are accepted as more sensitive than the test results in the literature, are used for the final correlation results. Within the scope of the Türkiye Innovation Map study, it was observed that Kendall's tau(b) and Spearman's r analysis gave largely similar target matching results.

Regarding the validity tests of the metadata (attributes), the Cronbach Alpha value and the change in the validity result when each attribute is removed are presented in the Appendices section.

Table 4. Reliability and Validity Analysis of Statistical Results

| RELIABILITY TEST RESULT (12 ATTRIBUTES-METADATA) | | |
|--|-------------------------------|--------------------|
| Cronbach's Alpha | Standardized Cronbach's Alpha | Number of measures |
| 0,355 | 0,689 | 12 ³ |

²Source: <https://pubmed.ncbi.nlm.nih.gov/10221741/>

³ "The attributes "Title" and "Industry" were defined as new nominal variables and were included in validity and other tests as such. The "city where the company headquarters is located" variable was not included in the validity test as string data.

FINDINGS

Firm Demographics Results

Table 5. General statistical results based on firms categorical attributes (nominal scale)

| | N | Scale | Min | Max | Average | Std. | Variance |
|------------------------------|----------|--------------|------------|------------|----------------|-------------|-----------------|
| Firm age | Dev | | 1 | 5 | 3,96 | 1,372 | 1,883 |
| White collar employee number | 105 | 3 | 1 | 4 | 2,04 | 1,064 | 1,133 |
| Blue collar employee number | 105 | 3 | 1 | 4 | 2,19 | 1,161 | 1,348 |
| Sector | 105 | 5 | 1 | 6 | 3,87 | 1,408 | 1,982 |
| Title | 105 | 4 | 1 | 5 | 2,83 | 1,559 | 2,432 |
| Export to Sales Ratio | 105 | 4 | 1 | 5 | 3,36 | 1,564 | 2,445 |
| Shareholder structure | 105 | 2 | 1 | 3 | 1,22 | 0,537 | 0,288 |
| Valid N | 105 | | | | | | |

Table 6. General statistical results based on firms categorical attributes (ordinal scale)

| | N | Scale | Min | Max | Average | Std. | Variance |
|--------------------------|----------|--------------|------------|------------|----------------|-------------|-----------------|
| Patent | Dev | | 0 | 253 | 12,26 | 37,200 | 1383,827 |
| Brand | 105 | 159 | 0 | 159 | 11,37 | 27,180 | 738,755 |
| # of Innovation Project | 105 | 600 | 0 | 600 | 14,62 | 59,770 | 3572,411 |
| Innovation Sales Ratio | 105 | 100 | 0 | 100 | 29,40 | 30,758 | 946,050 |
| # of Exporting Countries | 105 | 120 | 0 | 120 | 21,96 | 26,980 | 727,941 |
| Valid N | 105 | | | | | | |

1. ATTRIBUTE: Firm Age

Question/Statement: Firm age

Year Variable Categories and Ranges:

1: 1-3 2: 3-5 3: 5-10 4: 10-20 5: 20+

Table 7. Age Statistics of Participating Companies

| | | Frequency | Percentage | Valid Percentage | Cumulative Percentage |
|-------|--------------|-----------|------------|------------------|-----------------------|
| Valid | 1 | 11 | 10,5 | 10,5 | 10,5 |
| | 2 | 8 | 7,6 | 7,6 | 18,1 |
| | 3 | 10 | 9,5 | 9,5 | 27,6 |
| | 4 | 21 | 20,0 | 20,0 | 47,6 |
| | 5 | 55 | 52,4 | 52,4 | 100,0 |
| | Total | | 105 | 100,0 | 100,0 |

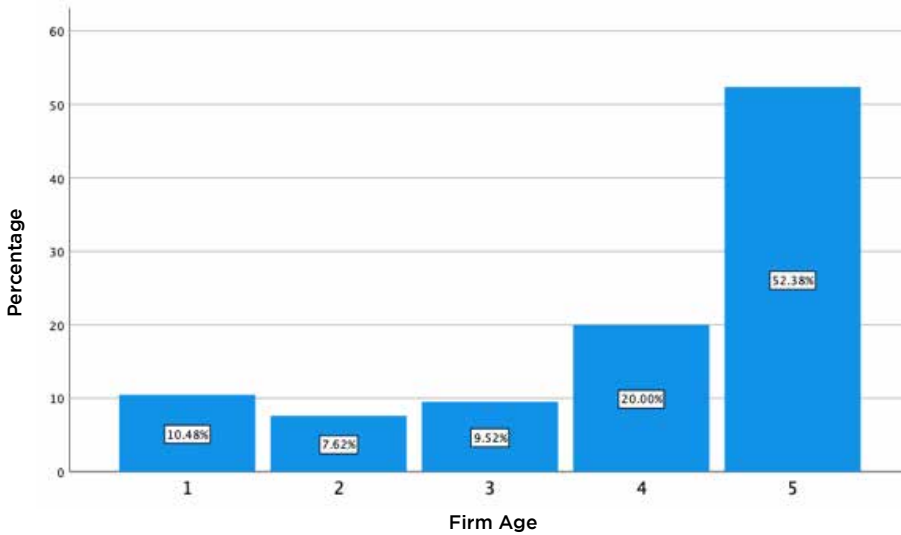


Figure 5: Age Distribution of Participating Companies

The median age of participating companies was found to be over 20 years. This

distribution is parallel to the company age distribution in Türkiye.

2. ATTRIBUTE: Number of white-collar employees

Question/Statement: Number of White-collar employees in your company:

Number of employees variable categories and ranges

1: 1-10

2: 11-50

3: 51-250

4: 250+

Table 8. Statistics of Number of White-collar employees

| | | Frequency | Percentage | Valid Percentage | Cumulative Percentage |
|-------|--------------|------------|--------------|------------------|-----------------------|
| Valid | 1 | 41 | 39,0 | 39,0 | 39,0 |
| | 2 | 35 | 33,3 | 33,3 | 72,4 |
| | 3 | 13 | 12,4 | 12,4 | 84,8 |
| | 4 | 16 | 15,2 | 15,2 | 100,0 |
| | Total | 105 | 100,0 | 100,0 | |

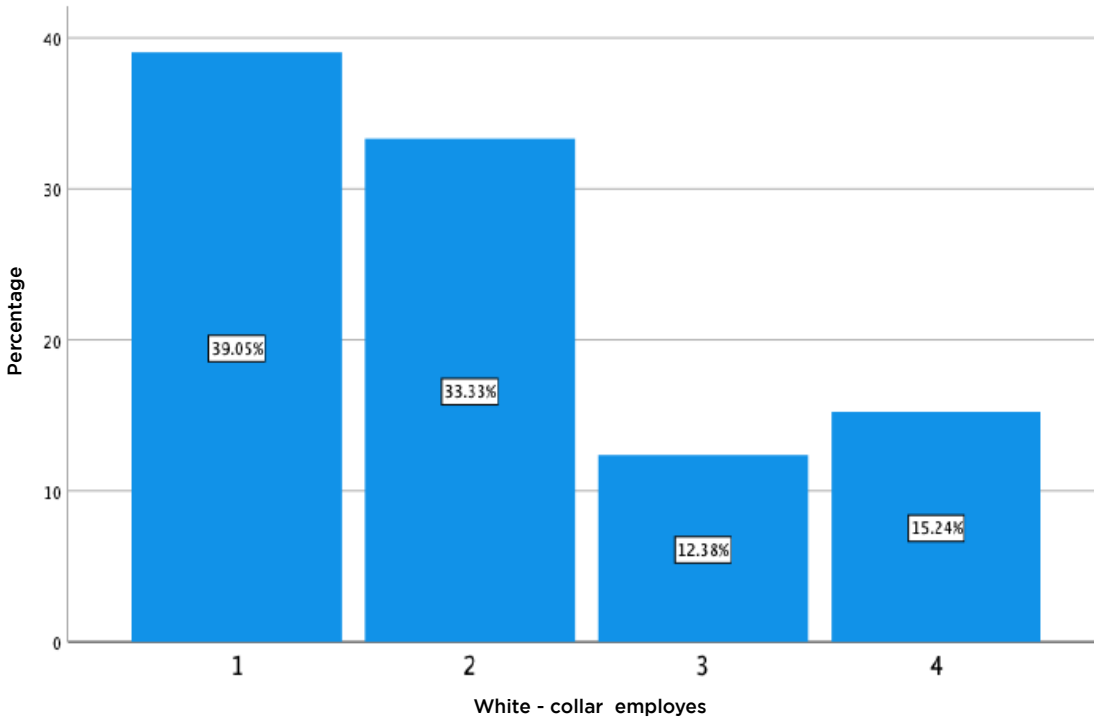


Figure 6: Number of white-collar employees

3. ATTRIBUTE: Number of blue-collar employees

Question/Statement: Number of Blue-collar employees in your company:

Number of blue-collar employees variable categories and ranges

1: 1-10 2: 11-50, 3: 51-250 4: 250+

Table 9. Statistics of Number of Blue-collar employees

| | | Frequency | Percentage | Valid Percentage | Cumulative Percentage |
|-------|--------------|------------|--------------|------------------|-----------------------|
| Valid | 1 | 43 | 41,0 | 41,0 | 41,0 |
| | 2 | 18 | 17,1 | 17,1 | 58,1 |
| | 3 | 25 | 23,8 | 23,8 | 81,9 |
| | 4 | 19 | 18,1 | 18,1 | 100,0 |
| | Total | 105 | 100,0 | 100,0 | |

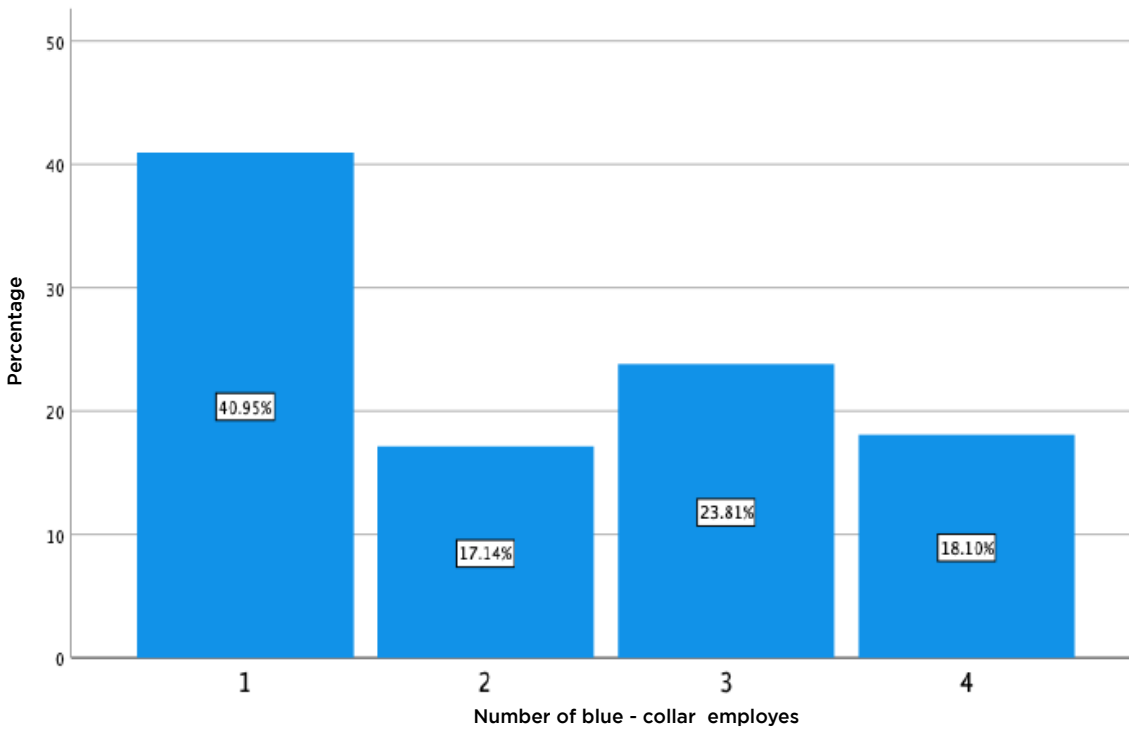


Figure 7: Number of blue-collar employees

The median age of participating companies was found to be over 20 years. This distribution is parallel to the company age distribu-

tion in Türkiye. For this reason, one can argue that the participating companies constitute a suitable sample.

4.1. ATTRIBUTE: Firm headquarter location

Question/Statement: Headquarter location of the firm

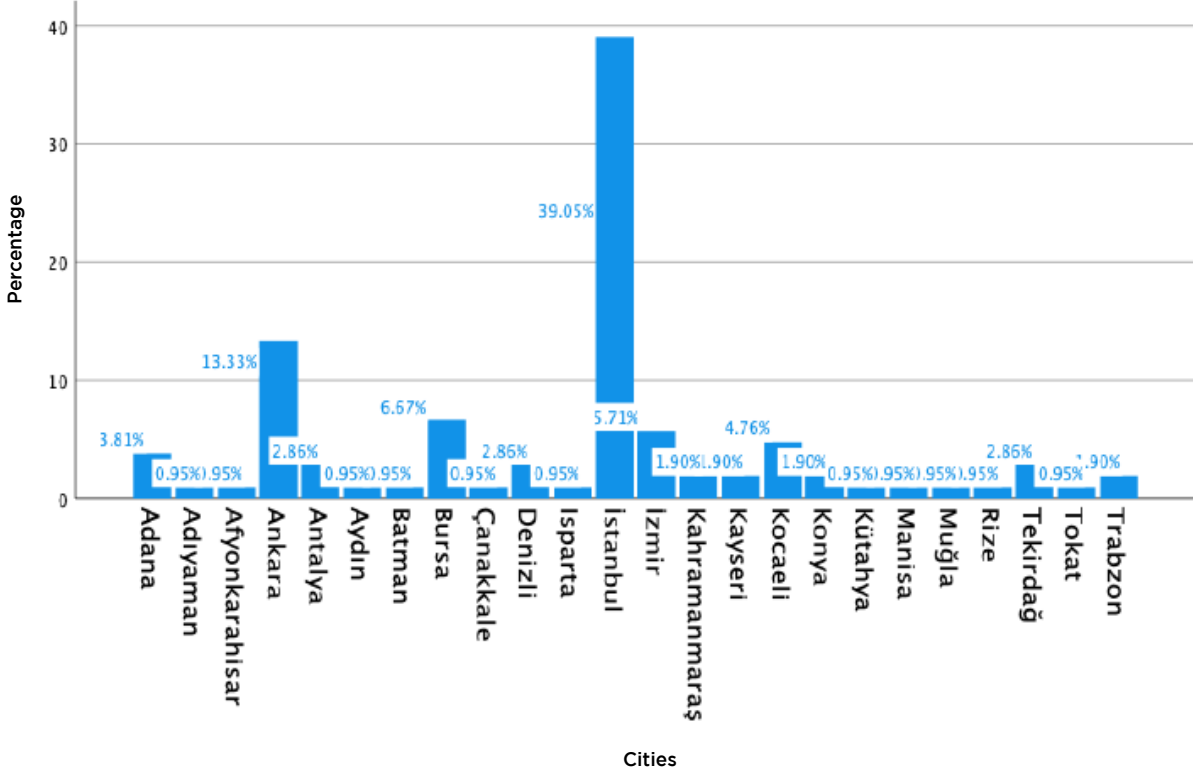


Figure 8: Headquarter location of the firm

5.ATTRIBUTE: Sectors

Question/Statement: The sector your company is in (search and selection in a list of 60 sub-sectors)

