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Examining and Managing Frequently Asked Questions on Technopark Websites

Teknopark Web Sitelerinde Sık Sorulan Soruların İncelenmesi ve Yönetilmesi

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ABSTRACT

Technoparks that have strategical importance on the economic development of the countries are the organizations that universities, industrial companies, and research institutions can collaborate to do research, development, and innovation activities within the same ecosystem. Technoparks have their own information systems and web portals to inform and interact with their members and entrepreneurs. Technopark website "Frequently Asked Questions" menu presents information mainly on technology transfer, facilities, and services provided by technoparks, particularly to the entrepreneurs who want to take place in this ecosystem. The aim of this research is to examine and classify the questions in the frequently asked questions menu wondered by the entrepreneurs for a better frequently asked questions menu. The content analysis method was used to analyze the frequently asked questions menu of technopark websites in this qualitative research. Descriptive statistics and thematic codes were used to classify the questions. Although the questions in the lists of the frequently asked questions menu change from technopark to technopark, the findings of the study revealed that questions related to tax, application process, applicants, and offices are the mostly used themes in the frequently asked questions menu. This study offers two approaches which are frequency- and semantic-based approaches to manage the questions in frequently asked questions menu. Technopark managements can use the findings of this study as a complementary asset for their entrepreneur ecosystem and as a guide for a better frequently asked questions menu in terms of design and content.

JEL Codes: M13, M15, L29

Keywords: Entrepreneurs, frequently asked questions, technoparks

ÖZ

Ülkelerin ekonomik kalkınmalarında stratejik öneme sahip olan teknoparklar, üniversitelerin, sanayi şirketlerinin ve araştırma kurumlarının aynı ekosistem içerisinde araştırma, geliştirme ve yenilik faaliyetlerinde bulunmak üzere iş birliği yapabildikleri kuruluşlardır. Üyelerini ve girişimcilerini bilgilendirmek ve onlarla etkileşim kurmak için teknoparkların kendi bilgi sistemleri ve web portalları vardır. Teknopark web sitesi "Sık Sorulan Sorular (SSS)" menüsü başta teknoloji transferi, kolaylıklar ve teknoparkların sunduğu hizmetler olmak üzere özellikle bu ekosistemde yer almak isteyen girişimcilere bilgileri sunmaktadır. Bu araştırmanın amacı, daha iyi bir SSS menüsü için girişimcilerin merak ettiği SSS menülerindeki soruları incelemek ve sınıflandırmaktır. Bu nitel araştırmada teknopark web sitelerinin SSS menülerini analiz etmek için içerik analizi yöntemi kullanılmıştır. Soruları sınıflandırmak için tanımlayıcı istatistikler ve tematik kodlar kullanılmıştır. SSS listelerindeki sorular teknoparktan teknoparka değişse de çalışmanın bulguları SSS menülerinde vergi, başvuru süreci, başvuran ve ofislere ilişkin soruların en çok kullanılan temalar olduğunu ortaya koymuştur. Bu çalışma, SSS menülerindeki soruları yönetmek için frekans ve semantik temelli yaklaşımlar olmak üzere iki yaklaşım sunmaktadır. Teknopark yönetimleri, bu çalışmanın bulgularını kendi girişimci ekosistemleri için tamamlayıcı bir değer ve tasarım ve içerik açısından daha iyi bir SSS menüsü için bir rehber olarak kullanabilirler.

JEL Codes: M13, M15, L29

Anahtar Kelimeler: Teknoparklar, sık sorulan sorular, girişimciler

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Introduction

Recent technological developments motivate and sometimes force organizations to collaborate with each other. Organizations benefit from this collaboration to increase their economic values, facilitate their digital transactions, increase overall satisfaction for their stakeholders, make better decisions, create competitive advantage, transfer technology, and survive against any change such as technology, climate, water, food resources, and so on. Technoparks are organizations that can increase the level of interaction between stakeholders. Universities, industrial companies, research institutions, and entrepreneurs can collaborate to do research, development and innovation activities and meet other colleagues to design and produce new services and products within the same ecosystem.

Entrepreneurs who have limited budgets may implement their projects together with angel investors or governmental institutions. They can benefit not only from financial support and tax exemption but from infrastructural facilities and consultancy as well. Technoparks may provide incubation centers, offices, and technical promotional and marketing consultancy for these kinds of entrepreneurs. In addition, technoparks have their own information systems, corporate portals, and web portals to inform and interact with their members and entrepreneurs. The websites of the technoparks can be a starting point for entrepreneurs who want to take place in the technopark ecosystem. Entrepreneurs can apply to the technoparks and their incubation centers with an information technology project via the websites of technoparks.

