

Perception and Resistance Levels of Management Information Systems on University Administrator and Other Staff: A Practice Selcuk University*

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ABSTRACT

In present conditions, the information and communication technology has developed and become popular rapidly. Increasing competition with globalization has been affecting the economic development of the countries. Within that period, a big change has occurred both in the organizational structure of the enterprises and also in the business methods of the enterprises. Profit-oriented and non-profit businesses' goals include issues such as reducing the costs, increasing the profitability, reducing the need for manpower, effective and rapid decision-making of the management. In order to achieve the goals related with these issues, businesses need on-time information which will guide the decisions to be taken. Production of this information is possible by the existence of the management information systems. However, use of the management information systems actively in business and outside the business accompanies many responsibilities, duties, applications and the new system. On the other hand, the individual exhibits resistance behavior such as rejecting the changes and refusing as the individual thinks that these changes will upset the accustomed order.

This study has been carried out in Selcuk University which uses the applications of management information systems actively. Perceptions and resistance levels of the university administrators and university employees against these applications are evaluated comparatively also, resistance reasons of the individuals and the relationships between them were examined. It was also examined whether this relationship is associated with the characteristics such as genders, ages, positions in the organization, education levels, working time and durations of computer use of the employees. In the last part of the study, it was determined that perception and resistance levels of the university administrators and university employees against the management information system depends on which variables and some suggestions were offered.

Keywords: Information Management, Management Information Systems, Perception, Reluctance

Üniversitelerde Çalışan Yöneticilerin ve Diğer Çalışanların Yönetim Bilişim Sistemleri Hakkındaki Algı ve Direnç Düzeyleri: Selçuk Üniversitesi Örneği

ÖZ

Bilgi ve iletişim teknolojilerinin hızla geliştiği ve yaygınlaştığı günümüz şartlarında küreselleşmeyle birlikte artan rekabet, ülkelerin ekonomik gelişmelerini önemli ölçüde etkilemektedir. Bu süreçte işletmelerin gerek organizasyon yapılarında gerekse iş yapma yöntemlerinde büyük bir değişim gerçekleşmektedir. Kâr amacı güden ya da gütmeyen işletmelerin amaçları arasında maliyetlerin düşürülmesi, kârlılık durumlarının artırılması, insan gücüne duyulan gereksinimin azaltılması, yönetimin etkin ve hızlı karar alması gibi konular yer almaktadır. İşletmeler bu konularla ilişkili hedeflerine ulaşmak için doğru, ihtiyaç duyulan zamanda gelen ve verilecek kararları yönlendirecek bilgilere ihtiyaç duymaktadır. Bu bilgilerin üretilmesi ise yönetim bilişim sistemlerinin varlığı ile mümkün olmaktadır. Ancak yönetim bilişim sistemlerinin işletme içerisinde ve dışında aktif olarak kullanılması birçok sorumluluk, görev, uygulama ve yeni sistemi de beraberinde getirmektedir. Bununla birlikte birey, yapılan değişimler karşısında alışmış olduğu düzenin bozulacağını düşünerek yapılan değişimi kabullenmeme, red etme gibi direnç davranışı gösterir.

Bu çalışma; yönetim bilişim sistemleri uygulamalarını aktif olarak kullanan Selçuk Üniversitesi'nde yapılmıştır. Üniversite yöneticilerinin ve üniversitede çalışanların bu uygulamalara karşı algı ve direnç düzeyleri birbirleriyle karşılaştırmalı olarak değerlendirilmektedir. Ayrıca bireylerin direnç nedenleriyle ilişkilerini ve bu ilişkinin çalışanların cinsiyeti, yaşı, kurum içerisindeki pozisyonu, eğitim düzeyi, çalışma süresi ve bilgisayar kullanma süresi gibi özellikleriyle bağlantılı olup olmadığı da incelenmiştir. Araştırmanın sonunda üniversite yöneticilerinin ve çalışanlarının yönetim bilişim sistemlerine karşı algı ve direnç düzeylerinin hangi değişkenlere bağlı olduğu belirlenmiş ve bazı önerilerde bulunulmuştur.

Anahtar Kelimeler: Bilgi Yönetimi, Yönetim Bilişim Sistemleri, Algı, Direnç

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Introduction

In a more global world, information is the greatest savings of institutions. The reliability, clarity and accuracy of the information and its use at the right place at the right time by supporting the opinions of decision-makers during a resolution process plays a vital role and makes institutions have better strategic resolutions.

