İstanbul Üniversitesi İşletme Fakültesi Dergisi
Istanbul University Journal of the School of Business Administration
Cilt/Vol:41, Sayı/No:2, 2012, 227-240
ISSN: 1303-1732 – www.ifdergisi.org © 2012

Segmentation based on sources of marketing intelligence, marketing intelligence quotient and business characteristics in software industry

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Abstract

In today's competitive environment, managers desperately need information to make effective decisions. Marketing intelligence system supplies this information to marketing executives. It consists of current information on developments in marketing environment that helps managers to prepare and adjust marketing plans. This information can be obtained from many sources. In this study, it is aimed to determine whether software companies are clustered into different segments according to their marketing intelligence sources and marketing intelligence quotient and business characteristics. With this purpose, cluster analysis was applied to data that obtained from 156 respondents. Research results showed that companies in software sector are clustered in four sub-segments. Starting with the results, within these segments especially rookies, leaders and followers need to develop marketing strategies and increase their marketing intelligence quotient. Besides, it is important for all the groups in the sector to notice customers as a source of marketing intelligence.

Keywords: *Marketing Intelligence System, Marketing Intelligence Quotient, Software, Cluster Analysis*

Yazılım sektöründeki firmaların pazarlama istihbarat kaynakları, pazarlama zekaları ve işletme özelliklerine göre kümeler halinde incelenmesi

Özet

Günümüz rekabet ortamında, yöneticilerin etkin kararlar alabilmek için bilgiye ihtiyaçları vardır. Pazarlama yöneticilerinin bu bilgi ihtiyacını karşılayacak olan ise, pazarlama istihbarat sistemidir. Pazarlama istihbaratı, pazarlama planının hazırlanmasında ve düzenlenmesinde yöneticilere yardımcı olan, pazarlama çevresindeki gelişmelerle ilgili güncel bilgilerdir. Bu bilgiler, birçok kaynaktan elde edilebilmektedir. Bu çalışmada, yazılım sektöründe faaliyet gösteren işletmelerin özellikleri, kullandıkları pazarlama istihbarat kaynakları ve pazarlama zekalarına göre sektörde farklı segmentlere ayrılıp ayrılmadıklarının tespit edilmesi amaçlanmıştır. Bu amaç doğrultusunda, 156 yazılım firmasından toplanan veriler kümeleme analizi ile test edilmiştir. Analiz sonucunda sektörde yer alan işletmelerin özellikleri, pazarlama istihbarat kaynakları ve pazarlama zekalarına göre dört farklı küme oluşturdukları tespit edilmiştir. Araştırma sonuçlarına

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göre bu kümeler arasından özellikle çaylaklar, önderler ve takipçilerin pazarlama zekalarını arttırmak için çalışmalar yapmaları ve stratejiler geliştirmeleri gerekmektedir. Bunun yanısıra sektördeki bütün grupların istihbarat kaynağı olarak müşterileri fark etmelerinin önemi saptanmıştır.

Anahtar Sözcükler: *Pazarlama İstihbarat Sistemi, Pazarlama Zekası, Yazılım, Kümeleme Analizi*

1. Introduction

Due to the rapid changes in business environment, the need for information is increasing every day. To keep up with changes managers need to reach right information at right time. Decisions under uncertainty can lead companies to success only in these circumstances.

Marketing information systems which provides accurate, valid and detailed data and information related to marketing that managers can make best use of when needed is quite important for enterprises to deal with intense competition and to make wise decisions. According to Xu and Kaye [1], the majority of marketing information systems utilise mainly internal data because it is easy to obtain but research has shown that managers require mainly external information for long term decisions. Internal data usually has operational importance, whereas strategic decisions require information on market trends, competitors, economic and political fluctuations. This information fulfills the research needs of organizations. According to Maltz and Kohli [2], an organisation's competitive advantage is increasingly reliant on its ability to use market intelligence effectively.

According to Grooms [3], the overall quality of the results of a strategic decision is strictly related to the quality and the amount of information they obtain. Besides that marketing intelligence may provide many other benefits to companies. Some of these are reduced vulnerability, more time for planning, contributing to strategy development processes, helping to make projections about future and making use of opportunities.

Also, Song and Thieme [4] suggested that supplier involvement in market intelligence gathering activities are positively related to success in incremental innovations across predesign and commercialization activities. Recently, marketers have been arguing that marketing intelligence has positive effects on profitability of an organization that can not be underestimated.