Websites of technoparks generally have a gateway for their existing users. For the candidate users or common visitors, websites have designs that present menus mostly giving information about technoparks, their histories, locations, projects, application processes, advantages, and frequently asked questions (FAQ). Although menus of the technopark websites may give enough information that an entrepreneur needs, an entrepreneur still may visit the FAQ menus of the technopark websites to find out the core information easily. An entrepreneur can reduce the time to reach the required information and learn about the technology transfer, facilities, and services provided by the technoparks. The FAQ menu on a website is the list of questions and answers relating to a specific topic. It basically provides fundamental information about the specific topic that a visitor searches for. Although visitors want to spend less time visiting an FAQ menu, because repeated questions may cause data redundancy and time waste, some organizations may avoid using FAQ menus. For this reason, a very well-designed FAQ menu avoids repeating the questions and answers.

The aim of this research is to examine and classify the questions in the FAQ menus wondered by entrepreneurs to improve the FAQ menus. Twenty-eight of 81 active technoparks in Turkey have FAQ menus on their websites. These menus were analyzed with the content analysis method. Basic descriptive statistics and thematic codes are used to classify the questions. The questions are classified into 16 categories and sorted in descending order according to the usage frequencies by different technopark websites. Although the list of FAQ changes from technopark to technopark, the findings of the study revealed that questions related to tax, application process, applicants, and offices are the mostly used themes in the FAQ menus. These questions can be presented in a frequency-based structure or a categorized structure based on the semantic of the content as an alternative way. Seven titles were determined for the categorical structure that was prepared according to the semantic relations between the questions in FAQ menus.

As it is depicted in the research part of this study, the majority of the technoparks in Turkey do not have an FAQ menu on their websites. Technopark website is a portal/platform where technoparks may interact with their members. The FAQ menu used by the technoparks is a module that facilitates this interaction from many perspectives.

Satisfying the information requirements of the members of a technopark and creating value for the technopark can be partially achieved by FAQ menus. Designing a better FAQ menu especially will increase the intimacy of the technopark website visitors and the website designers. FAQ menus may contribute to the competition between different technoparks. Beside technoparks that have FAQ menu, the technoparks use FAQ menu in an efficient way may gain the competitive advantage against to the competitors.

Technopark management can benefit from the FAQ menus for some other purposes such as chatbot implementation. The technoparks that intend to develop a chatbot application for the visitors can use the FAQ as a data source. It implies expertise in preparing the questions and answers that perfectly match the questions. In order to motivate the technoparks to use the FAQ menu and to offer a better FAQ menu, the existing situation on technoparks should be analyzed in terms of FAQ menus.

The structure of the paper is given in the following format. The literature review about technoparks and FAQ menus and the problem definition are given in the background section. The study methods to collect and analyze the data and the findings are mentioned in the research part. Finally, the conclusions section is presented.

Methods

The era of technoparks initially starts with some economic purposes such as supporting economic growth, boosting insufficient industrial production, creating employment, and increasing the competitive advantage. The development of technoparks can be traced back to the 1950s. Silicon Valley-Stanford Research Park from the United States is among the first examples. In the 1970s, the development of technoparks gained momentum in the USA, some European countries, and Japan. Today, there are over 1000 technoparks around the world (Middle East Technical University (METU) Technocity, 2022).

In Turkey, technology centers (known as TEKMER) were established in the 1990s with the cooperation activities of the Small and Medium Enterprises Development Organization (KOSGEB) and universities. The first technoparks of Turkey are the METU Technopark Technology Development Zone (in the city of Ankara) and the TUBITAK Marmara Research Centre Technopark (in the city of Kocaeli), which were established in 2001. By November 2022, there are a total of 96 technoparks in Turkey, 81 of which are actively operating and 15 of which are continuing their infrastructure works (Turkish Republic Industry and Technology Ministry, 2022). The most crowded cities Istanbul, Ankara, and İzmir have the highest number of technoparks. There are 14, 11, and 4 technoparks in these cities, respectively.