Table 10. Sector Statistics of Participating Companies (converted into 6 main sectors)

| | | Frequency | Percentage | Valid Percentage | Cumulative Percentage |
|-------|---------------|------------|--------------|------------------|-----------------------|
| Valid | Service | 30 | 28,6 | 28,6 | 28,6 |
| | Manufacturing | 38 | 36,2 | 36,2 | 64,8 |
| | Construction | 8 | 7,6 | 7,6 | 72,4 |
| | Automotive | 7 | 6,7 | 6,7 | 79,0 |
| | Agriculture | 12 | 11,4 | 11,4 | 90,5 |
| | Textile | 10 | 9,5 | 9,5 | 100,0 |
| | Total | 105 | 100,0 | 100,0 | |

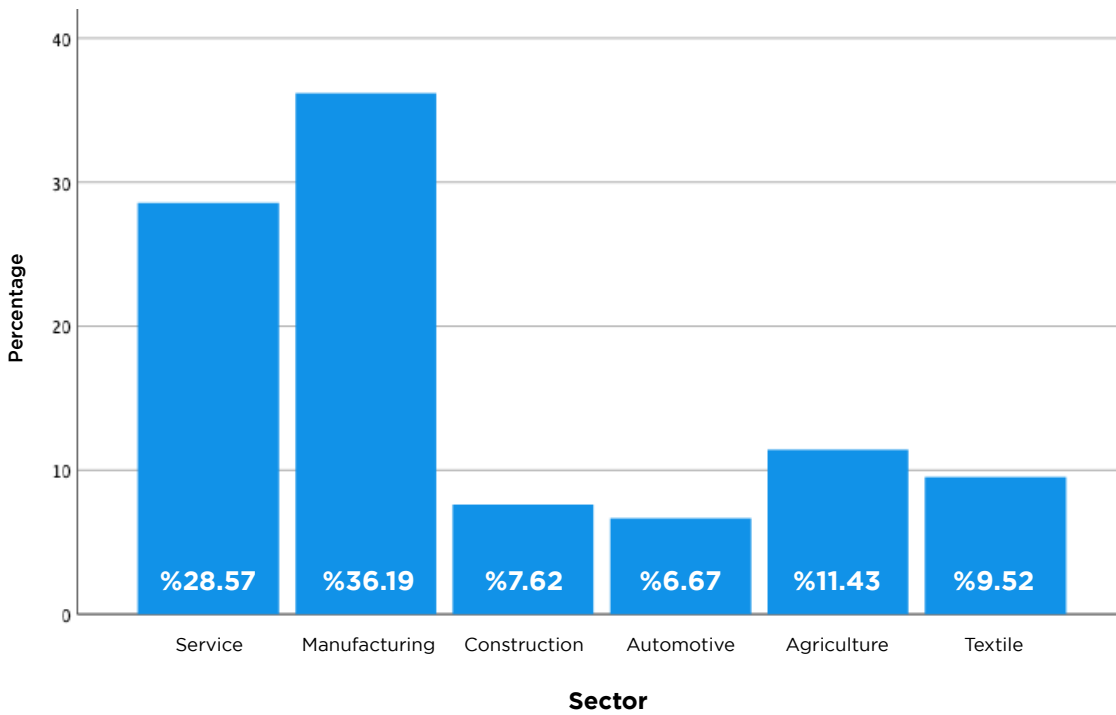


Figure 9: Sector Distribution of Participating Companies

We examined the companies participating in the study under the sector categories of Service, Manufacturing, Construction, Automotive, Agriculture and Food, and Textile. It was discussed that the Service and Man-

ufacturing sectors are in the majority. In addition to these sectors, the sectors discussed (Automotive, Food and Agriculture, Textile, Construction) have emerged as critical sectors for Türkiye.

3. ATTRIBUTE: UNVAN

Question/Statement: Title of Respondents

CEO, Director, Unit Manager/, Manager, Others

Table 11. Statistics of Repsondents' Titles

| | | Frequency | Percentage | Valid Percentage | Cumulative Percentage |
|-------|---------------------|------------|--------------|------------------|-----------------------|
| Valid | Unit Manager | 20 | 19,0 | 19,0 | 19,0 |
| | CEO/General Manager | 34 | 32,4 | 32,4 | 51,4 |
| | Other | 23 | 21,9 | 21,9 | 73,3 |
| | Director | 12 | 11,4 | 11,4 | 84,8 |
| | Manager | 16 | 15,2 | 15,2 | 100,0 |
| | Total | 105 | 100,0 | 100,0 | |

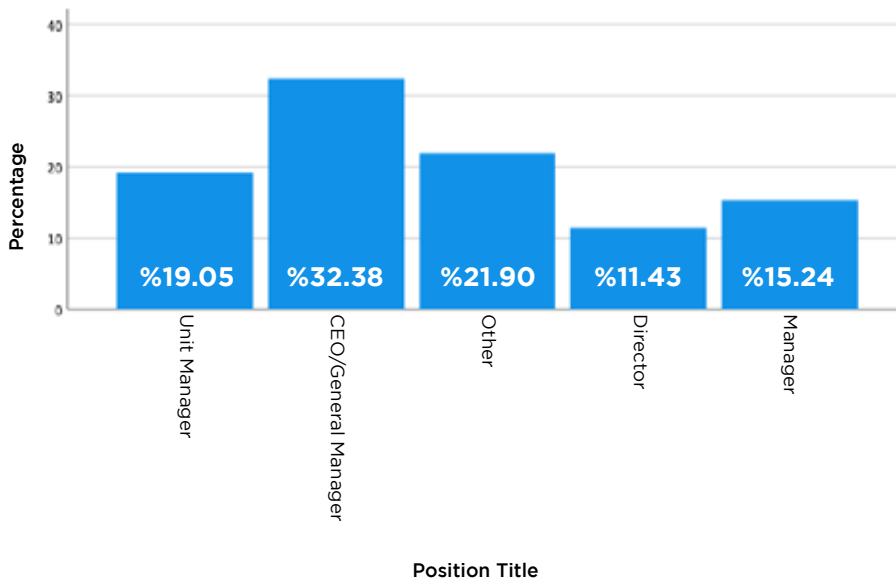


Figure 10a: Statistics of Repsondents' Titles Distribution

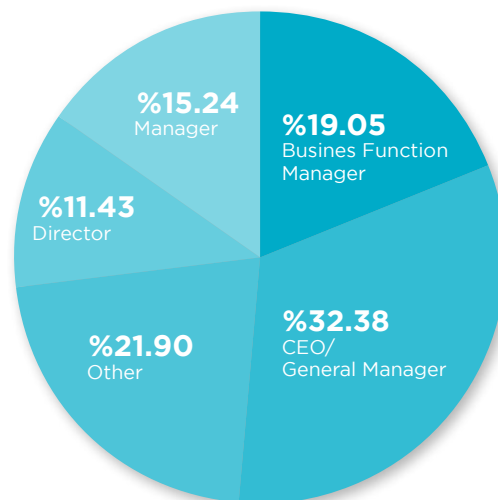


Figure 10b: Statistics of Repsondents' Titles Distribution

7. ATTRIBUTE: PATENT

Question/Statement: Total number of Patent

Table 12. Total Patent

| | | |
|----------|-----------|----------|
| N | Valid | 105 |
| | Non-valid | 0 |
| Average | | 12,26 |
| Median | | 1,00 |
| Mode | | 37,200 |
| Std. Dev | | 1383,827 |
| Variance | | 253 |
| Interval | | 0 |
| Minimum | | 253 |
| Maximum | | 120 |

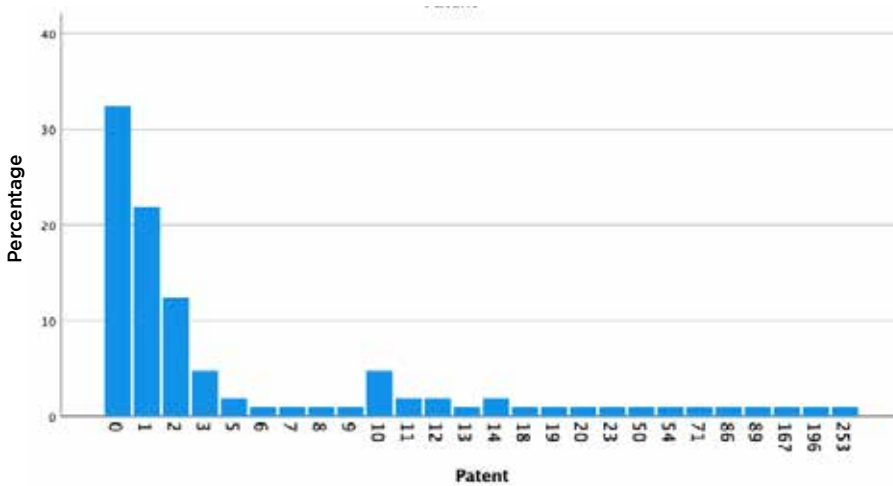


Figure 11: Distribution of Total Number of Participating Companies' Patents

Outlier (the value of 2132) was removed give the sample data at hand.

8. 5. ATTRIBUTE: Number of Brand

Question/Statement: Number of Firm's Brand

Table 13. Number of Firm's Brand

| | | |
|----------|-----------|---------|
| N | Valid | 105 |
| | Non-Valid | 0 |
| Average | | 11,37 |
| Median | | 2,00 |
| Mode | | 27,180 |
| Std. Dev | | 738,755 |
| Variance | | 159 |
| Interval | | 0 |
| Minimum | | 159 |
| Maximum | | 120 |

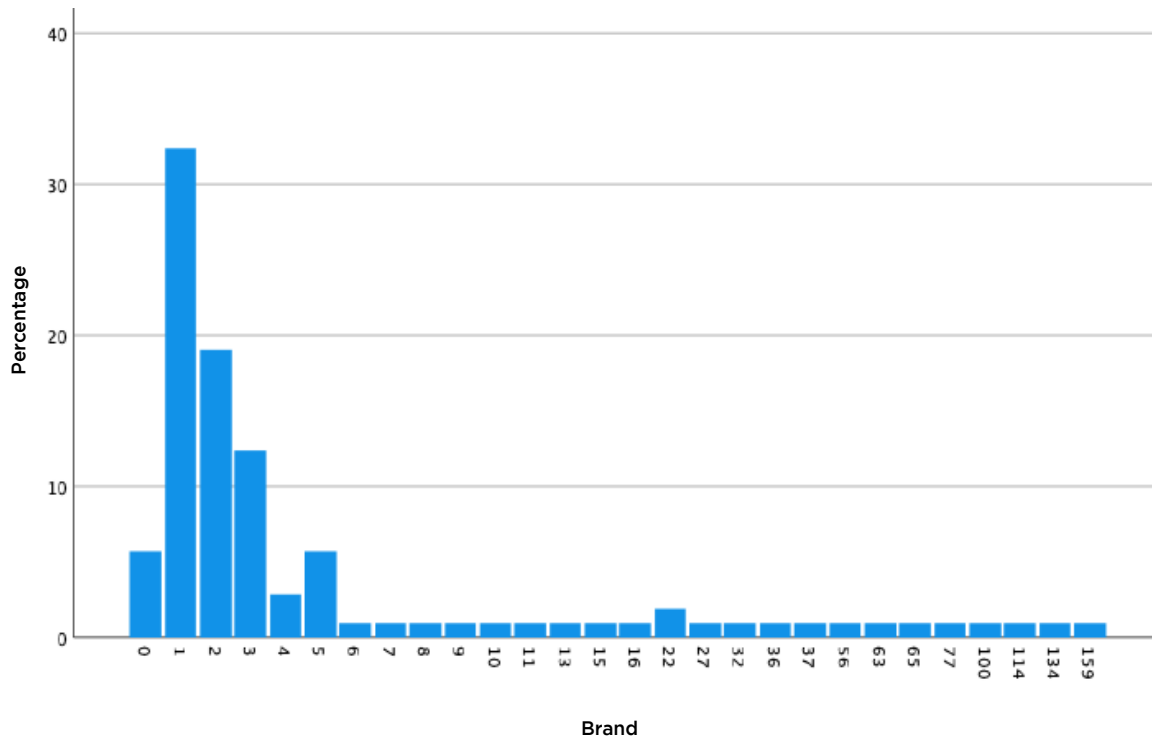


Figure 12: Distribution of Total Number of Participating Companies' Brands

Except for companies without trademarks and patents, the trademark and patent distribution of the participating companies shows a pattern in accordance with the Powerlaw law.