Grooms [3] argue that unless ready to use information is presented to the managers, the rate of making successful decisions decreases. As the world is changing fast, managers become more vulnerable to potential threats caused by rapid developments. By tracking political caos, technological developments, financial facts, alliances and mergers in the marketplace, managers can do projections and see potential threats. The companies which follow latest trends in technology and examine consumers and competitors generally become more successful than others. Thus, it is critical for firms to survive in competitive markets today.

In the literature, there are plenty of different concepts describing what intelligence systems denotes in marketing or markets in practice. Recent research by Grooms [3] aimed to determine perceived value of marketing intelligence by managers of Fortune 500 list of the year 2001. The researcher examined if perceived value changes based on external, personel and organizational factors such as company culture and ethics. Also the research has aimed to end this ongoing confusion in the conceptualization of the subject. According to results, there was a strong relationship between company culture and perceived value of marketing intelligence. Managers perceived the information collected on such purpose as ethical though there was not a strong correlation between the perceived value of marketing intelligence and company performance.

Research made by Meunier, Hugh and Nigel [5] showed that the use of salesforce as a source of market information is relatively widespread in business-to-business organisations but that the majority of organisations do not always gather, store or disseminate this information effectively. Further, the research has suggested that organisations that do not effectively disseminate market information across functional boundaries may be ignoring a potential source of competitive advantage.

2. Marketing Intelligence Systems

As managers' need for valuable information increases, marketing intelligence systems for enterprises gradually started to gain prevalence. Companies in which only marketing research was seen enough, now make use of marketing information system that is composed of various sub-systems.

Marketing intelligence system, one of various sub-systems of marketing information systems, provides information about external environment of an organization and thus reduce the risk of decisions made under uncertainty. Marketing managers are able to achieve better results in preparing and executing the marketing plans by using information sustained from marketing intelligence. In information gathering process, information could be provided from various sources which vary from business to business. Sales people, customers, competitors, employees, competitors, the internet, trade fairs, seminars, conferences, literature and trade publications are among the important sources of intelligence.

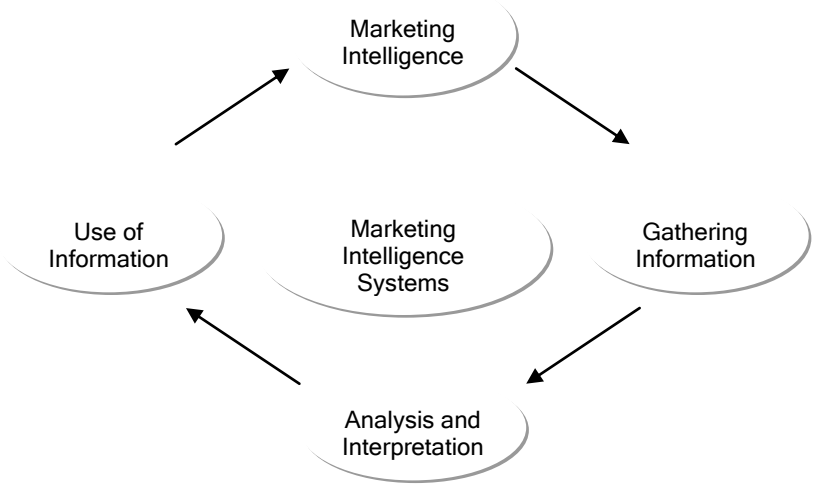

Figure 1 Marketing Intelligence Systems (Adapted from [3], pp. 85)

In this study, it is aimed to determine whether software companies are clustered into different groups according to marketing intelligence sources, marketing intelligence quotient and business characteristics. According to Kotler [6] marketing intelligence provides current information about marketing environment to help managers to organize and prepare marketing plans. Marketing intelligence system can be defined as determining what information is necessary, collecting the information by investigating the market environment and presenting them to marketing managers when needed Marketing intelligence systems is shown in Figure 1.

According to Grooms [3], the system provides a rich source of information about business environment especially consumers and competitors. The main types of intelligence systems used by enterprises are competitive intelligence, competitor

intelligence, marketing intelligence and market intelligence. From Figure 2, it can be seen the fact that these types of intelligence usually cover each other.