According to 2022 data, there are 8528 companies operating in technology development zones in Turkey. A total of 353 of these companies are foreign companies or companies with foreign partners. The number of incubation companies is 2137, and the number of companies with academic partnerships is 1781. The sectoral distribution of the companies is gathered under 16 fields of activity. The first three places in the distribution are computer programming activities with 48.08%, research and experimental development activities related to natural sciences and engineering with 6.08%, and research and experimental development activities related to biotechnology with 3.47% (Turkish Republic Industry and Technology Ministry, 2022).

There are many studies conducted on technoparks. In some of these studies, the history, development, functioning, and features of technoparks are discussed (e.g., Durão et al, 2005; Hommen et al, 2006). There are also studies comparing technopark systems with each other. (i.e., Albahari et al, 2013). Henriques et al, (2018) analyzed 56 articles about technoparks published between the 1980s and September 2016 and revealed important findings about the literature. Most of these studies concentrate on Europe and Asia and reflect the mature and emerging economies. Studies of non-mature/emerging economies are very limited. The most common focus of the studies is to examine the performance/operation/impact of the technoparks. The common effect of technoparks is the contribution to the region and companies. The most common positive effect on tenant companies is to provide interaction with universities.

When the studies conducted in recent years are analyzed, researchers of different fields such as communication, urbanism, architecture, and information management have examined and discussed the issue from different perspectives (e.g., Aydoğan, 2021; Demir & Bekleyen, 2021; Gezici et al, 2021; Yang et al, 2022). The subjects of the studies are also quite diverse. Technoparks' effects on regional innovation (Gezici et al, 2021), employment growth of technoparks (Link & Yeong Yang, 2018), collaboration and networking of companies (Ruokolainen & Igel, 2022), the criteria considered in the technopark selection process by companies (Durak et al., 2021; characteristics of technoparks on tenants' performance (Albahari et al, 2018) are some examples of the recent studies.

There is limited or even no study in the literature analyzing particularly the FAQ menus of technopark websites. However, there are some studies examining features such as virtual reality and social media. Durão et al, (2005) discussed the services that can be provided through a new web-based approach by the largest Technology and Science Park in Portugal called Taguspark. Aydoğan (2021) examines the social media activities of technoparks in the coronavirus disease 2019 period from a communication perspective. Aydoğan analyzed the social media accounts of 70 technoparks from Turkey and revealed that they are using their accounts for disseminating information but not for utilizing dialogic communication. Technoparks offer a very suitable sample for some research due to their organizational structure, features, services, and stakeholders. Technoparks may provide the research sample for the studies investigating issues such as information culture and innovation. For example, the study sample of Çakırel and Pınar (2021) involved 342 employees of technoparks in Istanbul. This study revealed that knowledge culture has a significant effect on organizational innovativeness.

The FAQ menus can be good data resources for designing and developing chatbot applications. As an example, Lee et al. (2019) developed a chatbot for FAQ in a college and deployed it to students and department offices. Han and Lee (2022) train a natural language processing–based chatbot utilizing content from an FAQ webpage and deploy it in two journalism massive open online courses. Mass et al. (2020) focus on the task of FAQ retrieval. Liang et al. (2006) introduce the design and implementation of an FAQ automatic return system based on semantic similarity computation, including computation model choosing, FAQ characters analyzing, FAQ data formal expressing, feature vector indexing, weight computing, and so on. Jijkoun and Rijke (2005) address the task of answering natural language questions by using a large number of FAQ pages available on the web. Their overall conclusion is that FAQ pages on the web provide an excellent resource for addressing real users' information needs in a highly focused manner.

The concept of entrepreneurship dates back to the 18th century and there are many different definitions of entrepreneurship that depend on the different environments, fields, and disciplines. Although many different definitions of entrepreneurship have been made, Morris (1998, p. 14) identified seven basic perspectives of the nature of entrepreneurship in order to define entrepreneurship. These perspectives are the creation of wealth, enterprise, innovation, change, employment, value, and growth. Baporikar (2015) distinguishes technology entrepreneurship from other entrepreneurship types as the collaborative experimentation and production of new products, assets, and their attributes, which are intricately related to the advances in scientific and technological knowledge and the firm's asset ownership rights. The core of the concept of technology entrepreneurship is the idea of producing technology-based solutions to problems (Majdouline et al, 2022). Steininger (2019) suggests that IT plays four major roles in entrepreneurial operations: as a facilitator, making the operations of start-ups easier; as a mediator for new ventures' operations; as an outcome of entrepreneurial operations; and as a ubiquity, becoming the business model itself. Web technologies and FAQ menus used by technoparks can be the facilitators for entrepreneurial operations such as information and knowledge sharing.