One of the most important roles, which can affect the future, are the information management and use systems. Universities are the main data productive institutes (Günel, 2013:37-41). The importance of effective management of information systems is getting increasing nowadays. On last decade, technological developments provide efficient and sufficient solutions to the comprehensive business world problems via information system facilities (Şahin, 2014:43-56).

At this point, decision manager decisions are playing important role on organizations success. Thus, universities establish an organization infrastructure to provide efficient solutions to their business. The main objective and mission of the managers are giving right and rapid decision. The main characteristic feature of the right decision is related to the up-to-dated and right information which are coming from established systems (Gökçen, 2011:65-11).

The information required by staff during resolution process provides to achieve the objectives as it lowers the uncertainty about the resolutions to be taken. Therefore, individuals are in need of Management Information Systems (MIS) to get affordable and reliable information (Radoplu, 2006: 50).

To compete, realize the duties more fast, safely and accurately, an optimal utilization of MIS has been a necessity of today. In addition to this necessity, changes in managements also influence the position, income and similar benefits of staff and also these changes may arouse the opinion that the conventional organization of staff might be developed. And in turn, this is the reason for some kind of resistance attitudes of individuals against these changes.

1. Management Information Systems

Information Management Systems are mentioned as a most important part of the organizations that provide complete, reliable, accessible and understandable information on time to people who needs this information (Mamary et al, 2015:377-390).

Information Management Systems are in an continuous interaction with work flows of the organizations. These work flows have abilities to provide collection, process and organize information more reliable. On the other hand, managers have some advantages such as converting data to information and easy of planning the work flows (Heidarkhani et al, (2013:78-89).

Management Information Systems (MIS) collect the information employed in resolution process from junior administrative officers and format the information as required by users and then convey it to mid level officers for their use (Kozza, 2008:77). MIS is an organized obtainment of the past, current and prudential information about local and international developments. MIS provides the best and timely required information to be employed in planning, controlling and operational resolution processes of a management (Parasız, 2007: 351).

Nowadays, establishing information system has a vital importance to make and give decisions to the real problems on administrative and both students and academic/administrative staff requirements via integrating management and system theory. This can be successes by Information Management Systems usage (Çelik and Akgemci, 2010:13).

In managements, MIS generally acts in three roles as follows (O'Brien, Marakas, 2007:9);

- To support management process and operation.
- To support the decisions of administrators and staff.
- To support the strategies developed to have advantages in competition.

As a result, Information Management Systems can provide solutions with less cost and time for casual Works (Eroğlu and Külücü, 2013: 332).

2. The Elements of Management Information Systems

Each department in a management has specific requirements and needs to have qualified information systems to meet these requirements. Categorized by the field of application and the level of responsibility, these systems are employed to lower the cost, to improve the quality of the products and services and to support the decisions by better solutions (Aktan and Vural, 2005: 137).

In this context, MIS are divided into these groups:

- Transaction Processing Systems
- Management Reporting Systems
- Decision Support Systems
- Communication Support Systems
- Executive Support Systems
- Knowledge Work Systems
- Office Automation Systems

2.1. Transaction Processing Systems

It's a system that serves for the operational level of a management. Transaction processing systems (TPS) are equipped with computers saving the data of daily records to execute the operations (Özcan, 2006: 49-50). The system provides information for decision-makers about the general status and running of the system along with the information about external environment.

2.2. Management Reporting Systems

Management reporting systems (MRS) holds the data of regular and pre-defined reports (Haag et al., 1998: 52). With its regular, summarized and exceptional reports, MRS serves for planning, controlling and resolution functions (Jaiswal and Mital, 2004:12). MRS prepares reports to support the execution of operations. These reports are more about the management of resources in operation than daily reports (Karahoca and Karahoca, 1998: 28).

2.3. Decision Support Systems

In the most general sense, decision support systems (DSS) are to support the decisions of executive staff. In other words, by analyzing the data regarding the decisions to be taken, these systems serve to get more effective decisions, to determine alternatives and to support assessment functions, and thus, the systems try to minimize the failure rate in decisions to be taken (Öz and Alp, 2010:12).

DSS are computer aided information systems including hardware, software, data, mathematical and statistical models and human factors (Bidgoli, 1999: 368).