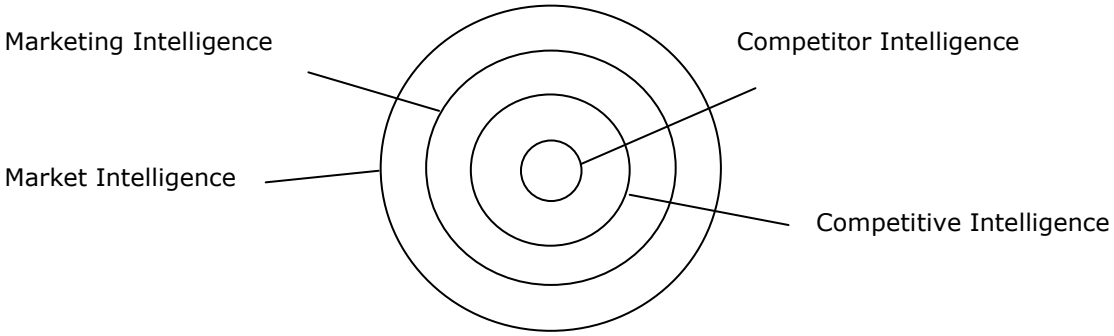

Figure 2 Types of Intelligence (Adapted from [7], pp. 160)

Considering the situation in terms of marketing intelligence which is the main subject of the research, in literature many different terms have been used instead. Marketing intelligence has been the topic of several terminologies by various authors from various fields such as marketing research, market intelligence, competitor intelligence, competitive intelligence, information management, industrial espionage and business intelligence. The cause of this confusion, as mentioned previously, is that the concepts that are thought to be interwined and they cover each other.

2.1. Marketing Intelligence Sources

In the gathering process of information, multiple sources of marketing intelligence can be helpful. The major ones are examined briefly below.

- Employees: It is estimated that between 70 and 80 per cent of the intelligence a company typically needs comes with employees who collect it while dealing with the company's suppliers, customers and other industry contacts [8].
- Internet: With every passing year, collecting data through the Internet is becoming less problematic for the companies. Information about consumers, market and macro-environmental data can be obtained easily via the Internet. The Internet is a great tool that secondary data about competitors can be obtained from.
- Printed publications: From printed publications, important information about competitors, consumers, technological developments and business environment such as political and cultural events can be obtained. These sources consist of books, newspapers, pamphlets, magazines and so on.
- Intermediaries: Distributors, retailers and other intermediaries are also useful in terms of supplying information on current developments.
- Industrial events: These events such as conferences, trade fairs, union meetings can help organizations to understand the viewpoint of rivals. Trade shows are a particularly good source of market intelligence as handouts are often available. These handouts provide valuable insights into a company's strategy and product offerings [8].
- Research Companies: Businesses are able to purchase information about sector and organizations. They may use this data to assess their own and competitors' advertising strategies, styles, media usage, advertising budgets, etc.

- Product test: It is used as a resource by receiving feedback from first users of the products.
- Customers: Existing and potential customers can provide information on their needs, concerns and issues.
- Competitors: Competitors themselves are an important source of intelligence. A variety of information can be obtained from competitors. In addition, by following competitors broadcasts, visiting and consulting the sales staff, purchasing products of competitors and doing the job interviews, needed information can be provided. Competitors 'annual reports, does not contain trade secrets, it shows with competitors' strengths and weaknesses [9].

2.2. Marketing Intelligence and Marketing Intelligence Quotient

The term "marketing intelligence" is sometimes used in place of the term "marketing intelligence quotient". However, these two concepts in fact does not mean the same thing. Marketing intelligence, as described earlier, the preparation and organization of the marketing plan that will help managers which consists of current information on the market environment. On the other hand, marketing intelligence quotient should be considered as a whole. First, managers should have the marketing intelligence quotient and need to manage their entire business within this point of view. Thus businesses which are high in marketing quotient may arise.

Because marketing intelligence is a new subject in marketing, there are not many sources in literature. Marketing Intelligence Quotient (Marketing IQ) refers to "a measure of how close enterprises are to customer-based marketing concept and to what extent they see marketing as a strong, intensive and comprehensive way of life". Marketing intelligence in brief; person, institution, company, business, country, in short, for all living things, refers to strengthening ties among its customers, eliminating distances, in order to touch them in more effective and efficient manner, to have an accurate understanding of marketing and in accordance with this understanding refers to doing things right. In terms of businesses marketing intelligence are considered as "a measure which presents how close to marketing the company is standing in the most general form, how much it tolerates and preserves as a firm and to what extent it can truly perceive marketing and other respects, and a measure that unfortunately have not yet been developed in standards" [10].