9. 6. ATTRIBUTE: NUMBER OF INNOVATION PROJECT

Question/Statement: Average number of innovation and new product development projects per year:

Table 14. Number of Innovation Projects

| | | |
|----------|-----------|----------|
| N | Valid | 105 |
| | Non-valid | 0 |
| Average | | 14,62 |
| Median | | 3,00 |
| Mode | | 59,770 |
| Std. Dev | | 3572,411 |
| Variance | | 600 |
| Interval | | 0 |
| Minimum | | 600 |

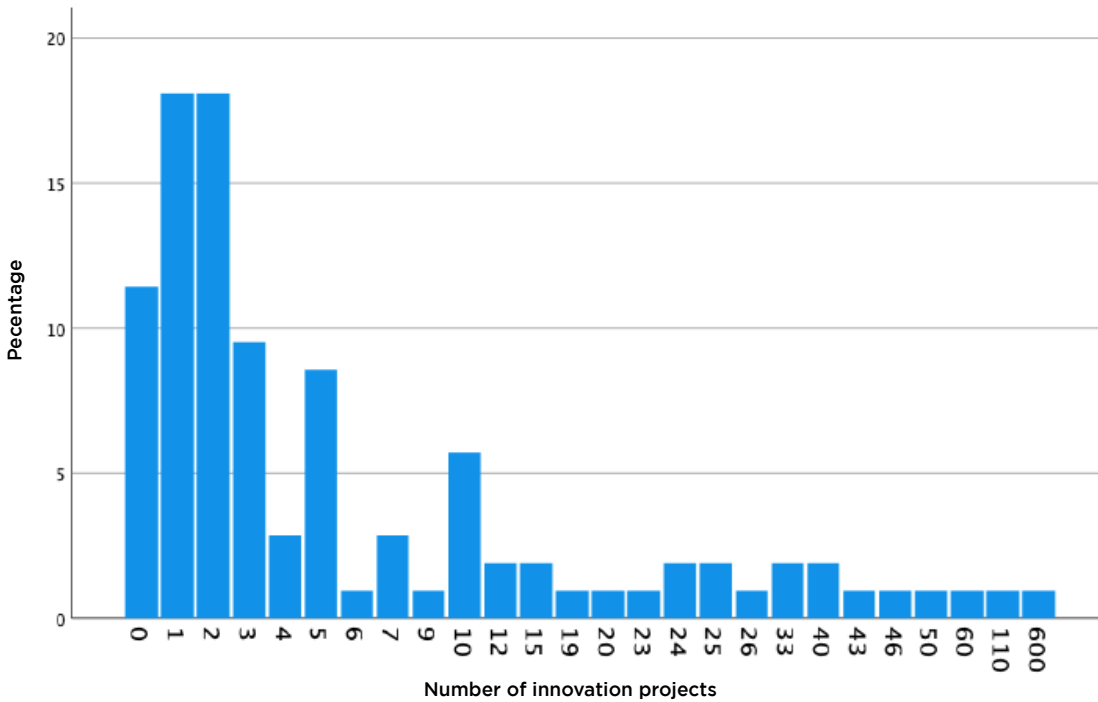


Figure 13: Distribution of an average number of innovation and new product development projects per year

10. ATTRIBUTE: Export to Sales Ratio of Participating Companies

Question/Statement: Export to Sales Ratio (%)

1: 1-5, 2: 6-10, 3: 11-20, 4: 21-50 5: 51+

Table 15. Export to Sales Ratio Distribution of Participating Companies

| | | Frequency | Percentage | Valid Percentage | Cumulative Percentage |
|-------|--------------|-----------|------------|------------------|-----------------------|
| Valid | 1 | 21 | 20,0 | 20,0 | 20,0 |
| | 2 | 14 | 13,3 | 13,3 | 33,3 |
| | 3 | 14 | 13,3 | 13,3 | 46,7 |
| | 4 | 18 | 17,1 | 17,1 | 63,8 |
| | 5 | 38 | 36,2 | 36,2 | 100,0 |
| | Total | | 105 | 100,0 | 100,0 |

Table 16. Statistics about Export to Sales Ratio Distribution of Participating Companies

| | | |
|----------|-----------|-------|
| N | Valid | 105 |
| | Non-valid | 0 |
| Average | | 3,36 |
| Median | | 4,00 |
| Mode | | 5 |
| Std. Dev | | 1,564 |
| Variance | | 2,445 |
| Interval | | 4 |
| Minimum | | 1 |
| Maximum | | 5 |

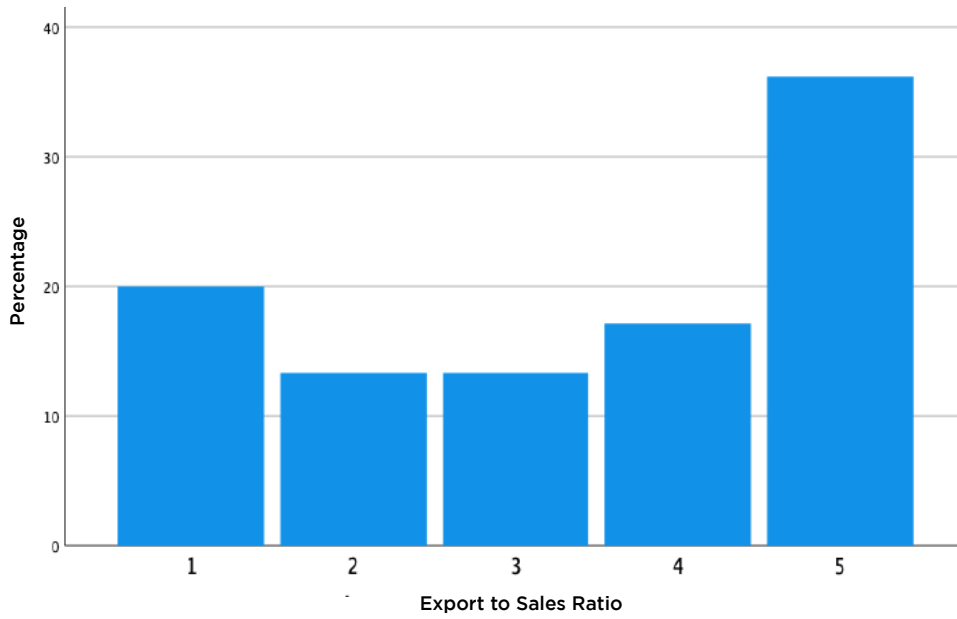


Figure 14: Export to Sales Ratio Distribution of Participating Companies

The distribution of export rates in the sales of companies is given in Figure 14. It was found that the average export rate was in the range of 21-50% and the median value of the number of exported countries was 8.5 countries. Despite these high figures in exports, low figures were observed in the number of Patents and Trademarks of the

companies. One reason for this is that although medium and high value-added are predominantly exports, these exports are made mainly through subcontracting.

It is important to raise awareness about Patent and Trademark management and further increase the added value in exports.

11. ATTRIBUTE: INNOVATIVE PRODUCTS/SERVICES IN TOTAL SALES

Question/Statement: Distribution of innovative products/services in total sales

Participating companies' distribution of innovative products/services in total sales

Table 17. Innovative products/services in total sales

| | | |
|----------|-----------|---------|
| N | Valid | 105 |
| | Non-valid | 0 |
| Average | | 29,40 |
| Median | | 20,00 |
| Mode | | 30,758 |
| Std. Dev | | 946,050 |
| Variance | | 100 |
| Interval | | 0 |
| Minimum | | 100 |

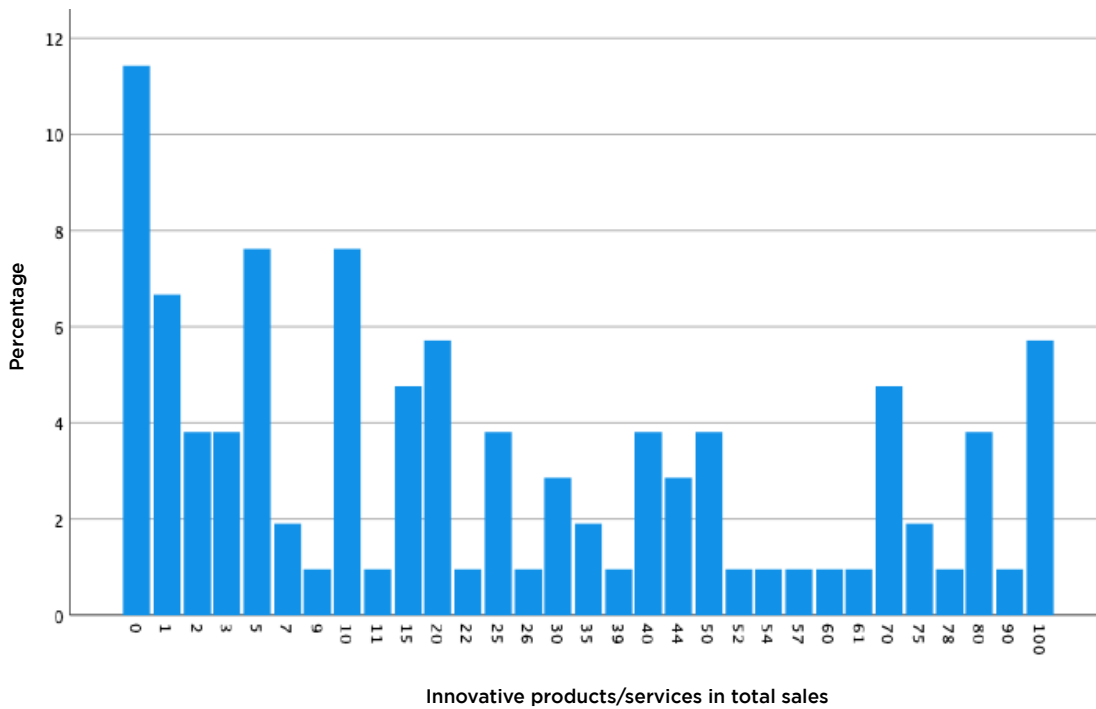


Figure 15: Participating companies' distribution of innovative products/services in total sales

12. ATTRIBUTE: DOMESTIC CAPITAL STRUCTURE OF THE FIRM

Question/Statement: Capital structure (%):

1: 100% 2: >50% 3: <50%

Table 18. Statistics of the firm's capital structure

| | | Frequency | % | Valid % | Cumulative % |
|-------|--------------|------------|--------------|--------------|--------------|
| Valid | 1 | 88 | 83,8 | 83,8 | 83,8 |
| | 2 | 11 | 10,5 | 10,5 | 94,3 |
| | 3 | 6 | 5,7 | 5,7 | 100,0 |
| | Total | 105 | 100,0 | 100,0 | |

Table 19. Other statistics of the firm's capital structure

| | | |
|----------|-----------|-------|
| N | Valid | 105 |
| | Non-valid | 0 |
| Average | | 1,22 |
| Median | | 1,00 |
| Mode | | 1 |
| Std. Dev | | 0,537 |
| Variance | | 0,288 |
| Interval | | 1 |
| Minimum | | 3 |

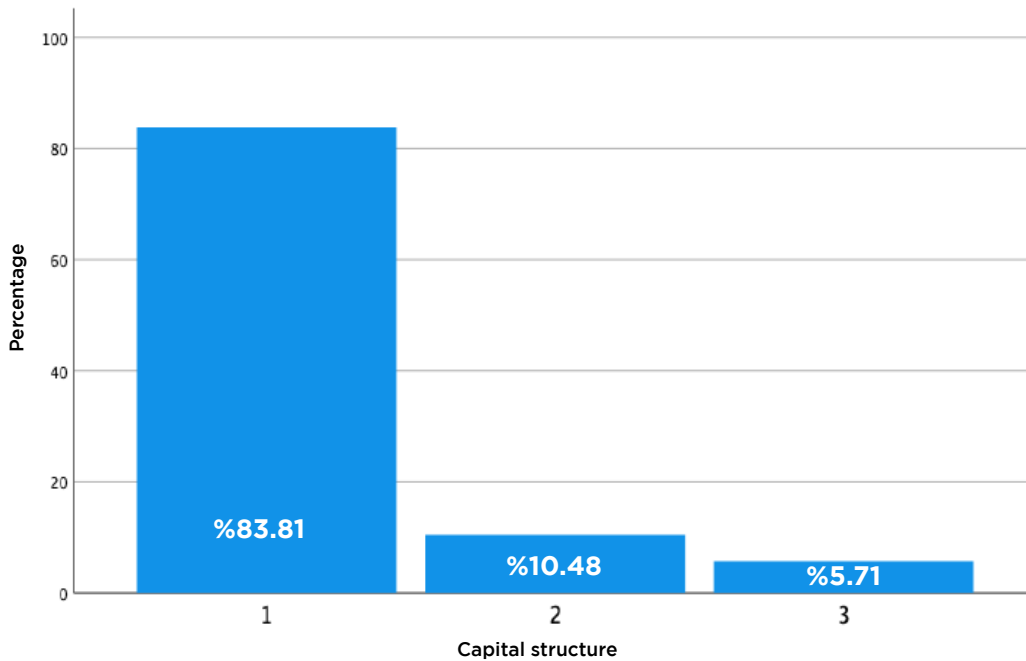


Figure 16: Capital structure distribution of participating companies

13. ATTRIBUTE: NUMBER OF COUNTRIES EXPORTED TO

**Question/Statement: Number of Export Countries:
Number of Export Countries**

Table 20. Statistics of the Number of Countries Exported to

| N | Valid | 105 |
|----------|-----------|---------|
| | Non-valid | 0 |
| Average | | 21,96 |
| Median | | 10,00 |
| Mode | | 2 |
| Std. Dev | | 26,980 |
| Variance | | 727,941 |
| Interval | | 120 |
| Minimum | | 0 |
| Maximum | | 120 |