Website designers may use the FAQ menus to increase the site navigation, visibility of the website, and for some search engine optimization goals. Managements in organizations may prefer FAQ menus as a complementary tool to reduce the workload of the call services and to increase the user experience and user satisfaction. The user questions should be categorized according

Table 1.
The Advantages and Disadvantages of Frequently Asked Questions Pages/Menus

Advantages	Disadvantages
Better site navigation	Complicated/informal structure
Search engine optimization	Irrelevant questions and answers
Reduce work load of customer service	Insufficient Content
Reducing visitors' phone calls	Content with promotions
Saving time for the visitors	Repetitive answers
Ease of use	No additional question chance
Building trust with visitors	Poor visitor/customer service

Table 2.
Frequently Asked Questions Menus and Questions

Technopark Code	Definition	Tax Advantage	Applicants	Application Process	Application Fee	Application Evaluation	What to do After Evaluation	Obligations, Sanctions	Responsibilities	Academics, Students	Assistance and Support	Office	Collaboration	Social Facilities	Research and Development	Foreign Employers	Total
T1	0	1	1	1	1	1	1	0	1	1	0	1	1	1	0	0	11
T2	1	1	1	1	1	1	1	0	0	0	0	1	0	1	0	0	9
T3	1	1	1	0	0	0	0	1	0	0	1	0	0	0	0	0	5
T4	0	0	0	1	1	1	0	0	0	0	1	1	0	0	0	0	5
T5	0	1	1	1	1	1	1	0	0	0	0	1	0	0	0	0	7
T6	1	1	1	1	0	0	0	0	0	1	1	0	0	0	1	0	7
T7	1	1	1	1	1	0	1	1	1	0	1	1	0	0	0	1	11
T8	0	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	12
T9	1	1	1	1	1	1	0	1	1	1	1	1	1	0	0	1	13
T10	0	1	1	0	0	0	0	1	1	1	1	1	0	1	1	0	9
T11	1	1	1	1	1	0	0	0	0	0	1	1	0	1	0	0	8
T12	0	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	12
T13	1	1	0	1	0	1	0	1	0	1	0	1	0	0	1	1	9
T14	1	1	1	1	1	1	1	0	1	1	1	0	0	0	1	0	11
T15	1	1	1	1	1	1	1	0	0	1	0	1	1	0	0	0	10
T16	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	14
T17	1	1	1	1	0	1	1	0	1	1	0	1	1	0	0	1	11
T18	1	1	1	1	1	1	1	1	1	1	0	1	0	1	0	0	12
T19	0	1	0	0	0	0	0	1	0	1	0	0	1	0	1	0	5
T20	0	1	1	1	1	1	1	1	1	1	0	1	0	1	0	0	11
T21	0	1	1	1	1	1	1	1	0	1	0	1	1	1	0	0	11
T22	0	1	1	1	1	1	1	1	1	1	0	1	1	0	1	0	12
T23	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3
T24	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	14
T25	1	1	1	1	1	1	1	1	1	0	0	1	0	1	0	0	11
T26	0	1	1	1	1	1	0	0	0	0	0	1	0	0	0	0	6
T27	0	1	1	1	1	1	1	0	0	1	0	1	0	0	0	0	8
T28	0	0	1	1	1	1	0	0	1	0	0	0	0	1	0	0	6
Total	14	26	24	24	21	21	17	15	15	17	10	22	11	13	8	5	

Table 3.
Frequently Asked Question Categories, Frequencies, and Percentages in Descending Order

No.	Question Category	f	%
1	Tax advantage	26	92.86
2	Applicants	24	85.71
3	Application process	24	85.71
4	Office	22	78.57
5	Application fee	21	75.00
6	Application evaluation	21	75.00
7	What to do after evaluation	17	60.71
8	Academics, students	17	60.71
9	Obligations, sanctions	15	53.57
10	Responsibilities	15	53.57
11	Definition	14	50.00
12	Social facilities	13	46.43
13	Collaboration	11	39.29
14	Assistance and support	10	35.71
15	Research, development	8	28.57
16	Foreign employers	5	17.86

to themes and the answers should be prepared in a clear way to match the user requirements. As classified questions are presented in a way for ease of use, the FAQ menus increase the usability of the website.