3. Research Purpose and Methodology

Software sector in Turkey has a very high growth potential. In our country, the ever-increasing internet usage, the increase in computer ownership, technology versatility and quick adoption of technology, increasing technology awareness and such factors accelerate the development of software industry [11]. The software sector, with a growth of 18% in 2008 have reached $ 1.5 billion in total market turnover and have increased its share to 5.3 in market total [12].

Narrow sense, software marketing can be evaluated as efforts to lead softwares to customers as in computer software. In a broader sense, it can be defined as "revealing the most appropriate software for other people or institutions in need of software to the requirements of the software design phase and after submission of the customer service and upgrades, including the need for the user during the editing of all the processes carried out by taking all the details [13].

According to Bajaj and Wrycza [14], the software marketing manager should make important strategic decisions to maximize revenue and profitability of the business and

should develop a software marketing strategy. In doing so, they should obtain data and information they need by marketing intelligence activities.

Businesses need knowledge of marketing to survive. Marketing intelligence sources, offers the opportunity to obtain information. For enterprises in our country, it is important to examine the sources of their marketing intelligence with marketing intelligence quotient which refers to what extent enterprises focus on marketing activities in an academic perspective. Basic purpose of the study is looking for answers to whether there are different segments in sector in terms of marketing intelligence sources, business characteristics and marketing intelligence quotient.

In our country, competitive intelligence, marketing decision support systems and related studies is seen, yet there is no study of academic in marketing intelligence. The level of marketing intelligence used by enterprises in our country which is highly important in terms of changing market and competitive conditions and explaining how marketing intelligence sources, business characteristics and marketing intelligence quotient differs in the sector is thought to be a topic worth investigating whether there are different clusters. The importance of the research comes with capturing both terms of marketing intelligence and marketing information systems which not yet examined in the literature, and also on this issue with concepts that are not addressed due to the possibility of having to produce as well as tips on sectoral sense. In addition, research on the subject will be expected to shed light on future studies.

The survey was sent to a total of 466 companies which are located in Istanbul between 22 June and 6 July 2009. These software companies have their own web pages, electronic mail addresses of some attained, some companies chose not to return, and some companies completed the questionnaire with missing statements. In this context, within the total of 195 companies which had returned and completed the questionnaire, after making necessary adjustments and controls, there were 156 questionnaire appropriate for data input and analysis. According to Wood [15], this response rate of 20% is typical of similar postal surveys within this field. This would allow a variety of statistical techniques to be used for analysis of data and for some separate analysis of the two subgroups if major differences became apparent.

Earlier research on related issues, also have small samples such as, Wood [15] had 52, Priporas, Zacharis and Gatsoris [16] had 50, Lackman, Saban and Lanasa [17] had 50, Mochtar and Arditi [18] had 91 respondents and Grooms [3] have chosen to work with a small sample of 72 respondents. As a result, good rates of return compared to similar studies were obtained from 156 questionnaires answered in available quality.

The 24 variables used in the research pertaining to marketing intelligence and related resources were measured by a likert scale. Secondary sources as well as primary sources via interviewing the managers of companies in the software industry have been used in determining the variables. The concept of marketing intelligence clearly have not been defined by the literature yet and there is not a standard scale of marketing intelligence. Thus, in the study, the scale developed by AdamsJette Marketing Research Company was taken and adapted to the software sector [19]. In this context, to assess the marketing intelligence quotient of the software companies, 10-item measure was adapted. The marketing intelligence quotient scores were calculated by the answers given to these 10 questions by respondents.

3.1. Sample Descriptions

From Table 1, we see that most of the companies have 18 employees and less. For experience in the sector, 35.9% of companies have been in the business for 5 years and less and most of them have 500.000 TL and less gross revenue per year. 51.9% of the

companies have been working in software sector only. Most of them are limited corporations and have private enterprises in their target market. Most of the respondents are owners and marketing/sales executives.