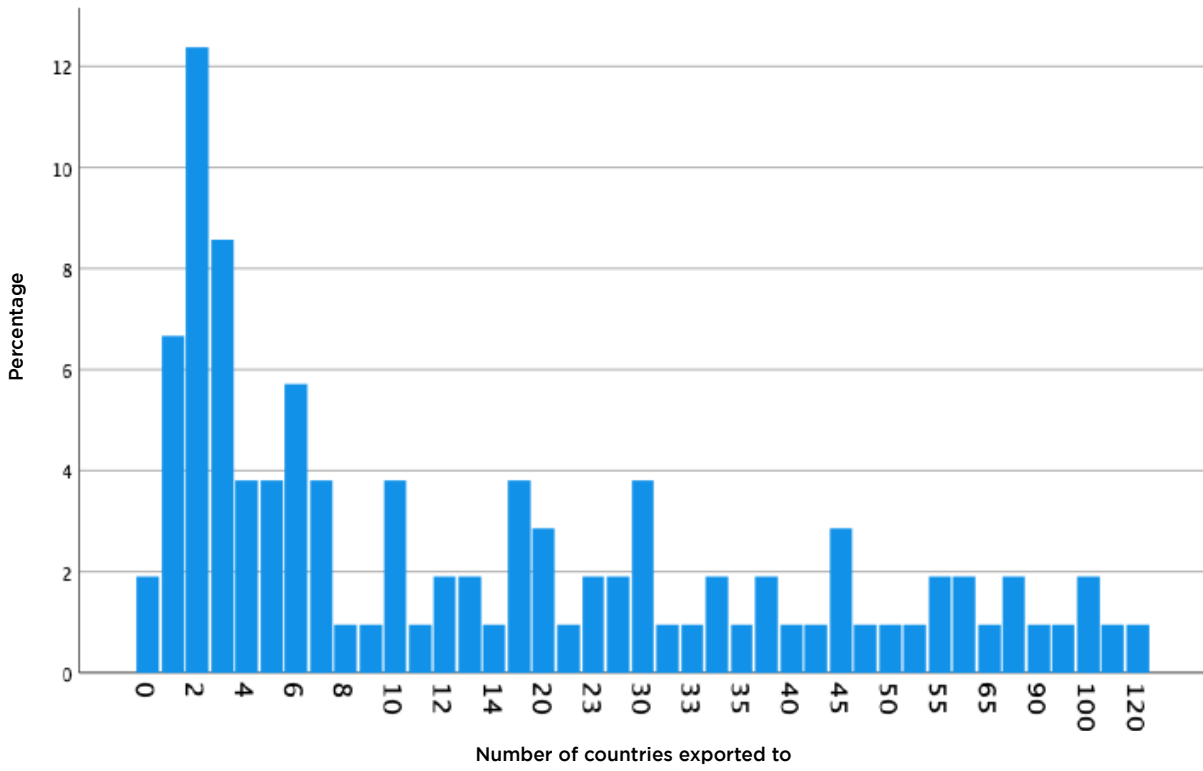


Figure 17: Number of Countries Exported to

RESULTS BY DIMENSIONS

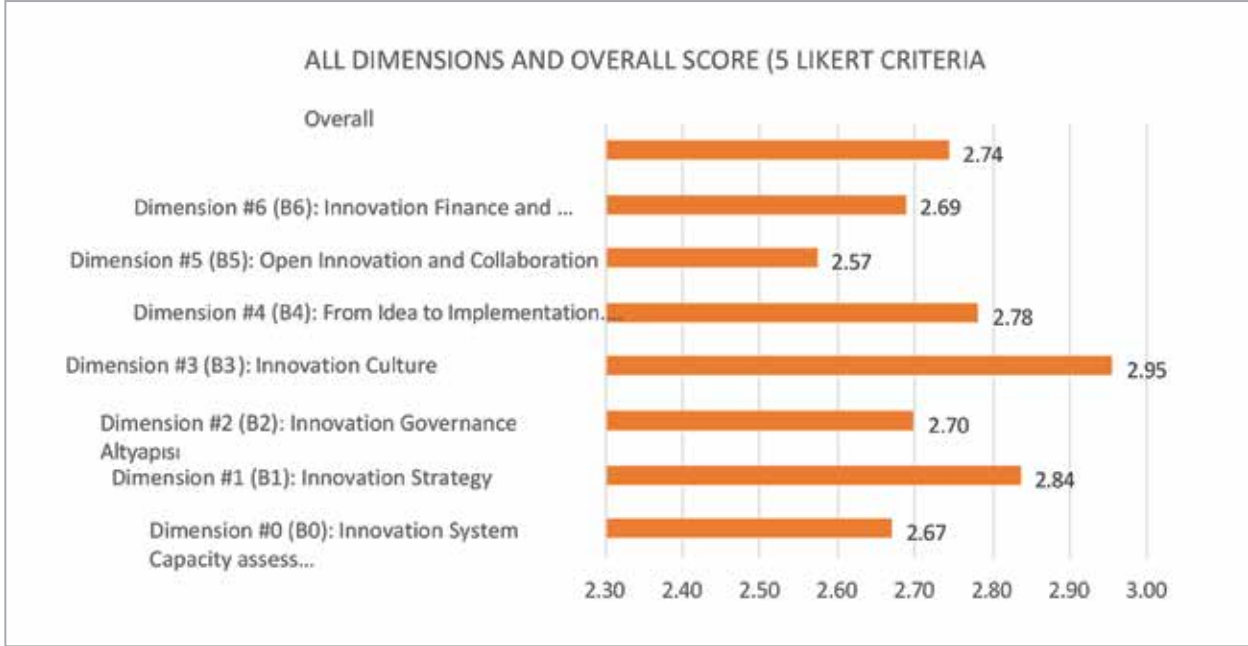


Figure 18: Scores of participating companies overall and for all dimensions

The average innovation capacity score of the companies within the scope of this study was found 54.80% (2.74/5.00). In the InoSuit Impact Analysis studies conducted using the same model and similar measurement method, the general average of innovation capacity of companies that completed the InoSuit Program between 2019 and 2022 was determined to be 85.05%. As a result of the comparative analysis, the positive impact of programs for the development of Global Compact on the innovation capacities of companies is clearly seen.

Although the Strategy dimension has a relatively high score, the Governance dimension score is noteworthy. It appears to be

lower. When we look more closely at the governance dimension, it is noteworthy that the seventh and eighth goals, which emphasize the systematic approach, received low scores among the four goals. For this reason, it turns out that the size average is low.

It is seen that the lowest average score among the dimensions belongs to the 5th dimension, Open Innovation, with 2.57. It has been determined in many preliminary studies that open innovation is one of the issues open to improvement, and the recommended improvement-oriented actions in this regard are presented in detail in the target analysis section.

https://tim.org.tr/files/downloads/Sunum_Dosyasi/TIM_InoSuit_Etki_Analizi.pdf

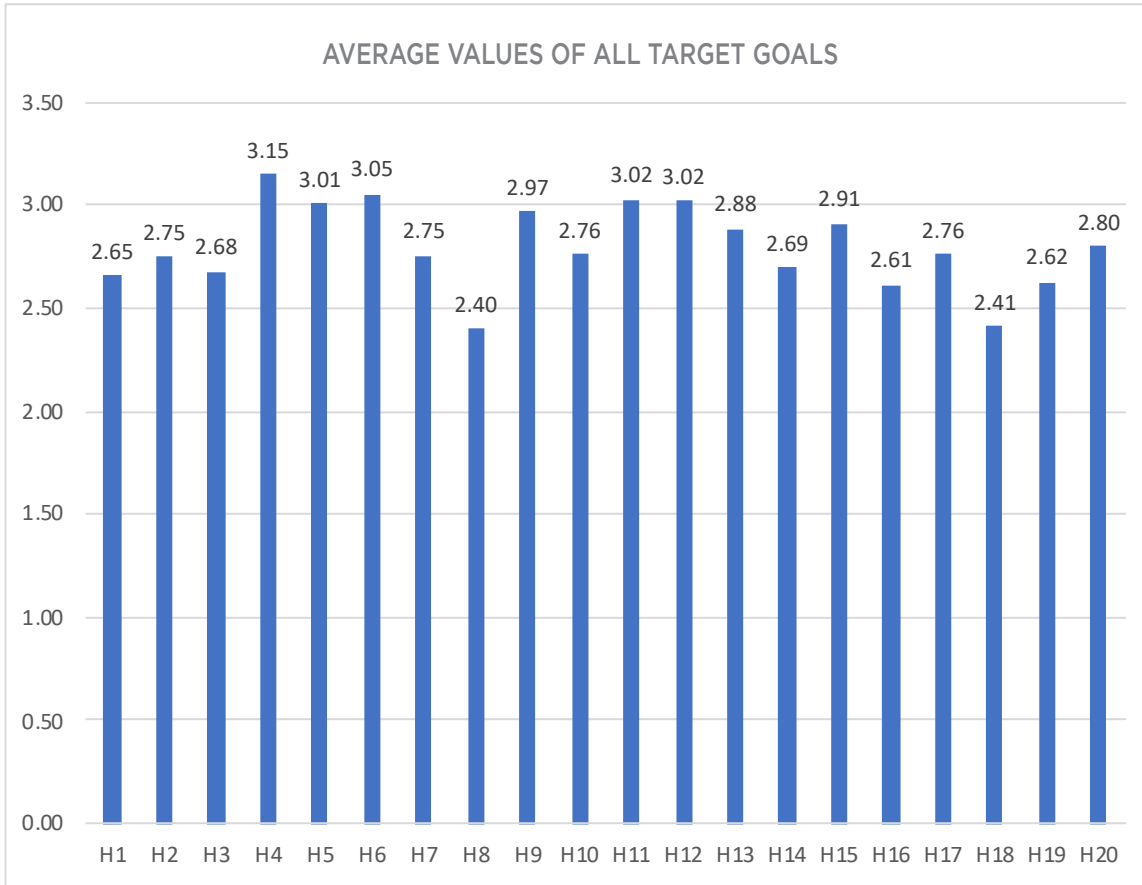


Figure 19: Participating companies average values of all target goals

Although it is the highest score, it is a dimension that needs to be examined further. Developing an innovation culture is yet to be explored rich subject area that has been identified in previous studies.

Regarding the performance measurement of the Corporate Innovation Systems goals, each goal was evaluated and scored out of 5. While the highest score was 3.15 (out of 5), the lowest score was observed as 2.40.

While the highest score was observed in the goal target “Goal #4: Determining the innovation strategies of the company”, the lowest scores were observed in “ Goal #8: “. It was observed in titles such as “Preparing the company’s innovation management directive and describing the processes” and “Goal 18: (H18): Defining R&D projects based on University-Industry Collaborations”, which has another lowest target of 2.41.

- H1:** Evaluation of the company's innovation capacity,
- H2:** Designing a firm-specific innovation system according to development areas
- H3:** Creating the internal and external communication plan and its content and implementation
- H4:** Determining the firm's innovation strategies,
- H5:** Determining the firm's technology road map and future needs,
- H6:** Creating and prioritizing the innovation project portfolio based on the company's current and future needs,
- H7:** Determining the company's innovation organization,,
- H8:** Preparing the company's innovation management directive and describing the processes,
- H9:** Creating a pool of ideas and suggestions to which all company employees will contribute,
- H10:** Establishing an appreciation and reward system,
- H11:** Integration of innovation into the company's HR management practices,
- H12:** Supporting internal collaboration and knowledge sharing and developing good applications, ensuring corporate memory management
- H13:** Developing applications that foster in-company collaboration and information sharing, ensuring corporate memory management,
- H14:** For prioritized innovation projects creating teams,
- H15:** Management of innovation projects; Problem definition - research - analysis - decision making, test application - realization of final application stages,
- H16:** Collaborative with the company's external stakeholders defining, creating and managing innovation processes,
- H17:** Preparation of the intellectual property rights proposal,
- H18:** Defining R&D projects based on University-Industry Collaborations,
- H19:** Establishing the innovation budget and ensuring the use of internal and external financial resources,
- H20:** The development of the corporate innovation system monitoring, evaluation and revision.

In the next section of the report, the results and recommendation lists of the evaluations made on the basis of the objectives are summarized.

Table 21. Descriptive Statistics for the Goals of Corporate Innovation Systems

| | N | Range | Min | Mak | Ort | Std. Dev | Variance |
|---------|----------|--------------|------------|------------|------------|-----------------|-----------------|
| H1 | 105 | 4,00 | 1,00 | 5,00 | 2,6317 | 1,40658 | 1,978 |
| H2 | 105 | 4,00 | 1,00 | 5,00 | 2,7238 | 1,42096 | 2,019 |
| H3 | 105 | 4,00 | 1,00 | 5,00 | 2,6540 | 1,39591 | 1,949 |
| H4 | 105 | 4,00 | 1,00 | 5,00 | 3,1298 | 1,28694 | 1,656 |
| H5 | 105 | 4,00 | 1,00 | 5,00 | 2,9867 | 1,19527 | 1,429 |
| H6 | 105 | 4,00 | 1,00 | 5,00 | 3,0303 | 1,21161 | 1,468 |
| H7 | 105 | 4,00 | 1,00 | 5,00 | 2,7333 | 1,41089 | 1,991 |
| H8 | 105 | 4,00 | 1,00 | 5,00 | 2,3738 | 1,45035 | 2,104 |
| H9 | 105 | 4,00 | 1,00 | 5,00 | 2,9486 | 1,46551 | 2,148 |
| H10 | 105 | 4,00 | 1,00 | 5,00 | 2,7381 | 1,35121 | 1,826 |
| H11 | 105 | 4,00 | 1,00 | 5,00 | 3,0048 | 1,22463 | 1,500 |
| H12 | 105 | 4,00 | 1,00 | 5,00 | 2,9976 | 1,33080 | 1,771 |
| H13 | 105 | 4,00 | 1,00 | 5,00 | 2,8619 | 1,27286 | 1,620 |
| H14 | 105 | 4,00 | 1,00 | 5,00 | 2,6714 | 1,39682 | 1,951 |
| H15 | 105 | 4,00 | 1,00 | 5,00 | 2,8914 | 1,28236 | 1,644 |
| H16 | 105 | 4,00 | 1,00 | 5,00 | 2,5905 | 1,17190 | 1,373 |
| H17 | 105 | 4,00 | 1,00 | 5,00 | 2,7397 | 1,55317 | 2,412 |
| H18 | 105 | 4,00 | 1,00 | 5,00 | 2,3891 | 1,35852 | 1,846 |
| H19 | 105 | 4,00 | 1,00 | 5,00 | 2,6000 | 1,36532 | 1,864 |
| H20 | 105 | 4,00 | 1,00 | 5,00 | 2,7762 | 1,40566 | 1,976 |
| Geçerli | 105 | | | | | | |

ASSESSMENTS BASED ON THE TARGETS

H1: EVALUATION OF FIRM'S INNOVATION CAPACITY

| | | | |
|------|---|------|--------------------|
| H1S1 | A preliminary assessment of the company's innovation capacity and performance has already been carried out. | 2,77 | 2,63 / 5,00 |
| H1S2 | The company's innovation capacity and performance are evaluated at regular intervals and using a certain method. | 2,59 | |
| H1S3 | The company's innovation capacity and performance are evaluated at regular intervals and using a certain method. | 2,53 | |

OVERALL EVALUATION

The score regarding the preliminary evaluation of innovation capacity and performance was the highest score in this target goal. By repeating this evaluation and defining the targets, which are indicators of the systematic approach, the relevant relevant indicators were lower. Systematizing

evaluation studies is seen as an area open to further development. The average review score for this target is 2.63 / 5.00. As median, a score of 2.33 was found. The company's innovation capacity and performance are evaluated at regular intervals and using a certain method.

H2: DESIGNING AN INNOVATION SYSTEM SPECIFIC TO THE INSTITUTION, ACCORDING TO DEVELOPMENT AREAS

| | | | |
|------|---|------|--------------------|
| H2S1 | According to the evaluation results, necessary improvements are planned and implemented. | 2,71 | 2,72 / 5,00 |
| H2S2 | The company has a systematic and holistic approach and model for innovation management. | 2,73 | |

OVERALL EVALUATION

A holistic innovation system that suits the vision and mission, goals and culture of the companies generally does not ex-

ist or is under development. The average score for this target is 2.72 / 5.00.

H3: CREATION OF THE INTERNAL AND EXTERNAL COMMUNICATION PLAN AND ITS CONTENT AND IMPLEMENTATION

| | | | |
|------|--|------|--------------------|
| H3S1 | The company's innovation management system has been shared with our employees verbally and written. | 2,70 | 2,65 / 5,00 |
| H3S2 | The company's innovation management system and its operation have been shared verbally and written with our external stakeholders. | 2,40 | |
| H3S3 | The top management's support for innovation was emphasized verbally and written with our employees. | 2,87 | |

OVERALL EVALUATION

The average review score for this target is 2.65 / 5.00. At the same time, H3S1 and H3S2 questions emerged as questions with generally low average scores. In general, it is clear that more importance should be given to innovation communication.