On the other side, visitors may find the FAQ menus complicated. The questions and answers may be presented in an unstructured way. There can be irrelevant and insufficient answers to the questions. The answers may include information about promotions and advertisements that can bother the visitors. Some same answers can be used for different questions. Visitors may not find a question and its answer in an FAQ menu. Overall, all these problems lead to poor visitor service.

The above explanations can be categorized taking into account the main advantages and disadvantages of using FAQ menus on a website. The fundamental advantages and disadvantages of FAQ pages/menus are presented in Table 1.

Results

Like many other developing countries, Turkey gives extra importance to technoparks and technology entrepreneurs in recent years to develop technology-based solutions. There are 81 active technoparks in 2022 and 15 technoparks will operate in the coming years (Turkish Republic Industry and Technology Ministry, 2022). The researcher visited all the technopark websites in Turkey to determine whether the technopark has an FAQ menu or not. Even though each technopark has an official website, only 28 of these technoparks have FAQ menus on their websites. That is why, the sample size of this study is determined as 28 which is 35% of the whole active technopark population in Turkey.

After determining the websites that have FAQ menus, the researcher visited them for the second time for the data collection process. Although the information about technoparks such as name, foundation year, location, and website address is known by the researcher, they are not presented in this study not to violate intellectual property rights and privacy. All the questions in FAQ menus are the main input data of this study.

There are three main steps to examine the collected data. The first step is the creation of the thematic codes that refer to the classification of questions. The second step is determining the frequencies and percentages of the questions used by the FAQ menus. The third and last step is the categorization of the related questions regardless of the frequencies but taking into account the semantic relation between the questions in FAQ menus.

To analyze the questions, a list was created that includes all questions in the FAQ menus to identify the categories of the questions. Merriam (2015) states that researchers who start to classify data and create categories will create a large number of categories and categories may change as time progresses, some categories may be removed completely and others may be added. The thematic codes were created after evaluating the content of the questions in the prepared list. This process continued until matching all the questions with a code. The similar questions were

Table 4.
Technoparks and Question Frequencies in Descending Order

Order	Technopark Code	f	%	Order	Technopark Code	f	%
1	T16	14	87.50	15	T15	10	62.50
2	T24	14	87.50	16	T2	9	56.25
3	T9	13	81.25	17	T10	9	56.25
4	T8	12	75.00	18	T13	9	56.25
5	T12	12	75.00	19	T11	8	50.00
6	T18	12	75.00	20	T27	8	50.00
7	T22	12	75.00	21	T5	7	43.75
8	T1	11	68.75	22	T6	7	43.75
9	T7	11	68.75	23	T26	6	37.50
10	T14	11	68.75	24	T28	6	37.50
11	T17	11	68.75	25	T3	5	31.25
12	T20	11	68.75	26	T4	5	31.25
13	T21	11	68.75	27	T19	5	31.25
14	T25	11	68.75	28	T23	3	18.75

Table 5.
Frequently Asked Questions Menu, Titles, and Topics

No	Title	Topics
1	Definitions	Technopark, incubation, technopark entrepreneur
2	What to know	Obligations, responsibilities, sanctions, R&D projects
3	Application	Applicant, process, fee, evaluation, what to do
4	Tax	Advantages, customs, products
5	Office	Size, rent, repair, contract
6	Employment	Academics, student (master and doctorate), foreigners, collaboration
7	Facilities	Meeting halls, laboratories assistance and support, marketing

classified under the same thematic code. Finally, 16 categories that refer to the questions were determined to compare them with the questions in FAQ menus. These 16 categories are presented in Table 2 regardless of rank but presenting the details for each technopark FAQ menu.

The websites that have FAQ menus were visited for the third time to identify the frequencies and the percentages. As shown in Table 2, a 28 × 16 binary matrix was constructed to control if these 16 questions or some of them were used in each FAQ menu. The cell of a matrix has the value "1" if a question is used by an FAQ menu and "0" if not. The first column of the matrix includes the technopark code from T1 to T28 and the columns show the 16 question categories. The vertical frequency totals explain how many FAQ menus use each question category. The question about "tax advantage" is the mostly used question by 26 of the FAQ menus whereas the question about "foreign employers" is used by only 5 of the FAQ menus. The horizontal frequency totals explain how many questions were used by a technopark website FAQ menu. Technopark with the code T23 has only 3 questions in its FAQ menu whereas technoparks with the codes T16 and T24 have 15 questions in their FAQ menus.