Table 1 Demographic Profiles of Respondents

Number of Employees	**n**	**%**	**Legal Status**	**n**	**%**
18 and less	94	60.3	Sole Proprietorship	26	16.7
19-36	18	11.5	Joint-Stock Corporation	56	35.9
37-54	16	10.3	Limited Corporation	74	47.4
55 and over	28	17.9	**Total**	156	100.0
Total	156	100.0			
Gross Revenue	**n**	**%**	**Target Market**	**n**	**%**
500.000 TL and less	77	49.4	Individual Consumers	2	1.3
500.001 TL - 1.000.000 TL	20	12.8	Private Enterprises	77	49.4
1.000.001 TL - 1.500.000 TL	8	5.1	Public Enterprises	4	2.6
1.500.001 TL - 2.000.000 TL	2	1.3	Individual Consumers and		
2.000.001 TL - 2.500.000 TL	8	5.1	Private Enterprises	20	12.8
2.500.001 TL and over	41	26.3	Private and Public Enterprises	25	16.0
Total	156	100.0	Individual Consumers, Private		
			and Public Enterprises	28	17.9
			Total	156	100.0
Experience in the Sector	**n**	**%**	**Respondents' Title**	**n**	**%**
5 years and less	56	35.9	Owner	53	34.0
6-10 years	46	29.5	General Manager	30	19.2
11-15 years	20	12.8	Marketing/Sales Executive	43	27.6
16 years and over	34	21.8	Other	30	19.2
Total	156	100.0	**Total**	156	100.0
Operating in Other Sectors	**n**	**%**			
Yes	75	48.1			
No	81	51.9			
Total	156	100.0			

4. Results

In the research, there are 24 statements in likert scale to determine marketing intelligence sources used by businesses. To group these variables in a meaningful way, factor analysis which refers to "an interdependence technique whose primary purpose is to define the underlying structure among the variables in the analysis" [20] is used. Factor analysis is also used to test the validity of the scale.

Before the factor analysis, the results of Barlett's sphericity test and KMO test should be checked. Sphericity test value which tests the integrity of the population value was found to be 1975.973. On the other hand, the KMO test result was 0.706. KMO value is desired to be above 50% [20]. Thus, factor analysis can be implemented based on these justifications.

Varimax rotation was applied to the scale of marketing intelligence sources. The total variance explained was found to be 70.7%. The factor loadings of the variables of marketing intelligence sources is seen in Table 2. Coefficient Alpha (Cronbach's Alpha) for the scale reliability has been computed and it was found to be 0.873 with 24 variables. Coefficient alpha obtained as the result of reliability analysis is shown in Table 3. According to this, it can be said for scale to have high reliability.

Table 2 Mean Scores and Factor Loadings of Measures of Marketing Intelligence Sources

	Factors						
	1	**2**	**3**	**4**	**5**	**6**	**7**
Hiring employees of competitors	.865						
Making job interviews with competitors' employees	.829						
Buying competitors' products	.594						
Interviewing with customers of competitors	.568						
Visiting competitors	.495						
Interviewing with sales staff		.869					
Speaking with other managers or staff in house		.744					
Speaking with solutions partner		.703					
Product testing		.630					
Participation in seminars			.894				
Attending conference			.868				
Purchasing information from research companies			.701				
Participation in trade fairs			.612				
Following competitors' from their web sites				.811			
Reading the published reports				.809			
Examining software prepared by competitors				.773			
Reading country/sector reports					.786		
Reading printed publications					.755		
Interviewing with professional associations					.575		
Following electronical journals					.490		
Talking to existing customers						.864	
Talking to potential customers						.814	
Interviewing with non-business contacts							.709
Meeting competitors' sales staff							.562
Total explained variance: 70.7%							
Cronbach alpha: 87.3%							
KMO measure of sampling adequacy =.706; Barlett's test of sphericity=1,975.973, p=.000 (df=276)							
**** p<.01***							

Accordingly 7 factors which have been obtained as a result of the analysis are as follows:

Factor 1. Resources Related to Competitors**:** Hiring employees of competitors, making job interviews with competitors 'employees, buying competitors' products, interviewing with customers of competitors, visiting competitors.

Factor 2. Business Related Internal Resources**:** Interviewing with sales staff, speaking with other managers or staff in house, speaking with solutions partner, product testing.

Factor 3. Resources Related to Sectoral activities**:** Participation in seminars, attending conferences, purchasing information from research companies, participation in trade fairs.

Factor 4. Technology Assisted Resources**:** Following competitors' from their web sites, reading the published reports, examining software prepared by competitors.

Factor 5. Industry Resources**:** Reading country/sector reports, reading printed publications, interviewing with professional associations and following electronical journals.

Factor 6. Resources Related to Customers**:** Talking to existing customers, talking to potential customers.

Factor 7. Resources Related to Non-business contacts**:** Interviewing with non-business contacts, meeting competitors' sales staff.