2.4. Communication Support Systems

Communication support systems (CSS) take advantage of computers to support the communication among individuals in a management. These systems are used by individuals that are interconnected with all ways of communication within a management. These systems are not simple, like all other systems, these systems operate in harmony with computers (Parker and Case, 1993:516).

2.5. Executive Support Systems

Executive support systems (ESS) aim to provide developed graphics and communication to determine executive decisions in a management. Rather than providing a significant application or any ability, these systems constitute a calculation and communication environment (Gökçen, 2005:69). ESS adapts the information provided by MRS, DSS and other resources into the information required by executives (O'Brien and Marakas, 2007:15).

2.6. Knowledge Work Systems

Knowledge work systems (KWS) are advisor programs aiming to imitate the knowledge and judgment processes of experts in a solution of a specific problem. While constituting expert systems, the systems

include definition, conceptualization, software, testing and assessment steps. The operation of these systems is to scan and analyze the data by the moment an accurate result is reached (Sevim and Öncel, 1999:56).

2.7. Office Automation Systems

Office automation systems (OAS) are applications of computer technology into the information frame function of an office. These systems collect, process, save and transfer electronic documents among individuals, working groups and managements (Tekin et al., 2003:186).

3. Change and Resistance for Management Information Systems

The term “change” is not an issue that appears suddenly and includes unknown concepts and techniques. The management of change includes the issues that are known by the executives but that also have various difficulties during application or in which the applications cannot be applied. It's not likely to achieve the desired result, and even, it may worsen the current situation. As managements grow and change issues vary, some troubles might be observed between concepts and processes. The thing to do to eliminate these burdens and lower the problems before and after a change is to accept and manage the change as a process (Page, 2005:713). The fact that institutions take right decisions on which change they need and how they are to apply the change depends on whether they accept the management of change as a strategic target (Aktan, 2003:13).

4. The Methodology of The Research and Data Collection Device

The main mass of the research is the administrators of Selçuk University, the most established university of Konya. The datum which is needed in the research were obtained with a survey on the internet. After the survey was conducted, 520 valid survey forms were obtained. These datum were analyzed with SPSS programme (Statistical Programme for Social Sciences).

The questionnaire included 2 parts. In the first part, with the aim of defining the profile of the Administrators and staff, questions about gender, age, position in the institution, level of education, professional time and time spent on computer were asked. In the second part, questions were asked in order to evaluate the perception and resistance levels of the administrators. These questions were generally evaluated under 3 main dimensions below. These are;

- The fear against puzzlement and uncertainty in a change
- The fear of failure in a change
- Being reluctant to a change

5-point Likert scale was used for all questions in the research. The answers were classified as "Strongly disagree, disagree, partially agree, agree and strongly agree" and each one was valued from 1 to 5. As the value increases, the resistance decreases.

5. The Importance of The Study

Thanks to the observed results of the study, university administrators will be able to take more rational decisions for their resolution processes with the data provided by MIS. The results will also help administrators with different abilities work in different positions in an institution with higher motivation and efficiency levels. Moreover, the study holds an important advantage as university administrators will be able to analyze the quality of their decisions by supporting with the knowledge obtained from MIS.

6. The Findings of The Study

Made of for administrators after the survey study, we had 164 valid questionnaire forms. Of the administrators, 18,9% was female and 81,1% was male. 39% of the administrators participated in the study was 35 to 44 years old. Of the rest, 1,2% was 25, 9,8% was 25 to 34, 34,8% was 45 to 54 and 15,2% was 55 and over years old. 18,3% of the participants had graduate education, 18,9% had postgraduate and 62,8% had doctorate education. Whereas 14,3% of the participants had 1-5 years of work experience, 6,7% had 6 to 10 years, 28,7% had 11 to 15 years, 17,1% had 16-20 years and 43,1% had more than 21

years of work experience. When we compared their computer use periods, 4.9% of the participants had 6 to 10 years and 95.1% had more than 10 years of IT experience.