H4: DETERMINING THE COMPANY'S INNOVATION STRATEGIES

| | | | |
|------|---|-------------|--------------------|
| H4S1 | Our short-medium-long term business goals have been defined. | 3,31 | 3,13 / 5,00 |
| H4S2 | Our strategies are defined and detailed to achieve our business goals. | 3,19 | |
| H4S3 | At the product / technology level, targeted positions and competitive strategies in local / regional / global markets have been determined. | 3,09 | |
| H4S4 | In line with our business goals, our expectations and goals regarding our innovation efforts have been determined. | 3,03 | |
| H4S5 | Our innovation strategies (which innovation, why and how do we aim to do it?) have been determined. | 2,89 | |
| H4S6 | "Innovation" is defined within the company's competitive strategies. | 3,22 | |
| H4S7 | In our innovation efforts, not only a reactive but a proactive strategy is adopted (in addition to meeting customer needs, anticipating needs) | 3,21 | |
| H4S8 | All our employees are informed about our company's innovation strategies and it is aimed that they have full knowledge. | 3,10 | |

OVERALL EVALUATION

The average evaluation score for this target is 3.13 / 5.00. When compared with the average scores of other targets, it is seen that the highest score is in the strategy target. In addition, the standard deviation measured at this target is among the low values of 1.29. This shows that the evaluation score differences between companies are lower when it comes to this target. Additionally, the median of this target was calculated as 3.00. This is seen as the third highest scor-

ing compared to other targets. The high score of the innovation strategy target is probably a result of the awareness created on this subject in recent years through programs such as the InoSuit Program. We would like to point out that, historically, this target has been among the targets most open to development in the past, and for this reason, studies focused on this target have been given particular priority.

H5: DETERMINING THE COMPANY'S TECHNOLOGY ROADMAP AND FUTURE NEEDS

| | | | |
|------|---|-------------|--------------------|
| H5S1 | It has been determined what the basic needs of the customer will be and how they may change in the short-medium-long term. | 3,07 | 2,99 / 5,00 |
| H5S2 | It has been determined what kind of products should be developed to meet these customer needs and expectations. | 3,10 | |
| H5S3 | Bu ürünleri geliştirmek için gereken kritik teknolojiler ve yetkinlikler belirlenmiştir. | 3,02 | |
| H5S4 | The critical technologies and competencies required to develop these products have been identified. | 2,89 | |
| H5S5 | Our company's technology road map has been prepared by utilizing the knowledge and expertise of all our relevant internal and external stakeholders. | 2,87 | |

OVERALL EVALUATION

The average evaluation score of companies for this target is 2.99 / 5.00. In addition, the standard deviation measured in this target was found to be the lowest among all targets. Since technology roadmap awareness generally occurs much earlier than innovation management awareness, it may be considered natural

that it receives a high score. However, this score was expected to be much higher. Awareness of the methods and methods required to create a technology roadmap by companies and gaining the expertise to use them is an area of development that has been mentioned many times. This poses an obstacle to getting a higher score..

H6: CREATION AND PRIORITIZATION OF INNOVATION PROJECT PORTFOLIO BASED ON THE COMPANY’S CURRENT AND FUTURE NEEDS

| | | | |
|-------|---|-------------|--------------------|
| H6S1 | There are innovation studies carried out to develop new and original products. | 3,22 | 3,03 / 5,00 |
| H6S2 | There are innovation studies carried out to improve existing products. | 3,37 | |
| H6S3 | There are innovation studies aimed at developing new processes. | 3,23 | |
| H6S4 | There are innovation studies aimed at continuous improvement of existing processes. | 3,22 | |
| H6S5 | There are innovation studies carried out to improve existing marketing - sales processes. | 3,07 | |
| H6S6 | Innovation aimed at developing new models in our internal organization and relations with our external stakeholders studies are available | 2,94 | |
| H6S7 | There are innovation studies aimed at improving existing organizational models. | 2,98 | |
| H6S8 | There are innovation studies aimed at improving existing organizational models. | 2,86 | |
| H6S9 | There are innovation studies aimed at developing new business models. | 2,95 | |
| H6S10 | Current and future critical needs/problems of all units were determined and the company’s “critical problem pool” was created. | 2,61 | |
| H6S11 | The innovation areas and innovation projects that our company will focus on in the short-medium-long term have been defined to be compatible with our business and innovation goals. | 2,89 | |

OVERALL EVALUATION

The average evaluation score for this target is 3.03 / 5.00. H6S2 question on this target with a median score of 3.50, it emerges as the highest score among all questions. Improvement of existing products is the first

issue that companies focus on in their innovation programs. The fact that this score is high confirms this once again. This study is followed by new/existing processes and new products.

H7: DETERMINING THE COMPANY'S INNOVATION ORGANIZATION

| | | | |
|------|---|-------------|--------------------|
| H7S1 | A unit responsible for innovation management and the coordination of innovation processes across units exist. | 2,57 | 2,73 / 5,00 |
| H7S2 | There is a unit responsible for innovation management and coordination of innovation processes in different units. | 2,51 | |
| H7S3 | There is a unit/board responsible for creating innovation strategies, planning innovation activities and evaluating their effectiveness. | 2,77 | |
| H7S4 | There is a unit / center responsible for R&D. | 2,99 | |
| H7S5 | All relevant units (Product Development, R&D, Marketing, Sales, HR, etc.) provide effective support to innovation processes. | 2,94 | |
| H7S6 | The tasks and responsibilities, goals and success criteria of the units, individuals and working groups involved in the management of innovation processes are defined. | 2,72 | |
| H7S7 | Integration of innovation processes with other business processes has been defined. | 2,62 | |

OVERALL EVALUATION

The average evaluation score of companies for this target is 2.73 / 5.00.

The median value of 5 of the questions on this target was found to be 2. The averages and medians of questions H7S4 and H7S5, which are only related to R&D, were relatively higher.

When we look at the developments of R&D and innovation approaches in our country, we see that this is an expected result.

Programs and incentives are widely implemented to increase the number of R&D centers and develop R&D competence. On the other hand, there are no similar programs for the development of innovation management departments and innovation competencies. Implementing programs similar to those implemented for R&D and Design Centers for Innovation Centers will be very useful in accelerating development in this regard.

H8: COMPANY'S INNOVATION MANAGEMENT DIRECTIVE

PREPARATION AND DESCRIPTION OF THE PROCESSES

| | | | |
|------|--|-------------|--------------------|
| H8S1 | An innovation directive describing the functioning of innovation processes has been prepared. | 2,34 | 2,37 / 5,00 |
| H8S2 | The innovation directive was shared with company employees and the necessary information was provided verbally and in writing. | 2,30 | |
| H8S3 | The innovation directive is actively used for the realization, management and monitoring of relevant processes. | 2,33 | |
| H8S4 | New employees at the company are provided with the necessary orientation training and information regarding the functioning of innovation processes. | 2,51 | |

OVERALL EVALUATION

This target received the lowest mean score (2.37 / 5.00). The previously mentioned discussion for improvement in the systematic approach to innovation management is also reaffirmed in the examination of these target scores.

Putting the innovation management system in documentation, disseminating it and using it effectively are important efforts to make the process a traceable process. Programs such as the InoSuit Program play important roles in improvements in this regard.

H9: CREATION OF AN IDEAS AND SUGGESTIONS POOL TO WHICH ALL COMPANY EMPLOYEES CONTRIBUTE

| | | | |
|------|--|-------------|--------------------|
| H9S1 | There is a platform that will allow white-collar employees to share their innovative suggestions and archive these suggestions. | 3,00 | 2,95 / 5,00 |
| H9S2 | There is a platform that will allow blue-collar employees to share their innovative suggestions and archive these suggestions. | 2,78 | |
| H9S3 | Shared suggestions are evaluated by a certain committee within a certain period of time and according to certain criteria. | 3,00 | |
| H9S4 | Idea submission processes, evaluation methods and criteria are shared transparently with all company employees. | 2,98 | |
| H9S5 | Feedback is provided to the owners of selected and unselected ideas. | 2,98 | |

OVERALL EVALUATION

This target average review score is 2.95 / 5.00. Creating a pool of suggestions and ideas is one of the first steps in implementing the corporate innovation system.

Among the questions on this target, the question regarding blue-collar received the

lowest score. It has been observed that the integration of blue-collar employees into the innovation idea collection system is the part that companies have the most difficulty with. The inclusion of blue-collar workers is seen as critical in an inclusive innovation management system.

H10: CREATING A RECOGNITION AND REWARD SYSTEM

| | | | |
|-------|---|-------------|--------------------|
| H10S1 | A financial reward mechanism exists and is operated for employees who share their innovative ideas and suggestions. | 2,80 | 2,74 / 5,00 |
| H10S2 | A moral reward mechanism exists and is operated for employees who share their innovative ideas and suggestions. | 2,83 | |
| H10S3 | The contribution of white-collar employees to innovation processes is reflected in annual performance evaluations, appointment and promotion criteria. | 2,67 | |
| H10S4 | The contribution of blue-collar employees to innovation processes is reflected in annual performance evaluations, appointment and promotion criteria. | 2,50 | |
| H10S5 | Our recognition and reward system aims to encourage teamwork rather than individual performance. | 2,80 | |
| H10S6 | Our recognition and reward system is designed to encourage the implementation of ideas rather than just generating ideas. | 2,85 | |

OVERALL EVALUATION

The average evaluation score of the target related to appreciation and reward is 2.74 / 5.00. The fact that the score of the H10S6 question is the highest among the others shows that the appreciation and reward systems established in companies are tried

to be designed to take into account the entire process from idea to implementation. The room for improvement in ensuring the participation of blue-collar personnel in innovation processes is once again seen in this target (question H10S4).

H11: INTEGRATION OF INNOVATION INTO THE COMPANY'S HR MANAGEMENT PRACTICES

| | | | |
|-------|---|-------------|--------------------|
| H11S1 | The concept of innovation is strongly emphasized in the company's vision. | 3,37 | 3,00 / 5,00 |
| H11S2 | Among the company's values, the concept of innovation is strongly emphasized. | 3,43 | |
| H11S3 | During recruitment processes, methods are used to evaluate the innovative / creative potential of candidates. | 3,00 | |
| H11S4 | A competency assessment of our company employees regarding innovation processes was made and development areas were determined. | 2,70 | |
| H11S5 | We have practices aimed at increasing the active participation and motivation of our employees in innovation processes. | 2,73 | |
| H11S6 | Office areas and common areas are arranged to support the creative motivation of employees. | 2,81 | |

OVERALL EVALUATION

The average evaluation score for this target is 3.04 / 5.00. This objective, which is related to the participation of the company's HR management in innovation processes, was one of the questions with the highest average value.

Question H11S2 is seen as the question with the highest median value among all ques-

tions, with a median value of 4.00. On the other hand, the question regarding competence management received the lowest average score in this objective. Making competence management, especially strategy-oriented competency management, effective in companies appears as an area open to development.

H12: DEVELOPING APPLICATIONS THAT NURTURE INTRA-COMPANY COOPERATION AND INFORMATION SHARING, PROVIDING CORPORATE MEMORY MANAGEMENT

| | | | |
|-------|--|-------------|--------------------|
| H12S1 | There are information management approaches and practices related to recording corporate memory, sharing it effectively within the company when necessary, backing it up and protecting it. | 3,29 | 3,00 / 5,00 |
| H12S2 | In innovation projects, there are mechanisms to ensure the transfer of experience from past successful and unsuccessful projects. | 2,91 | |
| H12S3 | There are applications that will ensure cooperation and information sharing between different units in innovation processes. | 2,91 | |
| H12S4 | There are systematic internal communication efforts to inform all employees about innovation studies, processes and results. | 2,90 | |

OVERALL EVALUATION

The average evaluation score for this target is 3.00 / 5.00. The median value of all questions was 3.00 (H12S1) The fact that the

institutional memory question has a high average indicates positive progress in this regard.

H13: PROVIDING TRAINING ON DIFFERENT TOPICS TO BUILD INTERNAL COMPETENCY ON THE STEPS OF THE INNOVATION MANAGEMENT PROCESS

| | | | |
|-------|--|-------------|--------------------|
| H13S1 | Training activities are organized to improve the innovative competencies of the top management (director level). | 2,94 | 2,86 / 5,00 |
| H13S2 | Training activities are organized for middle level managers to develop their innovative competencies. | 2,90 | |
| H13S3 | Training activities to improve the innovative competencies of expert-level white-collar personnel düzenlenmektedir. | 2.96 | |
| H13S4 | Training activities are organized to improve the innovative competencies of blue-collar personnel. | 2,65 | |

OVERALL EVALUATION

The average score regarding the goal of building internal competence was 2.86 / 5.00. In this field, the blue-collar training title (H13S4), which is related to the participation of blue-collar employees in innovation processes, received the lowest average

score. In general, it seems that education planning related to innovation is an area open to development. In addition, educational planning needs to be addressed in a strategy-oriented manner.

H14: FORMING TEAMS FOR PRIORITIZED INNOVATION PROJECTS

| | | | |
|-------|---|-------------|--------------------|
| H14S1 | In order to implement innovative ideas, innovation project teams are formed with the participation of different units. | 2,65 | 2,68 / 5,00 |
| H14S2 | Our employees are given time and opportunity to actively participate in innovation project teams. | 2,70 | |

OVERALL EVALUATION

The average evaluation score for this target is 2.68 / 5.00. The median values of both questions of this target were calculated as 2.00. Innovation project teams in which different units participate and granting work-

ing time intervals to these teams, which are questioned under the heading of team formation for innovation projects, are seen as the most basic areas open to development of corporate innovation management systems..

H15: MANAGEMENT OF INNOVATION PROJECTS; PROBLEM IDENTIFICATION - RESEARCH - ANALYSIS - DECISION MAKING - TESTING - FINAL IMPLEMENTATION STAGES

| | | | |
|--------|---|-------------|--------------------|
| H15S1 | There are systematic studies carried out to determine the current needs of the customer and identify areas of development. | 2,91 | 2,90 / 5,00 |
| H15S2 | Monitoring changes in customer trends systematically makes. | 2,86 | |
| H15S3 | There are systematic studies carried out to learn the latest state of the technology and to closely follow the developments and opportunities in technology. | 2,95 | |
| H15S4 | Patents related to critical technologies in our industry are systematically monitored and evaluated. | 2,80 | |
| H15S5 | The “data management” approach is used effectively both in determining needs and in developing innovative solutions. (Data that is critical for the company’s goals is identified, the data is collected effectively, analyzed and used to develop innovative applications.) | 2,91 | |
| H15S6 | Certain methods and tools to produce innovative ideas | 2,86 | |
| H15S7 | There are joint studies carried out with the participation of different units to produce innovative ideas. | 2,87 | |
| H15S8 | There are methods and tools used to choose between innovative ideas and solution alternatives. | 2,82 | |
| H15S9 | There are methods and tools used to choose between innovative ideas and solution alternatives. | 2,85 | |
| H15S10 | Senior management actively participates and supports the execution and implementation of innovation projects. | 3,10 | |

OVERALL EVALUATION

The average evaluation score for this target is 2.90 / 5.00. The median value of all questions except question H15S4 was 3.00. The low median value of the H15S4 question shows that we need to be at a better level in patent analysis and patent usage. The fact that the highest score was given to

question H15S10 is positive in that it shows that there is relative management support for innovation. However, the conclusion drawn from previous analyzes has shown that turning this support into a systematic approach is an area open to further development.