Tables 3 and 4 were constructed based on the data presented in Table 2. The frequencies and percentage of the questions used by the technopark websites are presented in descending order in Table 3. Table 4 shows technopark codes with the number of thematic questions used by each technopark FAQ menu.

Table 3 shows the question categories, number of the FAQ menus using that question category (frequencies (f)), and percentages (%) in descending order. The mostly used question in FAQ menus is about the tax advantage of the technoparks. As high as 92.86% of FAQ includes a question like "What are the tax advantages of technopark?"

This finding shows that entrepreneurs mainly wonder about the economic advantages that are provided by the government to manage their financial issues. The second mostly used question is about the applicants (85.71%). Basically, FAQ menus include a question like "Who can apply to this technopark?" The question "How can we apply to the technopark?" is the third mostly used question (85.71%). The questions about office rent, office size, etc. are classified under "office" (78.57%) category which has a slightly higher percentage than the percentages of the questions regarding the "application fee" (75.00%) and the "application evaluation" (75.00%).

Table 4 shows technopark codes and how many thematic questions (frequencies (f) and percentages (%)) each technopark FAQ menu includes. The horizontal frequency totals explain the number of the questions used by each FAQ menu. The frequencies are shown and discussed in Table 4. As seen in Table 4, the upper and lower boundaries of the range of the number of thematic questions are 14 and 3. It means the technopark with the code T16 uses 14 of 16 and the technopark with the code T23 uses 3 of 16 thematic questions in their FAQ menus. The average number of questions used in FAQ menus is 9.39. It means 15 of 28 technoparks present at least 10 thematic questions which are over the average in their FAQ menus. Additionally, 20 of 28 technoparks present at least 50% of the thematic questions in their FAQ menus.

By taking into account the advantages of FAQ menus, technoparks can be motivated to use the FAQ menus. In addition, the disadvantages of using FAQ menus can be reduced or eliminated by designing a better FAQ menu. There are some standard questions such as "What is the tax advantage provided by the technoparks?" that the answers do not change from technopark to technopark. There also are some questions like "What an entrepreneur should do for the application process?" that the answer can change from technopark to technopark. That is why, semantic categorization has importance especially to design and manage the content of the FAQ menus. Thus, technoparks can prepare question lists that present the core objectives of the technoparks.

The semantic categorization regardless of the frequencies was created and presented in Table 5 as well. In the coding phase, open, axial, and selective coding, which is mentioned by Corbin and Strauss (1990) and used in embedded theory studies, was used. In this direction, first of all, the data are analytically coded into codes. Then, the network of relationships between categories and subcategories was determined to reduce the number of questions into a new representation.

Although the frequency table of the thematic questions gives an idea to design the FAQ menus, it is obviously seen that there are still some questions that can be categorized under the same category for an alternative FAQ menu design. As an example, even though technoparks use a question like "What is a technopark?" some FAQ menus use some sub-questions like "What is an incubation?" or "Who is a techno entrepreneur?" That is why, 16 thematic questions and other related questions are classified into 7 categories as seen in Table 5. Instead of taking into account the frequencies of questions used in FAQ menus, the semantic relations were taken into account. The FAQ menu designers may prefer a categorical representation where the questions can be classified under the following titles.

The "definition" title includes questions about definitions and descriptions of technopark, incubation, and technopark entrepreneurs. The entrepreneurs should know the obligations, responsibilities, sanctions, and R&D projects which are classified under the "What to know" title. The third title is the "application" that uses a list of questions about the applicant, process, fee, evaluation, and what to do for the application. "Tax" title uses questions about advantages, customs, and products. Entrepreneurs want to learn the properties of the offices they may use at technoparks and even they sometimes worry if their buildings should be in technopark areas or not. "Office" title uses questions about

size, rent, repair, and contract. Technoparks are the areas where different companies and academics can collaborate. That is why, the "employment" title provides questions about academics, students (master and doctorate), foreigners, and collaboration. The last title is "facilities" and includes questions about meeting halls, laboratories, assistance and support, and marketing topics.