Made of for staff after the survey study, we had 356 valid questionnaire forms. Of the staff, 26.7% was female and 73.3% was male. 48.9% of the staff participated in the study was 25 to 34 years old. Of the rest, 4.5% was 25, 15% was 35 to 44, 18.3% was 45 to 54 and 3.4% was 55 and over years old. 5.9% of the participants had high school education, 29.5% had graduate, 31.2% had postgraduate and 33.4% had doctorate education. Whereas 42.7% of the participants had 1-5 years of work experience, 16.6% had 6 to 10 years, 15.2% had 11 to 15 years, 10.4% had 16-20 years and 15.2% had more than 21 years of work experience. When we compared their computer use periods, 3.1% of the participants had 1 to 5 years, 14.9% had 6 to 10 years and 82% had more than 10 years of IT experience.

Table 1. Reliability Analysis

Scale	Cronbach's Alpha	Nr. of issues
Resistance level 1*	0,911	8
Resistance level 2**	0,914	11
Resistance level 3***	0,876	7
Total	0,957	26

* The fear against puzzlement and uncertainty in a change

** The fear of failure in a change

*** Being reluctant to a change

According to Table 1, the alpha value for reliability factor for the scale of the fear against puzzlement and uncertainty in a change is 0.911, for the scale of the fear of failure in a change is 0,914. It's 0,876 for the scale of being reluctant to a change and for all, it's 0,957. That is, each scale is observed as highly reliable.

Table 2. The statistics of administrators and staff resistance with single example

		N	Mean	Standard Deviation	Standard Error
Administrators	Resistance Factors	164	3,6071	0,71276	0,05566
Staff	Resistance	356	3,5009	0,71081	0,03767

Table 3. The test of administrators and staff resistance with single example

		t	df	Sig.(2 tailed)	Mean Difference	Confidence Interval	
						Lower	Upper
Administrators	Resistance Factors	64,810	163	0,000	3,60713	3,4972	3,7170
Staff	Resistance	92,929	355	0,000	3,50087	3,4268	3,5750

The fact that the mean resistance level of administrators for MIS applications is 3,6071 shows that the resistance level of the administrators is low. $P= 0,000 < 0,05$ means there's no significant difference in the resistance levels of the administrators for MIS applications.

The fact that the mean resistance level of staff for MIS applications is 3,5009 shows that the resistance level of the staff is low. $P= 0,000 < 0,05$ means there's no significant difference in the resistance levels of the staff for MIS applications.

Table 4. The Analysis of Gender and Resistance Factors of the administrators and staff

	Gender	Mean	N	Standard Deviation	t	Significance
Administrators	Female	31	3,5800	0,66812	-0,235	0,815
	Male	133	3,6135	0,72504		
Staff	Female	95	3,5122	0,73474	0,181	0,856
	Male	261	3,4967	0,70329		

The resistance level of Administrators male participants for MIS applications (3,5800) is lower than female participants (3,6135). According to 95% confidence level t test, the significance value is $P=0,815 < 0,05$, that is, gender doesn't play a significant role in resistance level.

The resistance level of Staff female participants for MIS applications (3,5122) is lower than male participants (3,4967). According to 95% confidence level t test, the significance value is $P=0,856 < 0,05$, that is, gender doesn't play a significant role in resistance level.

Table 5. The Analysis of Age and Resistance Factors of the administrators and staff

	Age	Mean	N	Standard Deviation	F	Significance
Administrators	25-34	16	3,7250	0,49706	1,614	0,173
	35-44	64	3,5192	0,69782		
	45-54	57	3,5372	0,83778		
	Over 55	25	3,8848	0,49531		
	Total	162	3,6071	0,71276		
Staff	Under 25	16	3,2825	0,90946	0,671	0,612
	25-34	174	3,4809	0,78662		
	35-44	89	3,5780	0,60976		
	45-54	65	3,5018	0,58964		
	Over 55	12	3,5050	0,57022		
Total	356	3,5009	0,71081			

The resistance level for MIS applications of 55 (Administrators)and over years old participants was lower than the ones in other age groups (3,8848) whereas 35 to 44 year-old administrators level was higher (3,5192).

That the significance value was $P=0,173 > 0,05$ shows in the resistance level of the administrators for MIS applications, there's no significant difference among age groups.

The resistance level for MIS applications of 35 to 44 year-old staff was lower than the ones in other age groups (3,5780) whereas 25-year-old participants' level was higher (3,2825).

That the significance value was $P=0,612 > 0,05$ shows in the resistance level of the staff for MIS applications, there's no significant difference among age groups.