H16: DEFINITION, CREATION AND MANAGEMENT OF COLLABORATION-BASED INNOVATION PROCESSES WITH THE COMPANY'S EXTERNAL STAKEHOLDERS

| | | | |
|--------------|---|-------------|--------------------|
| H16S1 | A needs analysis was conducted regarding the areas in which the company should cooperate with its external stakeholders (customers, suppliers, competitors, universities, etc.) | 2,75 | 2,60 / 5,00 |
| H16S2 | Potential cooperation partners have been thoroughly researched and has been determined. | 2,78 | |
| H16S3 | Management processes of collaborations with external stakeholders is defined and implemented. | 2,67 | |
| H16S4 | Effective collaborations are made with our customers for innovation, and the suggestions, information and experiences obtained from our customers are included in the innovation processes. | 2,89 | |
| H16S5 | We maintain effective collaborations with our suppliers for innovation. | 2,71 | |
| H16S6 | Effective pre-competitive collaborations regarding innovation are carried out with our competitors. | 2,20 | |
| H16S7 | New initiatives (start-ups) in our field are systematically followed and cooperation opportunities are explored. | 2,56 | |
| H16S8 | Risk capital support opportunities are provided to support our employees' innovative business model suggestions outside our sector and areas of activity. | 2,18 | |

OVERALL EVALUATION

The average evaluation score for the company's innovation-focused goal of collaboration with external stakeholders is 2.60 / 5.00. The median values of all questions of this objective turned out to be only 2.00. Open innovation is generally seen as a competence in which com-

panies gain more power.

It is important to launch an open innovation and collaboration program that organizes the open innovation and collaboration needs of companies by addressing the hindering concerns in this regard.

H17: PREPARATION OF THE INTELLECTUAL PROPERTY RIGHTS DIRECTIVE

| | | | |
|-------|--|------|-------------|
| H17S1 | The intellectual property rights of the innovative ideas developed are investigated and protected if deemed necessary | 2,88 | 2,74 / 5.00 |
| H17S2 | Strategies and processes for managing Intellectual Property rights have been defined. | 2,73 | |
| H17S3 | Systematic processes and methods have been introduced to evaluate the intellectual properties owned by the company. | 2,61 | |

OVERALL EVALUATION

The average evaluation score for this target is 2.74 / 5.00. Additionally, this target has the highest standard deviation value. This shows that competence levels in this regard vary among companies. In general, the protection of intellectual property rights emerges as an area open to development for our companies. However, the strategic

management and valuation of these assets, which are the next steps after obtaining intellectual property rights, are issues that are open to much more development. The necessity of an awareness program regarding intellectual property rights, which will include their strategic management and valuation, emerges.

H18: R&D PROJECTS BASED ON UNIVERSITY-INDUSTRY COOPERATIONS

| | | | |
|-------|---|------|-------------|
| H18S1 | There are innovation projects carried out with national universities and research organizations. | 2,66 | 2,39 / 5,00 |
| H18S2 | Consultancy services for innovation are received from universities. | 2,71 | |
| H18S3 | Innovation-oriented training / competence development services are received from universities. | 2,57 | |
| H18S4 | There are innovation projects carried out with international universities and research organizations. | 2,09 | |
| H18S5 | We have and update a database on which universities and researchers we can cooperate with. | 2,21 | |
| H18S6 | We have collaborations to benefit from laboratory facilities of universities. | 2,30 | |
| H18S7 | We have collaborations with universities regarding the employment of doctoral level researchers. | 2,21 | |

OVERALL EVALUATION

The average evaluation score for this target was 2.39 / 5.00. This score is one of the lowest scores among the targets. In addition, questions H18S4 and H18S7 were the questions with the lowest median scores among all questions. University-industry cooperation has been an area with low scores and room for improvement. Among these, collaborations with interna-

tional organizations received the lowest score. Developing this competence will also increase the effectiveness of using international funds.

The average score of companies that graduated from the Inosuit program was found to be 4.30 / 5.00. It is clearly seen that the innovation-focused mentor program has a significant impact.

H19: CREATING THE INNOVATION BUDGET, ENSURING BENEFIT FROM INTERNAL AND EXTERNAL FINANCIAL RESOURCES

| | | | |
|-------|--|------|-------------|
| H19S1 | A budget allocated and used for innovation studies has been defined in our company. | 2,78 | 2,60 / 5,00 |
| H19S2 | National financing and support opportunities for innovation are effectively utilized. | 2,71 | |
| H19S3 | International financing and support opportunities for innovation are effectively utilized. | 2,32 | |

OVERALL EVALUATION

The average evaluation score of the target related to the innovation budget was 2.60 / 5.00. Of the three questions under this target, H19S2 and H19S3 received a lower score

than the H19S1 question, with their median values being 2.00. Reaching national and international external financing for innovation is seen as a point open to development.

H20: MONITORING, EVALUATION AND REVISION OF THE DEVELOPMENT IN THE CORPORATE INNOVATION SYSTEM

| | | | |
|-------|---|------|-------------|
| H20S1 | The added value created by innovation activities (contribution to turnover, profitability, market share, customer satisfaction, exports, etc.) is systematically measured and evaluated. | 2,71 | 2,78 / 5,00 |
| H20S2 | Our innovation investments and work create noticeable added value for our company. | 2,85 | |

OVERALL EVALUATION

The average review score for this target is 2.78 / 5.00. The median value of this target was calculated as 2.50. The important issue that needs to be emphasized under this heading is the need to develop and operate

the systems and processes required to monitor these results, more critically than the realization of innovation results. The development of these processes is seen as an issue open to improvement.

RESULTS BY ATTRIBUTES BASED ON DIMENSIONS

Sectoral Distribution / Number of Companies

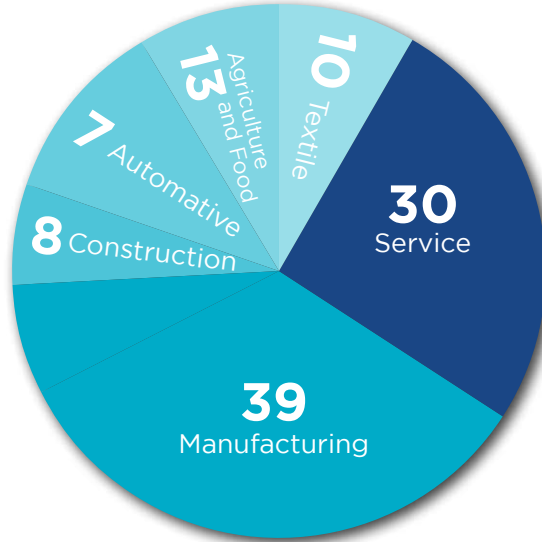


Figure 20: Sectoral Distribution / Number of Companies

Table 22. Sector - Company Age Cross Values

| | | Firm Age | | | | | | Total |
|--------|---------------|----------|-------|-------|-------|-------|-------|--------|
| | | 1 | 2 | 3 | 4 | 5 | | |
| Sector | Service | Value | 7 | 2 | 4 | 5 | 12 | 30 |
| | | Sector | 23,3% | 6,7% | 13,3% | 16,7% | 40,0% | 100,0% |
| | | Firm Age | 63,6% | 25,0% | 40,0% | 23,8% | 21,8% | 28,6% |
| | | Total | 6,7% | 1,9% | 3,8% | 4,8% | 11,4% | 28,6% |
| | Manufacturing | Value | 2 | 3 | 3 | 6 | 24 | 38 |
| | | Sector | 5,3% | 7,9% | 7,9% | 15,8% | 63,2% | 100,0% |
| | | Firm Age | 18,2% | 37,5% | 30,0% | 28,6% | 43,6% | 36,2% |
| | | Total | 1,9% | 2,9% | 2,9% | 5,7% | 22,9% | 36,2% |
| | Construction | Value | 0 | 0 | 1 | 2 | 5 | 8 |
| | | Sector | 0,0% | 0,0% | 12,5% | 25,0% | 62,5% | 100,0% |
| | | Firm Age | 0,0% | 0,0% | 10,0% | 9,5% | 9,1% | 7,6% |
| | | Total | 0,0% | 0,0% | 1,0% | 1,9% | 4,8% | 7,6% |

| | | | | | | | | |
|-------|----------------------|----------|--------|--------|--------|--------|--------|--------|
| | Automotive | Value | 1 | 1 | 1 | 2 | 2 | 7 |
| | | Sector | 14,3% | 14,3% | 14,3% | 28,6% | 28,6% | 100,0% |
| | | Firm Age | 9,1% | 12,5% | 10,0% | 9,5% | 3,6% | 6,7% |
| | | Total | 1,0% | 1,0% | 1,0% | 1,9% | 1,9% | 6,7% |
| | Agriculture and Food | Value | 1 | 2 | 0 | 4 | 5 | 12 |
| | | Sector | 8,3% | 16,7% | 0,0% | 33,3% | 41,7% | 100,0% |
| | | Firm Age | 9,1% | 25,0% | 0,0% | 19,0% | 9,1% | 11,4% |
| | | Total | 1,0% | 1,9% | 0,0% | 3,8% | 4,8% | 11,4% |
| | Textile | Value | 0 | 0 | 1 | 2 | 7 | 10 |
| | | Sector | 0,0% | 0,0% | 10,0% | 20,0% | 70,0% | 100,0% |
| | | Firm Age | 0,0% | 0,0% | 10,0% | 9,5% | 12,7% | 9,5% |
| | | Total | 0,0% | 0,0% | 1,0% | 1,9% | 6,7% | 9,5% |
| Total | Value | 11 | 8 | 10 | 21 | 55 | 105 | |
| | Sector | 10,5% | 7,6% | 9,5% | 20,0% | 52,4% | 100,0% | |
| | Firm Age | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | |
| | Total | 10,5% | 7,6% | 9,5% | 20,0% | 52,4% | 100,0% | |

Table 23. Sector - Export to Sales Ratio Cross Values

| | | Firm age | | | | | | |
|--------|----------------------|-----------------------|-------|-------|-------|-------|-------|--------|
| | | | 1 | 2 | 3 | 4 | 5 | Total |
| Sector | Service | Valur | 8 | 5 | 4 | 5 | 8 | 30 |
| | | Sector | 26,7% | 16,7% | 13,3% | 16,7% | 26,7% | 100,0% |
| | | Export to Sales Ratio | 38,1% | 35,7% | 28,6% | 27,8% | 21,1% | 28,6% |
| | | Total | 7,6% | 4,8% | 3,8% | 4,8% | 7,6% | 28,6% |
| | Manufacturing | Sayı | 9 | 4 | 8 | 6 | 11 | 38 |
| | | Sector | 23,7% | 10,5% | 21,1% | 15,8% | 28,9% | 100,0% |
| | | Export to Sales Ratio | 42,9% | 28,6% | 57,1% | 33,3% | 28,9% | 36,2% |
| | | Total | 8,6% | 3,8% | 7,6% | 5,7% | 10,5% | 36,2% |
| | Construction | Value | 1 | 1 | 0 | 1 | 5 | 8 |
| | | Sector | 12,5% | 12,5% | 0,0% | 12,5% | 62,5% | 100,0% |
| | | Export to Sales Ratio | 4,8% | 7,1% | 0,0% | 5,6% | 13,2% | 7,6% |
| | | Total | 1,0% | 1,0% | 0,0% | 1,0% | 4,8% | 7,6% |
| | Automotive | Value | 2 | 1 | 0 | 2 | 2 | 7 |
| | | Sector | 28,6% | 14,3% | 0,0% | 28,6% | 28,6% | 100,0% |
| | | Export to Sales Ratio | 9,5% | 7,1% | 0,0% | 11,1% | 5,3% | 6,7% |
| | | Total | 1,9% | 1,0% | 0,0% | 1,9% | 1,9% | 6,7% |
| | Agriculture and Food | Value | 1 | 3 | 1 | 2 | 5 | 12 |
| | | Sector | 8,3% | 25,0% | 8,3% | 16,7% | 41,7% | 100,0% |
| | | Export to Sales Ratio | 4,8% | 21,4% | 7,1% | 11,1% | 13,2% | 11,4% |
| | | Total | 1,0% | 2,9% | 1,0% | 1,9% | 4,8% | 11,4% |

| | | | | | | | | |
|-------|---------|-----------------------|--------|--------|--------|--------|--------|--------|
| | Textile | Value | 0 | 0 | 1 | 2 | 7 | 10 |
| | | Sector | 0,0% | 0,0% | 10,0% | 20,0% | 70,0% | 100,0% |
| | | Export to Sales Ratio | 0,0% | 0,0% | 7,1% | 11,1% | 18,4% | 9,5% |
| | | Total | 0,0% | 0,0% | 1,0% | 1,9% | 6,7% | 9,5% |
| Total | | Value | 21 | 14 | 14 | 18 | 38 | 105 |
| | | Sector | 20,0% | 13,3% | 13,3% | 17,1% | 36,2% | 100,0% |
| | | Export to Sales Ratio | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |
| | | Total | 20,0% | 13,3% | 13,3% | 17,1% | 36,2% | 100,0% |