Conclusion and Recommendations

Technoparks seem to play a critical role in the future-proof technological world as they are the ecosystems for universities, industrial companies, research institutions, and entrepreneurs. The majority of the technoparks in Turkey do not have FAQ menus on their websites. This does not mean that technoparks do not need the FAQ menus. Better-designed FAQ menus can increase the quality of the websites of technoparks and the overall service quality of the technopark. Technopark managements and website developers should concentrate on the advantages and disadvantages of the FAQ menus. Website designers can present the FAQ menu in a consistent and usable way according to the clickstream behaviors and requirements of the entrepreneurs using the technopark website. Technopark management may prepare the content of the FAQ menu where questions and answers match each other and avoid unnecessary explanations.

The FAQ menus of the websites of technoparks should present the required information to the users according to their needs. This study examines 28 technopark website FAQ menus and presents two approaches for a better FAQ menu. The first approach uses the frequencies of the questions and the second approach uses the semantic relations of the questions.

The first approach has a structure where the FAQ can be presented in a sorted way in descending order. The FAQ list starts with questions about tax, applicants, application process, office, application fee, and application evaluations. As high as 75% or more of the FAQ menus include these questions. Then, the FAQ list extends to cover all the questions used by the technoparks. The second approach has a design structure where the FAQ can be presented in a semantic categorization. In this approach, the FAQ menu is classified into seven titles which are definitions, what to know, application, tax, office, employment, and facilities. Technopark managers and website designers can use the results of this study as a complementary asset for their technopark ecosystem. Recommended approaches can be used as optional guides for the FAQ menus on websites of technoparks. Both approaches provide the flexibility to easily manage the FAQ menus regarding technoparks.

From managerial perspective, using FAQ menu can reduce the workload of the customer service department and builds trust with the visitors such as entrepreneurs to increase the reputation of the technopark. From a technical perspective, web designers can simplify site navigation and support search engine optimization by using the FAQ menu. Beyond that, FAQ menu can be a good resource for chatbot applications to reply the visitor questions. The findings of this study can be also used to design and develop a technopark website chatbot application. Moreover, the entrepreneurs as the end users of the technopark websites can reach the required information with minimum afford in terms of time and ease of use.

Although all the technopark websites having FAQ menus were analyzed, the sample of the study was limited to 28 because technoparks in Turkey mostly do not have FAQ menus. Do visitors really need FAQ menus or why most of the technopark websites do not have FAQ menus are the other questions that will be answered in future studies. Further research could involve the opinions of technopark managers, website developers, and entrepreneurs to determine the standards of FAQ menu structure and to prepare customized and personalized content for the users. The other communication tools such as e-bulletins, blogs, e-mailing, etc., used to inform the technopark website visitors can be analyzed as well in future studies.

Ethics Committee Approval: Since the corporate identities of the websites examined within the scope of this study were kept confidential, no ethical violations were caused and ethical approval was not required from any institution.

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Genişletilmiş Özet

Teknoparklar dönemi ilk zamanlarda ekonomik büyümeyi desteklemek, yetersiz sanayi üretimini artırmak, istihdam yaratmak ve rekabet avantajını artırmak gibi bazı ekonomik amaçlarla başlamaktadır. Teknoparklar, üniversiteler, sanayi şirketleri, araştırma kurumları ve girişimciler gibi paydaşlar arasındaki etkileşim düzeyini artırabilen kuruluşlardır. Bu paydaşlar, araştırma, geliştirme ve inovasyon faaliyetlerinde bulunmak için işbirliği yapabilir, aynı ekosistem içinde yeni hizmet ve ürünleri tasarlamak ve üretmek için diğer meslektaşları ile biraraya gelebilirler. Kasım 2022 itibarıyla Türkiye'de 81'i aktif, 15'i altyapı çalışmalarını sürdüren toplam 96 teknopark bulunmaktadır. En kalabalık iller olan İstanbul, Ankara ve İzmir en fazla teknoparka sahip illerdir. Bu illerde sırasıyla 14, 11 ve 4 teknopark bulunmaktadır.