Table 6. The Analysis of Education Level and Resistance Factors of the administrators and staff

	Education Level	Mean	N	Standard Deviation	F	Significance
Administrators	University	30	3,9260	0,74655	4,432	0,013
	Post Graduate	31	3,6565	0,72281		
	Doctorate	103	3,4994	0,67629		
	Total	164	3,6071	0,71276		
Staff	High School	21	3,6319	0,69259	0,796	0,497
	University	105	3,5591	0,76471		
	Post Graduate	111	3,4359	0,71381		
	Doctorate	119	3,4870	0,66188		
	Total	356	3,5009	0,71081		

The resistance level of graduate education for MIS applications of administrators (3,9260) was lower than other education levels in the study group. However, the significance value shows significant difference among resistance levels ($P=0,013 < 0,05$)

The resistance level of high school graduates of staff for MIS applications (3,6319) was lower than other education levels in the study group. However, the significance value shows no significant difference among resistance levels ($P=0,497 > 0,05$)

Table 7. The Analysis of Work Experience and Resistance Factors of the administrators and staff

	Work Experience	Mean	N	Standard Deviation	F	Significance
Administrators	1-5 years	22	3,7627	0,42813	1,685	0,156
	6-10 years	11	3,1900	0,98017		
	11-15 years	47	3,5140	0,66287		
	16-20 years	28	3,6136	0,69626		
	More than 21 years	56	3,7029	0,77087		
	Total	164	3,6071	0,71276		
Staff	1-5 years	152	3,4747	0,80004	0,315	0,868
	6-10 years	59	3,4963	0,67688		
	11-15 years	54	3,5761	0,57546		
	16-20 years	37	3,4422	0,50322		
	More than 21 years	54	3,5444	0,73756		
	Total	356	3,5009	0,71081		

The resistance level of the administrators with 1 to 5 years of work experience for MIS applications (3,7627) was lower than other participants whereas the resistance level of the participants with 6 to 10 years of work experience (3,1900) was higher than others in the study group. However, no significant difference is mentioned as the significance value was $P=0,156>0,05$.

The resistance level of the staff with 11 to 15 years of work experience for MIS applications (3,5761) was lower than other participants whereas the resistance level of the participants with 16 to 20 years of work experience (3,4422) was higher than others in the study group. However, no significant difference is mentioned as the significance value was $P=0,868>0,05$.

Table 8. The Analysis of IT Experience Period and Resistance Factors of the administrators

	IT Experience Period	Mean	N	Standard Deviation	F	Significance
Administrators	6-10 years	8	3,2500	1,01128	2,126	0,147
	More than 10 years	156	3,6254	0,69365		
	Total	164	3,6071	0,71276		
Staff	1-5 years	11	3,4891	0,55634	2,461	0,087
	6-10 years	53	3,3028	0,88283		
	More than 10 years	292	3,5373	0,67674		
	Total	356	3,5009	0,71081		

The administrators who are able to use computers for more than 10 years had lower resistance level for MIS applications (3,6254) compared to other administrators. However, it's not significant as the significance value is $P=0,147>0,05$.

The staff who are able to use computers for more than 10 years had lower resistance level for MIS applications (3,5373) compared to other participants. However, it's not significant as the significance value is $P=0,087>0,05$.

Table 9. The Correlation Analysis of the Resistance Reasons Shown by the administrators

	Resistance level 1	Resistance level 2	Resistance level 3	
Resistance level 1	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	164		
Resistance level 2	Pearson Correlation	0,870(**)	1	
	Sig. (2-tailed)	0,000		
	N	164	164	
Resistance level 3	Pearson Correlation	0,677(**)	0,718(**)	1
	Sig. (2-tailed)	0,000	0,000	
	N	164	164	164

** Correlation is significant at the 0.01 level (2-tailed).

According to the correlation analysis above, the correlation among all factors is significant and unilateral. There's a correlation in the reasons for the resistance of the participants for MIS applications.

Table 10. The Correlation Analysis of the Resistance Reasons Shown by the Staff

	Resistance level 1	Resistance level 2	Resistance level 3	
Resistance level 1	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	356		
Resistance level 2	Pearson Correlation	0,843(**)	1	
	Sig. (2-tailed)	0,000		
	N	356	356	
Resistance level 3	Pearson Correlation	0,651(**)	0,726(**)	1
	Sig. (2-tailed)	0,000	0,000	
	N	356	356	356

** Correlation is significant at the 0.01 level (2-tailed).

According to the correlation analysis above, the correlation among all factors is significant and unilateral. There's a correlation in the reasons for the resistance of the participants for MIS applications.