Firm Age

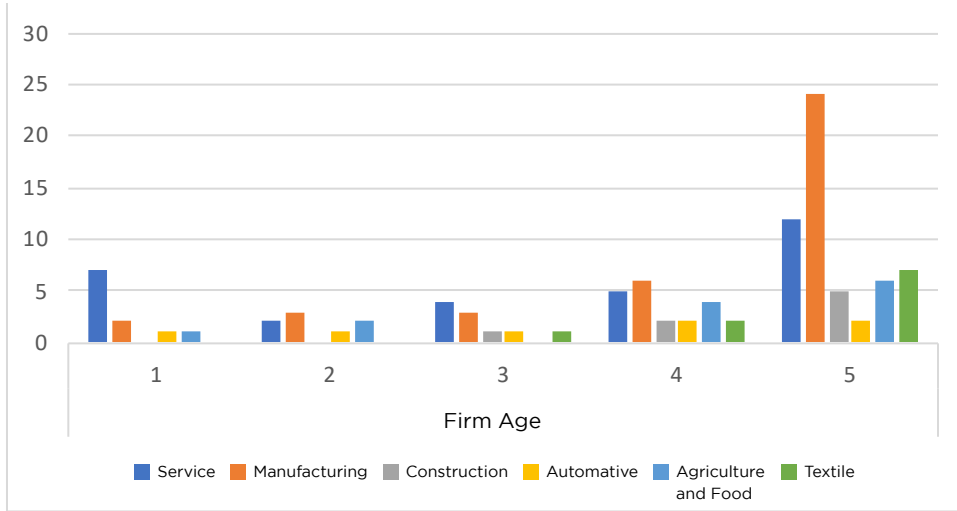


Figure 21. Company age distribution by sector

Overall Score by Sector

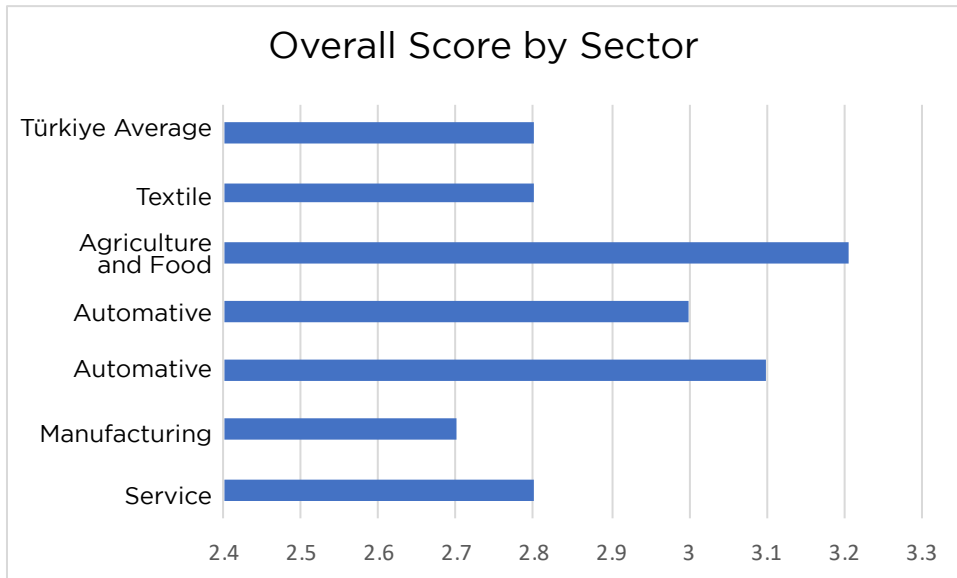


Figure 22. Innovation Capacity Overall Score by Sector

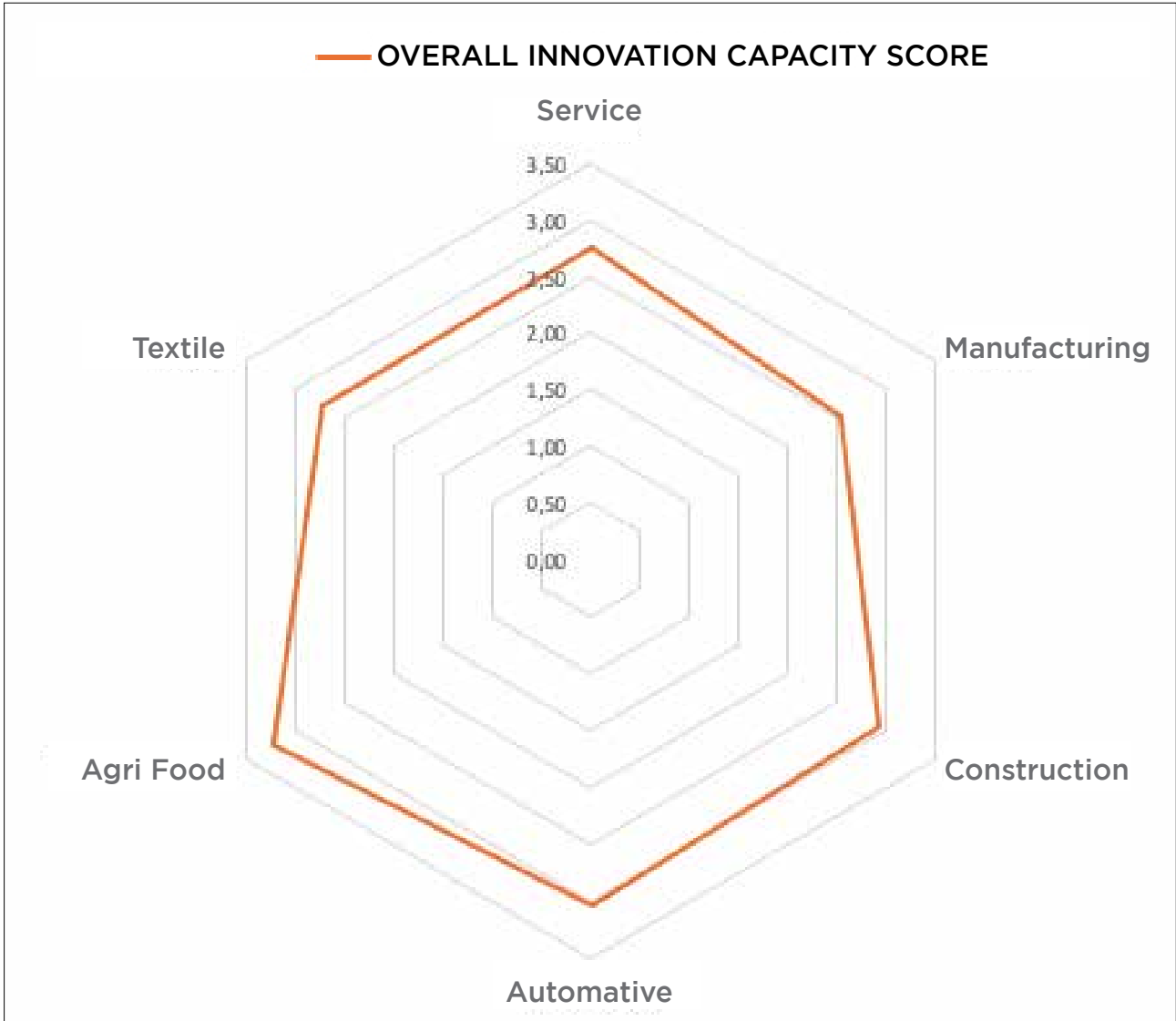


Figure 23. General innovation capacity score of participating companies on a sector basis

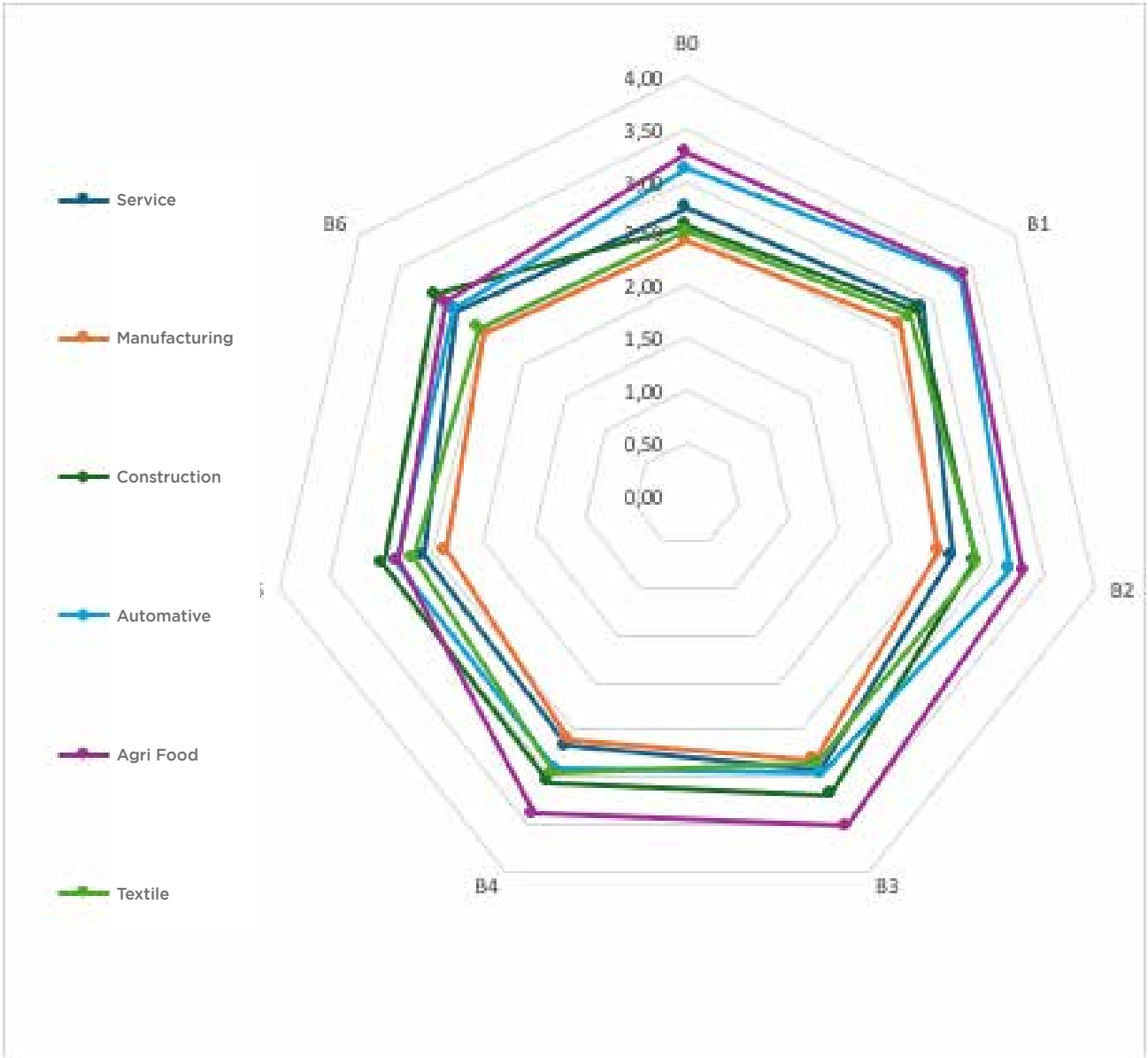


Figure 24. Sector-specific scores based on all dimensions

Considering the sample size at hand, the manufacturing sector among the sectoral breakdowns generally had a relatively low score in all dimensions. On the other hand, automotive stands out as the highest scoring sector. Increasing the number of samples will provide more accurate results.

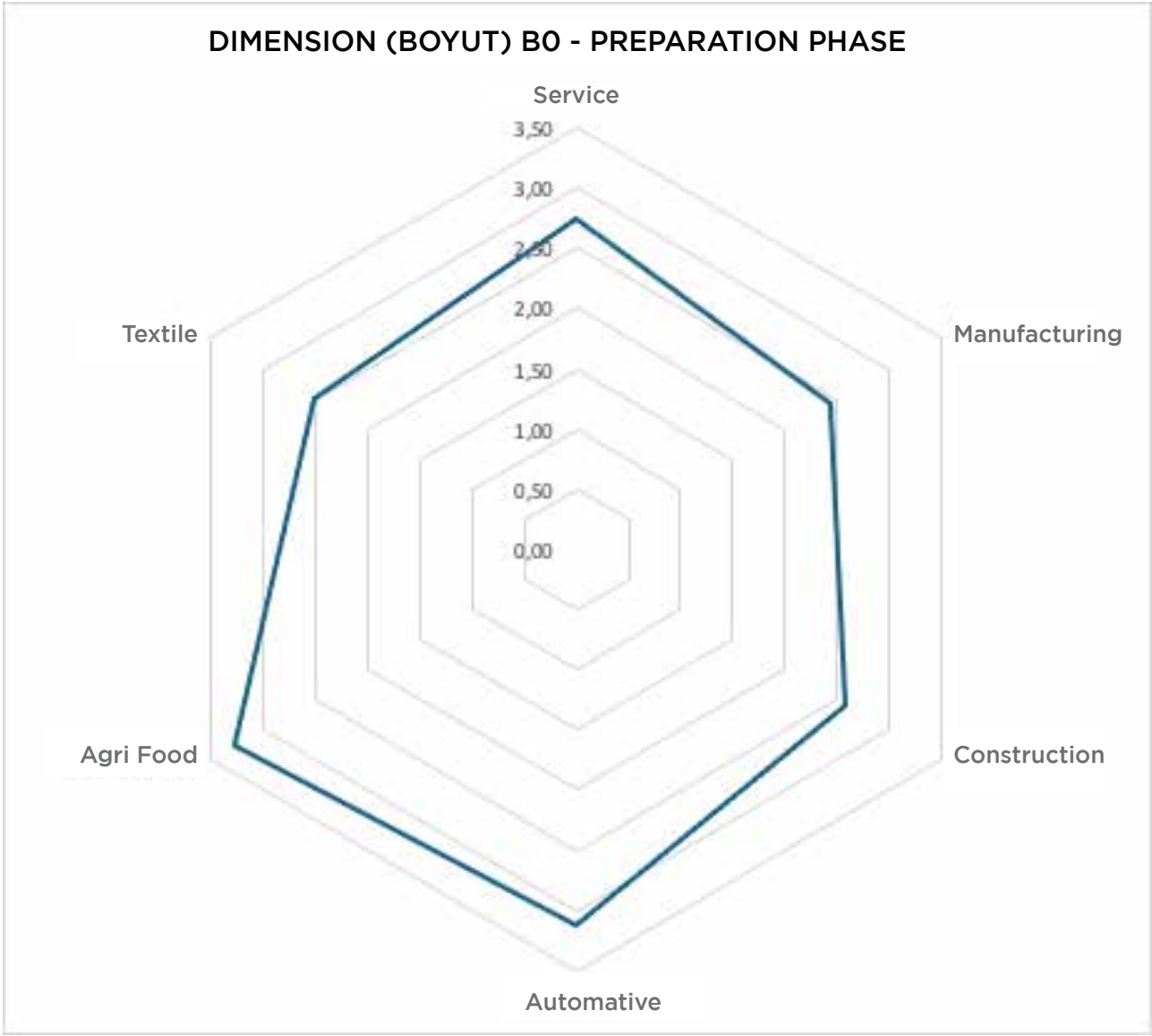


Figure 25. B0- Sector-specific scores for the Preparation Phase Dimension



Figure 26. Sector-specific scores for the Preparatory Phase Dimension.