Cluster Analysis were applied in order to distinguish enterprises by marketing intelligence sources, marketing intelligence quotient and business characteristics into meaningful groups. Cluster analysis refers to a group of multivariate techniques whose primary purpose is to group objects based on the characteristics they possess [20]. Non-hierarchical cluster analysis was applied on business characteristics and marketing intelligence quotient based on dimensions obtained by factor analysis (resources related to competitors, business related internal resources, resources related to sectoral activities, technology assisted resources, industry resources, resources related to customers, resources related to non-business contacts). To determine the total cluster number, variations among 2 to 5 clusters were applied and detected for systematic error not to be encountered in the method. In comparing these results, the number of enterprises per cluster and significance level of differences between clusters were taken into consideration. As a result, cluster analysis of 4 was determined to be appropriate. The number of enterprises in clusters located in each cluster is shown in Table 3.

Table 3 The Number of Enterprises in Clusters

Clusters	***N***	***%***
1	76	48.7
2	26	16.7
3	25	16.0
4	29	18.6
Total	**156**	**100.0**

As can be seen in Table 3, by K-means method applied with 4 clusters, the first cluster consists of 76 (48.7%), the second cluster consists of 26 (16.7%), the third cluster consists of 25 (16%) and the fourth cluster has 29 (18.6%) enterprises located.

Average values of the four clusters based on factors (the final cluster centers) is seen in Table 4. In the table, F values and significance levels calculated for the seven factors which constitute the sources of marketing intelligence, business intelligence and marketing intelligence quotient is shown. The results of analysis of variance shows that the four clusters differ from themselves for each factor.

Table 4 Results of the Non-Hierarchical Cluster Analysis

	Clusters					
	1	**2**	**3**	**4**	**F**	**P-value**
Resources Related to Competitors	4.20	3.82	4.57	4.54	8.998	.000
Business Related Internal Resources	1.82	1.81	2.59	2.65	13.066	.000
Resources Related to Sectoral activities	3.22	2.46	3.25	3.56	9.948	.000
Technology Assisted Resources	2.70	2.10	3.35	3.21	14.085	.000
Industry Resources	2.77	2.56	3.27	3.42	11.217	.000
Resources Related to Customers	1.54	1.62	1.70	2.09	4.598	.004
Resources Related to Non-Business Contacts	3.12	3.27	3.80	3.66	7.502	.000
Number of Employees					228.173	.000
Experience in the Sector					73.661	.000
Gross Revenue (per year)					506.938	.000
Marketing Intelligence Quotient					4.086	.008
Cluster size (n)	76	26	25	29		
Percentage of respondents (%)	48.7	16.7	16.0	18.6		

When Table 4 is examined, it is obvious that the resources related to competitors are most heavily used source of intelligence. This is the most intense source for Cluster 3 and it is the least used by Cluster 2. Generally, internal resources are rarely preferred by

enterprises. This type of source of marketing intelligence is used by Cluster 4 at most with an average of 2.65. While resources related to sectoral activities is most preferred by Cluster 4, technology assisted resources is used by Cluster 3 at most. Industry resources and resources related to customers is mostly used by Cluster 4 and resources related to non-business contacts is used by Cluster 3 at most. In a healthy way to interpret the clusters, binary comparisons from the four sets can be examined in Table 5. It shows the multiple comparisons between clusters in terms of criteria variables by LSD test on whether or not significant differences appeared.

Table 5 Multiple Comparisons (LSD)