Table 10. Mean Resistance Values of the administrators and staff

	Resistance Level	Mean
Administrators	General resistance level	3,61
	Resistance level 1	3,83
	Resistance level 2	3,47
	Resistance level 3	3,56
Staff	General resistance level	3,50
	Resistance level 1	3,71
	Resistance level 2	3,35
	Resistance level 3	3,50

According to Table 10, the resistance level of the administrators for the fear of failure in a change is slightly higher. The resistance level related to the fear against puzzlement and uncertainty in a change is lower than other resistance levels.

According to Table 10, the resistance level of the staff for the fear of failure in a change is slightly higher. The resistance level related to the fear against puzzlement and uncertainty in a change is lower than other resistance levels.

Table 11. General Mean Resistance Values

	N	Mean	Standard Deviation
General resistance level	520	3,53	0,7125
Resistance level 1	520	3,75	0,7895
Resistance level 2	520	3,39	0,7552
Resistance level 3	520	3,52	0,7979

According to total resistance levels, the resistance level of the all participants for the fear of failure in a change is slightly higher. The resistance level related to the fear against puzzlement and uncertainty in a change is lower than other resistance levels.

7. Conclusions And Suggestions

The study, aiming to analyze perception and resistance levels of the Selçuk University administrators for MIS applications, shows that for many issues, the administrators has lower resistance levels in general. The administrators thinks that MIS is a vital part of the work life, is in accordance with office programs, is good at lowering the number of errors and at reducing burdens, helps them finish their work faster, safely, efficiently and, for some, is easy to understand its operational steps.

The administrators think that MIS shortens the duration of the transaction, eliminates the need for hand tracking, provides the opportunity to fully achieve the desired information and satisfies the expectations.

While the process steps are understood easily by some administrators, others disagree with this view. The administrators partially agree with the topic that MIS meets all needs in the transaction. It can be seen

that the administrators get adequate technical support for the problems occurring during the transaction. According to the university administrators, MIS has a significant role for solving the problems, and the problems alleviate by MIS. Most of the administrators think that MIS applications that operate in full integration with other systems, but a group of participants disagree with this point of view. Besides that, a large group of administrators argue that training to use this application efficiently is not enough.

In general, though the resistance levels are low, it's observed that some of the administrators have some resistance. Therefore, we think some recommendations might be useful:

- The administrators and the department officers may contact the departments and firms of the softwares and tell about their demand and make them integrate the programs with their demands.
- MIS applications that are not in accordance with office programs and other automation programs shall be specified and be upgraded to be suitable for these systems.
- Detailed training sessions shall be planned before MIS applications are used by individuals. On the case of an error that can not be solved, there shall be departments to solve and these departments shall be controlled regularly.
- The operational steps in MIS applications shall be designed for all staff and if necessary, their demands shall be taken into consideration.
- If the systems are to change, the administrators shall be informed earlier than these changes.

The study, aiming to analyze perception and resistance levels of the Selcuk University staff for MIS applications, shows that for many issues, the staff has lower resistance levels in general. The staff thinks that MIS is a vital part of the work life, is partly in accordance with office programs, is good at lowering the number of errors and at reducing burdens, helps them finish their work faster, safely, efficiently and, for some, is easy to understand its operational steps. The staff partly accepts the idea that MIS perfectly meets all their demands in their operations. We observed that some of the staff don't have enough technical help about their technical problems embraced in some operations. In operations with MIS applications, individuals feel more self-confident.

In general, though the resistance levels are low, it's observed that some of the staff have some resistance. Therefore, we think some recommendations might be useful:

- The staff and the department officers may contact the departments and firms of the softwares and tell about their demand and make them integrate the programs with their demands.
- Management information systems that are not in accordance with office programs and other automation programs shall be specified and be upgraded to be suitable for these systems.
- Detailed training sessions shall be planned before MIS applications are used by individuals. On the case of an error that can not be solved, there shall be departments to solve and these departments shall be controlled regularly.
- The operational steps in MIS applications shall be designed for all staff and if necessary, their demands shall be taken into consideration.
- If the systems are to change, the staff shall be informed earlier than these changes.

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