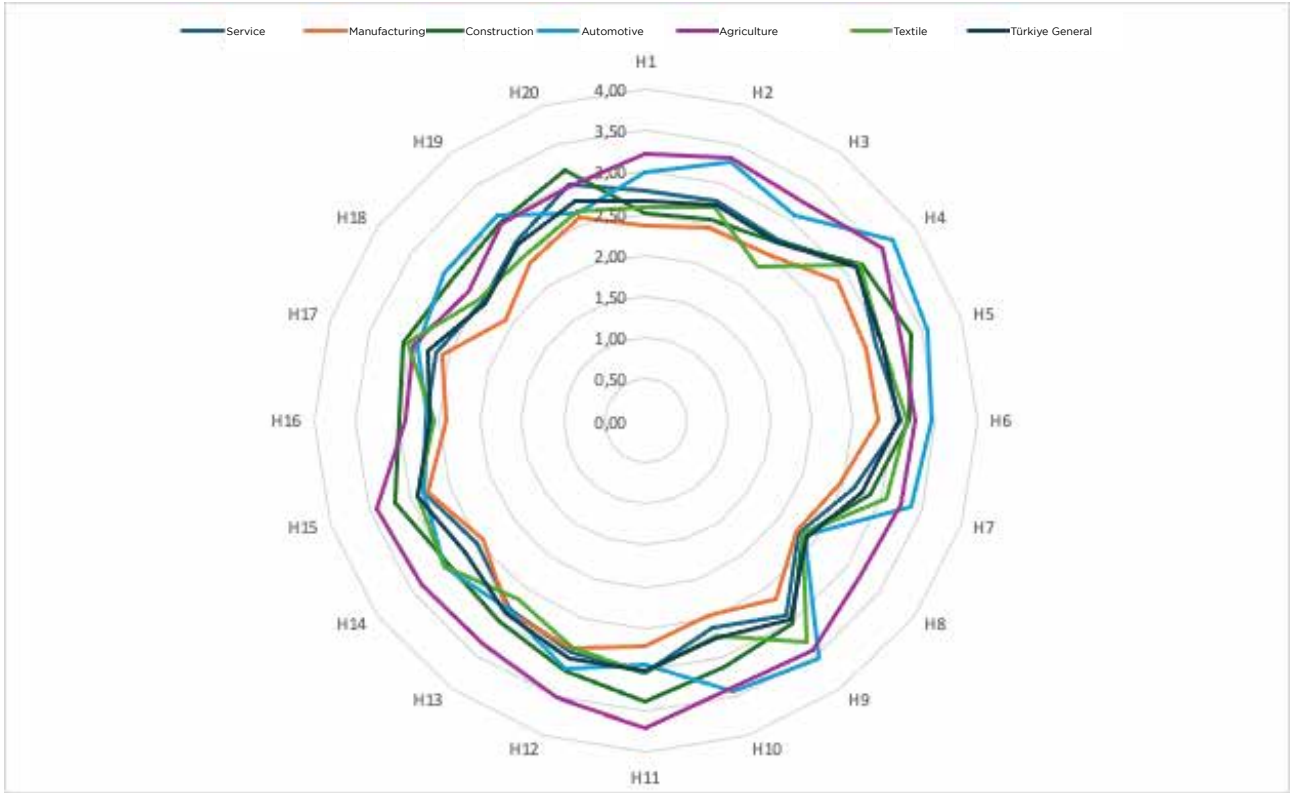


Figure 27. Sectors and Dimensions. As can be seen from all targets, it is observed that in some targets the sectors are getting closer, in others they are moving away.

CORRELATION RESULTS AND EVALUATION

SIGNIFICANT CORRELATIONS AND INTER-DIMENSION ANALYSIS

As shown in the Appendix, there are very high positive correlations between the following dimensions:

- B0-B1
- B3-B4
- B4-B6

A very high positive correlation between the Preparation Phase Dimension (B0-Innovation System Preliminary Assessment, Analysis and Roadmap) and the First Dimension (B1-Innovation Strategy Infrastructure) was determined with a two-tailed statistical reliability of .001. The strategy infrastructure dimension of innovation (considering the finding that this dimension has a relatively high score) is expected to have a significant relationship with the preliminary evaluation, analysis and road map. It is expected that the strategy infrastructure will be similar when the company's readiness is low, and on the other hand, when it is high, the strategic infrastructure elements will result in a similar evaluation, especially with the determination of an innovation road map.

Other dimensions with a very high positive correlation and two-tailed statistical reliability of .001 were determined as B3-Cultural Infrastructure of Innovation and B4-Infrastructure of Innovation Projects from Idea to Implementation. B3 cultural infrastructure dimension includes basic elements such as institutional memory, knowledge sharing, development of competencies, and the existence of a positive relationship with the Project Infrastructure from Idea to Implementation can be interpreted in different ways. On the one hand, it shows that awareness of the importance of innovation is at a basic level and, in part, that this awareness is the intention at the level of starting activities from idea to implementation. On the other hand, in the absence of sufficient cultural infrastructure (the experiences of the

participating companies of the Inosuit program show that the cultural infrastructure has relatively more room for improvement than other dimensions), it shows that there is a similar area of improvement in the process from idea to implementation.

The third very high positive correlation pair of dimensions: Fourth Dimension B4- Infrastructure of Innovation Projects from Idea to Implementation and Sixth Dimension B6- Innovation Financing and Evaluation. The fourth dimension is basically a situation that includes practical outputs and is naturally expected to be compatible with the evaluation target. This finding indicates that it has an important relationship with the monitoring, evaluation and revision of the development in the corporate innovation system, which is the main goal of the sixth dimension, and the improvement of the transformation of innovation from idea to practice. On the other hand, the score of the sixth dimension in the company experiences and Impact Analysis Reports participating in the Inosuit program is relatively low, and it would be useful to analyze the relationship between the Fourth and Sixth Dimensions explained above with a larger sample through directional hypothesis tests.

Another important finding that stands out in the correlation analysis between the dimensions is the emergence of a strong link between the Dimension #5, Open Innovation and Collaborations, and the Dimension #6, Innovation Financing and Evaluation. This dimension, which emerged as one of the improvement areas in the Inosuit Impact Analysis reports, differs from other dimensions in this study in that it has a significant connection with the Financing and Evaluation dimension. Actionable recommendations

Tablo 24. Correlations of Dimensions with Kendall's tau-b scale

| | | | B0 | B1 | B2 | B3 | B4 | B5 | B6 |
|-----------------|----|----------------------|---------------|---------------|---------------|---------------|--------|---------------|-----|
| Kendall's tau_b | B0 | Korelasyon Katsayısı | -- | | | | | | |
| | | Sig. (2-tailed) | | | | | | | |
| | | N | 105 | | | | | | |
| | B1 | Korelasyon Katsayısı | .862** | -- | | | | | |
| | | Sig. (2-tailed) | 0,000 | | | | | | |
| | | N | 105 | 105 | | | | | |
| | B2 | Korelasyon Katsayısı | .645** | .681** | -- | | | | |
| | | Sig. (2-tailed) | 0,000 | 0,000 | | | | | |
| | | N | 105 | 105 | 105 | | | | |
| | B3 | Korelasyon Katsayısı | .567** | .629** | .687** | -- | | | |
| | | Sig. (2-tailed) | 0,000 | 0,000 | 0,000 | | | | |
| | | N | 105 | 105 | 105 | 105 | | | |
| | B4 | Korelasyon Katsayısı | .585** | .655** | .678** | .749** | -- | | |
| | | Sig. (2-tailed) | 0,000 | 0,000 | 0,000 | 0,000 | | | |
| | | N | 105 | 105 | 105 | 105 | 105 | | |
| | B5 | Korelasyon Katsayısı | .534** | .597** | .659** | .663** | .678** | -- | |
| | | Sig. (2-tailed) | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | | |
| | | N | 105 | 105 | 105 | 105 | 105 | 105 | |
| | B6 | Korelasyon Katsayısı | .619** | .652** | .632** | .628** | .650** | .686** | -- |
| | | Sig. (2-tailed) | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | |
| | | N | 105 | 105 | 105 | 105 | 105 | 105 | 105 |

regarding this dimension are presented in the Evaluations section.

In addition to the dimensions with a very strong correlation (above .680) the strong relationship between the Culture and Governance Dimensions is also noteworthy. Essentially, using Kendall's tau-b scale, it is seen that a significant relationship emerges between other dimensions. It is an expected outcome that these relationships are high between the dimensions and is a sign of high internal outcome in the dimension

scale. In other words, some of the dimensions included in the generally measured Innovation Capacity model show very high and others show highly significant relationships. As can be seen in the Appendix tables, the contribution of these dimensions in terms of showing the explanatory power of the measurement is strikingly almost at the same level and high, showing that the validity of the measurement can be ensured by considering these dimensions together with sensitivity analysis.

Target Goal Matches That Show Strong Correlations

High positive correlations (>.700) between the dimensions, as shown in the APPENDIX tables:

- H1-H2
- H1-H3
- H2-H3

- H4-H5
- H4-H6

- H12-H15
- H15-H16
- H19-H20

Goal 1 (H1) - Evaluation of Innovation Capacity and Performance and Goal 2 (H2) - Designing the Corporate Innovation System.

It is expected that H1 and H2 have a positive high correlation, because capacity work and designing an institution-specific innovation system have a significant relationship. The relationships between these goals confirm the positive relationship with high scores in studies conducted for companies

participating in the Inosuit program. The relatively low scores of "Measurable targets have been defined at the macro level and on a unit basis to evaluate the innovation performance of the company" used in the measurement of Goal 1 and "Necessary improvements are planned and implemented according to the results of the evaluation in question" within the scope of Goal 2 indicate that these targets have room for improvement.

- Goal 1 (H1) - Innovation Capacity and Evaluation of Performance and **Goal 3 (H3) Corporate Innovation System Action Plan.**
- Goal 2 (H2) - Design of the Corporate Innovation System and Goal 3 (H3) Corporate Innovation System Action Plan Similarly, it is expected that the correlation between Goal 2 and Goal 3 will be positive and high. Because, as a natural consequence of the goal of designing a corporate innovation system (KIS), the preparation of an action plan and the design of company specific plan shows

a logical natural flow. The H2-H3 correlation results are similar to the H1-H3 results. Both correlations mentioned above (H1-H3 and H2-H3) showed a positive relationship with high scores in the Impact Analysis studies conducted for companies participating in the Inosuit program.

- H4 - H5
- H4 - H6

H4: Determining the company's innovation strategies and H5: Determining the company's technology road map and future needs. Goal 4 was measured with eight sub-elements and H5 with five sub-elements, and both scores aim to have a logical relationship, with the first aiming to determine the strategic direction and the other to determine what needs to be done to achieve it with the technological road map.

H4: Determining the company's innovation strategies and H6: Creating and prioritizing the innovation project portfolio based on the company's current and future needs.

The relationship between H4 and H6 answers the question of how to achieve the strategic goal by creating a portfolio, with a very similar relationship. Based on this, a similar relationship can be expected between H5 and H6. Essentially, as can be seen in the Supplementary Tables showing the correlation values between the targets, the H5-H4 correlation shows the existence of a positive relationship with .688**, even though it is not as high as H4-H5 (.708**) and **H4-H6 (.760**)**. **Based on this, it can be deduced that a triple logical relationship is possible between H4-H5-H6.**

- H19 - H20

H19: Establishing the innovation budget, ensuring the use of internal and external financial resources, and H20: Monitoring, evaluating and revising the development of the corporate innovation system. Three sub-elements were used for the measurement of H19 and two sub-elements are avail-

able for H20. When the companies participating in the Inosuit program are included, impact analysis studies indicate that these two objectives are open areas that need to be improved, and it is expected that the sub-element "International financing and support opportunities for innovation are effectively utilized" will receive low scores, and also as expected, developing innovation management system is the relevant approach.

The following target matches, which were not identified in the Türkiye Innovation Map study but flagged out during impact analysis study for Inosuit program are noteworthy.

Inosuit Goal 15 (H15) - Designing Open Innovation Processes and External Stakeholder Collaborations and Goal 16 (H16) - Utilizing Innovation External Financing Resources

Goal 16 (H16) - Utilizing Innovation External Financing Resources and **Goal 19 - (H19) Designing R&D Projects Based on University-Industry Collaboration**

As stated in the Inosuit impact analysis reports, the targets in all three correlations (H15, H16, H19) basically show how outward-looking the company's innovation system is. The values of the companies included in the Inosuit program are considerably higher than the companies participating in TİH, and it can be predicted that the existence of this relationship will become more prominent at a certain maturity level. In particular, considering the fact that the open innovation target is known to be an area of improvement, a workshop will be organized on this subject during the 2023 Türkiye Innovation Week and a discussion ground will be created on the subject an area of improvement.

GENERAL EVALUATION AND ACTIONABLE RECOMMENDATIONS

In the study, Corporate Innovation System and Network Analysis Tool (CISNAT) was used to evaluate the innovation competencies and capacities of companies. The Corporate Innovation System is consisting of Preparation and 6 dimensions, (B0 ... B6) and includes 20 targets. The model has also been validated statistically.

KMO and Bartlett tests were also performed for the results. The accuracy of the model has been proven by showing that the test value for the 20 targets used in the Corporate Innovation System Model, the 6 Basic dimensions to which these targets are associated, and the Preparatory Stage dimension is 0.942. This is a very high value. The Impact Analysis study conducted specifically for the companies participating in the InoSuit Program (0.748 for the Impact Analysis Report 2016-2019 and 0.748 for the 2019-2022 report) also showed similar results, and the reliability of the model was confirmed.

In addition to the distribution of the number of White Collar and Blue-Collar employees, which are among the characteristics of the participating companies, a correlation analysis was conducted between these two distributions and a strong correlation was found (0.625**). Therefore, it can be concluded that; the participating companies are not focused on low value-added production (predominantly blue collar), but rather medium and high added value production. The correlation between the num-

ber of innovation projects and innovation sales was relatively low (.317) and was not significant. However, these two attributes are expected to have a significant relationship with each other. The most prominent reason for this is that tracking innovation sale rate data by the companies is a development area. **A similar result emerged in the InoSuit Program impact analysis studies, and information sharing efforts are being carried out to raise awareness on this topic. It would be beneficial to further expand information sharing regarding tracking companies' innovation sales rate data.**

Despite the high exports figures, the number of Patents and Trademarks of the companies were low. The correlation between the number of brands and innovation capacity was found to be particularly low. One reason for this is that, although products are medium and high value-added, these exports are mainly made through OEM contracts. The correlation of the number of Patents and Trademarks with the Open Innovation dimension (B5) was found to be higher than the others.

It is important to raise awareness about brand and especially patent management to further increase the value added in exports.

The overall evaluation score, which is the average of all dimensions, was found to be 2.76 / 5.00. This score corresponds to between "Partially Started" and "Started". It can be concluded that the country average

for corporate innovation system is still at the beginning level.

Compared to other dimensions, the Open Innovation dimension shows a relatively higher correlation with the number of Innovation Projects. This result confirms that Open Innovation competence has a significant impact on the company's innovation results. **For this reason, it becomes important to carry out activities that will create the Open Innovation ecosystem with the stakeholders.**

Although studies on innovation have begun in companies, the systematic approach to innovation management is seen as an area open to significant improvement. **Programs aiming to widespread the Corporate Innovation System and innovation management are important for improving the systematic approach. InoSuit Program, an Innovation-Focused Mentoring program, can be given as an example of these programs.**

The results on innovation organization showed that the averages and medians of the questions related to R&D are relatively higher compared to the innovation questions.

This result is expected when compared national approaches to R&D and innovation. Programs and incentives are widely implemented to increase the number of R&D centers and develop R&D competence. On the other hand, there are no similar pro-

grams for the development of innovation management departments and innovation competencies. **Implementing programs similar to those implemented for R&D and Design Centers for Innovation Centers will be very useful in accelerating the development in this regard.**

We see once again that there is room for improvement in ensuring the participation of blue-collar personnel to innovative idea collection programs, recognitions and rewards related to these programs and in general company Innovation Management. Programs should be developed to ensure more effective blue-collar participation in innovation management.

It is important to launch an open innovation and collaboration program that organizes the open innovation and collaboration needs of companies by also addressing the concerns on open innovation.

CORRELATION RESULTS AND EVALUATION

*Statistical data and details of the results
can be shared upon request.*