Dependent Variable	**(I) Cluster Number of Case**	**(J) Cluster Number of Case**	**Mean Difference (I-J)**	**Std. Error**	**P-value**
Resources Related to Competitors	1	2	.39002*	.14028	.006
		3	-.36259*	.14235	.012
		4	-.30427*	.13165	.022
	2	3	-.75262*	.17236	.000
		4	-.69429*	.16364	.000
	3	4	.05832	.16541	.725
Business Related Internal Resources	1	2	.00988	.17616	.955
		3	-.77243*	.17875	.000
		4	-.77114*	.16531	.000
	2	3	-.78231*	.21644	.000
		4	-.78102*	.20549	.000
	3	4	.00129	.20771	.995
Resources Related to Sectoral activities	1	2	.78170*	.17726	.000
		3	-.00676	.17987	.970
		4	-.24869	.16635	.137
	2	3	-.78846*	.21780	.000
		4	-1.03040*	.20677	.000
	3	4	-.24194	.20901	.249
Technology Assisted Resources	1	2	.57311*	.17617	.001
		3	-.67099*	.17875	.000
		4	-.56088*	.16532	.001
	2	3	-1.24410*	.21645	.000
		4	-1.13400*	.20549	.000
	3	4	.11011	.20771	.597
Industry Resources	1	2	.19231	.15338	.212
		3	-.52000*	.15564	.001
		4	-.67742*	.14394	.000
	2	3	-.71231*	.18846	.000
		4	-.86973*	.17892	.000
	3	4	-.15742	.18085	.385
Resources Related to Customers	1	2	-.06133	.15710	.697
		3	-.14595	.15941	.361
		4	-.46207*	.14743	.002
	2	3	-.08462	.19303	.662
		4	-.40074*	.18325	.030
	3	4	-.31613	.18524	.090
Resources Related to Non-Business Contacts	1	2	-.16112	.16627	.334
		3	-.69189*	.16871	.000
		4	-.53705*	.15603	.001
	2	3	-.53077*	.20429	.010
		4	-.37593	.19395	.054

	3	4	.15484	.19604	.431
Number of Employees	1	2	-2.68815*	.11681	.000
		3	-1.83892*	.11853	.000
		4	-.17698	.10962	.108
	2	3	.84923*	.14352	.000
		4	2.51117*	.13626	.000
	3	4	1.66194*	.13773	.000
Experience in the Sector	1	2	-1.97505*	.16486	.000
		3	-.15351	.16728	.360
		4	-1.83609*	.15471	.000
	2	3	1.82154*	.20255	.000
		4	.13896	.19230	.471
	3	4	-1.68258*	.19438	.000
Gross Revenue (per year)	1	2	-4.32017*	.15075	.000
		3	-4.62324*	.15297	.000
		4	-.35615*	.14147	.013
	2	3	-.30308	.18522	.104
		4	3.96402*	.17585	.000
	3	4	4.26710*	.17775	.000
Marketing Intelligence Quotient	1	2	-.08316	.11767	.481
		3	-.10162	.11940	.396
		4	-.33130*	.11043	.003
	2	3	-.01846	.14458	.899
		4	-.24814	.13726	.073
	3	4	-.22968	.13874	.100

* The mean difference is significant at the .05 level.

Because business properties measured in nominal scale, they were not included in the cluster analysis, the legal status of enterprises and their features on other sectors was tested with the chi-square analysis. As a result of the analysis, there is no significant relationship between enterprises included in different clusters and their legal status. In other words, clusters are similar in terms of their legal status. There is a significant relationship between enterprises grouped in different clusters and their features on other sectors at 0.05 significance level. Accordingly, the vast majority of enterprises in the first and fourth clusters are pursuing activities in the software industry alone, the second and third clusters also operate in sectors other than the software industry. In Table 6, the distribution of clusters in terms of enterprises operating in other sectors is shown.

Table 6 The Distribution of Clusters in Terms of Enterprises Whether or Not Operating in Other Sectors

Operating in Other Sectors	**Cluster 1**	**Cluster 2**	**Cluster 3**	**Cluster 4**	χ^2	**Sig. level**
					16.655	.001
Yes	29 (39.2%)	20 (76.9%)	16 (64.0%)	10 (32.3%)		
No	45 (60.8%)	6 (23.1%)	9 (36.0%)	21 (67.7%)		

5. Discussion, Conclusions and Further Research

According to analysis on segments created by marketing intelligence quotient, marketing intelligence resources, business characteristics of companies in the software sector are summarized in Table 7. As a result of this study, four separate segments have been identified. These four clusters, respectively, are "rookies", "leaders", "followers" and "those identified as promising".

Table 7 Characteristics of Clusters

	Clusters			
	Rookies	**Leaders**	**Followers**	**Promising**
Resources Related to Competitors	Mostly	Mostly	Always	Always
Business Related Internal Resources	Rarely	Rarely	Sometimes	Sometimes
Resources Related to Sectoral activities	Sometimes	Rarely	Sometimes	Mostly
Technology Assisted Resources	Sometimes	Rarely	Sometimes	Sometimes
Industry Resources	Sometimes	Sometimes	Sometimes	Sometimes
Resources Resources Related to Customers	Rarely	Rarely	Rarely	Rarely
Resources Related to Non-business contacts	Sometimes	Sometimes	Mostly	Mostly
Number of Employees	18 and less	55 and more	37-54	18 and less
Experience in the Sector	6-10 year	11-15 year	6-10 year	11-15 year
Gross Revenue (per year)	500.000 TL and less	2.500.000 TL and more	2.500.000 TL and more	500.001 TL - 1.000.000 TL
Operating in Other Sectors	No	Yes	Yes	No
Marketing Intelligence Quotient	Low	Low	Low	Moderate