Teknoparkların web siteleri genellikle mevcut kullanıcıları için bir ağ geçidine sahiptirler. Web siteleri, aday kullanıcı veya sıradan ziyaretçiler için çoğunlukla teknoparklar, tarihçeleri, konumları, projeleri, başvuru süreçleri, avantajları ve sık sorulan sorular hakkında bilgi veren menüler sunan tasarımlara sahiptir. Teknopark sitelerinin menüleri bir girişimcinin ihtiyacı olan bilgileri yeterince veriyor olsa da girişimci yine de teknopark sitelerinin Sık Sorulan Sorular (SSS) menülerini ziyaret ederek temel bilgilere kolaylıkla ulaşabilir. Girişimci, ihtiyaç duyulan bilgilere ulaşmak için gereken süreyi azaltabilir ve teknoloji transferi, teknoparkların sunduğu olanaklar ve hizmetler hakkında bilgi sahibi olabilir. Bir web sitesindeki SSS menüsü, belirli bir konuyla ilgili soru ve cevapların listesidir. Esas olarak, bir ziyaretçinin aradığı belirli bir konu hakkındaki temel bilgileri sağlar. Ziyaretçiler bir SSS menüsünü ziyaret ederken daha az zaman harcamak istese de, tekrarlanan sorular veri fazlalığına ve zaman kaybına neden olabileceğinden, bazı kuruluşlar SSS menülerini kullanmaktan kaçınabilirler. Bu nedenle, çok iyi tasarlanmış bir SSS menüsü, soru ve cevapları tekrarlamaktan kaçınmalıdır.

Teknopark üyelerinin bilgi ihtiyaçlarının karşılanması ve teknopark için değer yaratılması kısmen SSS menüleri ile sağlanmaktadır. Daha iyi bir SSS menüsü tasarlamak, özellikle teknopark web sitesi ziyaretçilerinin ve web sitesi tasarımcılarının memnuniyetini artıracaktır. Bu durum, web sitelerinde SSS menüsü olmayan veya SSS menüsünü etkin bir şekilde kullanamayan teknoparklara karşı rekabet avantajı yaratacaktır.

Bu araştırmanın amacı, SSS menülerini geliştirmek için girişimcilerin merak ettiği SSS menülerindeki soruları incelemek ve sınıflandırmaktır. Bu çalışma, 28 teknopark web sitesi SSS menüsünü incelemekte ve daha iyi bir SSS menüsü için iki yaklaşım sunmaktadır. İlk yaklaşım, soruların kullanım frekanslarını ikinci yaklaşım ise soruların anlamsal ilişkilerini kullanır. Bu 28 SSS menüsü, içerik analizi yöntemiyle incelenmiştir. Soruları sınıflandırmak için temel tanımlayıcı istatistikler ve tematik kodlar kullanılmaktadır. Toplanan verileri incelemenin üç ana adımı vardır. İlk adım, soruların sınıflandırılması anlamına gelen tematik kodların oluşturulmasıdır. İkinci adım, SSS menülerinde kullanılan soruların frekans ve yüzdelerinin belirlenmesidir. Üçüncü ve son adım ise SSS menülerindeki sorular arasındaki anlamsal ilişkiyi dikkate alarak sıklıklarına bakılmaksızın ilgili soruların sınıflandırılmasıdır.

Çalışmanın sunduğu ilk yaklaşım, sık sorulan soruların azalan sıralamada sunulabildiği bir yapıya sahiptir. Sorular 16 kategoride sınıflandırılmakta ve farklı teknopark web siteleri tarafından kullanım sıklıklarına göre büyükten küçüğe sıralanmaktadır. SSS listesi vergi, başvuran, başvuru süreci, ofis, başvuru ücreti ve başvuru değerlendirmeleri ile ilgili sorularla başlar. SSS menülerinin %75'i veya daha fazlası bu soruları içerir. Sonrasında, SSS listesi teknoparkların kullandığı tüm soruları kapsayacak şekilde genişler. İkinci yaklaşım, sık sorulan soruların semantik bir kategorizasyon içinde sunulabildiği bir tasarım yapısına sahiptir. Bu yaklaşımda SSS menüsü, tanımlar, bilinmesi gerekenler, başvuru, vergi, ofis, istihdam ve olanaklar olmak üzere yedi başlıkta sınıflandırılmaktadır.

Teknopark yöneticileri ve web sitesi tasarımcıları, bu çalışmanın sonuçlarını kendi teknopark ekosistemi için tamamlayıcı bir değer olarak kullanabilirler. Önerilen yaklaşımlar, teknoparkların web sitelerindeki SSS menüleri için bir kılavuz seçeneği olarak kullanılabilirler. Her iki yaklaşım da teknoparklarla ilgili SSS menülerini kolayca yönetme esnekliği sağlar. Böylece, girişimciler gerekli bilgilere asgari çabayla ulaşabillirler. Bu çalışmanın bulguları, bir teknopark web sitesi sohbet robotu uygulamasını tasarlamak ve geliştirmek için gelecekteki çalışmalarda kullanılabilir.