Cluster 1 (Rookies): The first cluster includes enterprises which constitute 48.7% of the sector, with the number of employees 18 and less, 6-10 years of experience in sector, indicating gross revenue of 500.000 TL and less. These enterprises are continuing their activities only in the software industry. Looking at existing properties, businesses that stand out in this cluster are small enterprises. These enterprises also have lower marketing intelligence quotient. While using mostly resources related to competitors, they use resources related to sectoral activities, technology-assisted resources, industry resources, and sometimes resources from non-business contacts. They rarely use the internal resources of the business and customer related resources. Increasing the awareness of enterprises in their target market and increasing their budget allocations more on promotional activities at first are recommended. In general, they focus on resources related to competitors, it is recommended to consider other forms of marketing intelligence sources and to increase practices made on improving their marketing intelligence quotient.

Cluster 2 (Leaders): In the second cluster, there are enterprises that constitute 16.7% of the sector, with the number of employees 55 and more, 11-15 years in the sector, gross revenue of 2.500.000 TL and more. These businesses are also continuing their activities outside the software industry. Looking at existing properties, they are remarkably large businesses. These enterprises are lower in the marketing intelligence quotient. While using the resources related to competitors at most, industry sources and non-business contacts are sometimes used as marketing intelligence sources. Internal resources, resources related to sectoral activities, technology and customer based resources are rarely used. Compared to other clusters, in terms of frequency of use of marketing intelligence sources, enterprises in Cluster 2 are the least frequent user of resources related to customers and non-business contacts. Leaders in the market may prefer to count on their accumulation of experience due to the fact that there are in the market for a long time. Compared to other clusters, in terms of frequency of using marketing intelligence sources (excluding the resources related to customers and non-business contacts) they are the least frequent user group within others. Focusing on other kinds of resources is highly recommended. In addition, to develop marketing-oriented thinking and maintain market share, particularly their own internal resources, relevant sectoral activities, technology and customer related resources as more effective use of intelligence sources can be recommended for this group of firms.

Cluster 3 (Followers): The third cluster includes enterprises which constitute 16% of the sector, with the number of employees between 37-54, operating since 6-10 years, firms with gross revenue of 2.500.000 TL and more. These businesses are also continuing their activities outside the software industry. Looking at existing properties, they are remarkably large businesses. These enterprises are lower in the marketing intelligence quotient. They prefer to use resources related to competitors all the time, while sometimes using the resources related to non-business contacts, internal resources, sectoral activities, technology-assisted resources, industry resources, and also rarely use resources related to customers. Given the operating characteristics of followers, it can be said that they are the most competitive group of enterprises. It is recommended for them to focus on customers rather than competitors and to use other forms of intelligence more other than rivals and non-business contacts.

Cluster 4 (Those identified as promising): The fourth cluster includes enterprises which constitute 18.6% of the sector, with the number of employees 18 and less, 11-15 years in the sector, indicating turnover between 500.001 TL - 1.000.000 TL. These businesses are continuing their activities only in the software industry. Looking at existing properties, firms in this cluster stands out as partly medium-sized businesses. These enterprises are higher in the marketing intelligence quotient than others. They prefer to use resources related to competitors always, resources related to industrial activities and non-business contacts mostly, while using internal resources, technology-assisted resources, industry resources, and rarely use the customer related resources. This group make use of the sources of marketing intelligence much more intensely than others.

In this context, they are more promising than the other groups in terms of development potential. These enterprises, in particular need to focus more on the customers. In addition internal resources, technology-assisted resources and industry sources may be used more effectively. In addition, to be successful in a competitive marketplace it may be recommended to enhance their awareness.

In summary enterprises are separated into different sections in terms of frequency of using sources of intelligence, business characteristics and marketing intelligence quotient. Starting with the results, especially rookies, leaders and followers need to develop marketing strategies and to make efforts to increase their marketing quotient. Apart from this, it is important for all the groups in the sector to notice customers as a source of marketing intelligence.

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