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# Identifying the Dimensions, Components and Indicators of Productivity in Complex Organizations of Ilam Province

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**Abstract:** *The main goal of the research is to identify the dimensions, components and indicators of productivity in complex organizations of Ilam province. In this research, the statistical population includes all the high, middle and elite managers of the complex organizations in Ilam province. Due to the limited statistical population, 70 of them were selected as samples. This research is applied based on the purpose, and is descriptive from the viewpoint of the method of collecting the information. A researcher-made questionnaire was used to collect data which has the validity and the Cronbach's alpha coefficient was used to determine the reliability. Cronbach's alpha coefficient was calculated to be 0.87 for the questionnaire, which is statistically acceptable and indicates the reliability of the questionnaire. SPSS software version 22 and Liserl software version 8.5 have been used to test the hypotheses in this study. The statistical methods used in this study are structural equations. The results show that effectiveness and efficiency are two important measures of productivity measurement. The component of improvement measure and promotion of society with an importance coefficient of 24% of the total is the first priority and the component of measuring the unwanted and negative results from the delivery of the organization's services with an importance coefficient of 15% of the total is the fifth priority among the components of effectiveness. Minor efficiency measurement component with an importance coefficient of 54% is the first priority and general efficiency measurement component with an importance coefficient of 45% of total is the second priority among the efficiency components.*

**Keywords:** *Efficiency, Effectiveness, Productivity*

## INTRODUCTION

Most organizations encounter problems in the field of human resources, lack of facilities and lack of strong management, which the most important of them is the lack of work incentives for staff and employees, as well as, the inability to optimally use from all their capacities; this issue is even more prominent in organizations which employees feel more secure. Employee motivation is stopped for various reasons, which has significant effects on their productivity. On the other hand, considering that one of the ways to increase productivity in any organization is to identify and support the elite of that organization. Therefore, productivity has been considered as an important development tool in any organization, and development is mutually dependent on the identification of dimensions, components and productivity indicators. Today, productive organizations are considered to be a wealth for the society. Therefore, according to the identification methods, in this research we have tried to explain the talents and capabilities of distinctive and prime staff, components and indicators of productivity and elevation in complex organizations of Ilam province.

**Importance and necessity of research:**

What produces competitive advantage in organizations is productivity, which means the use effective combination of the existing resources in an organization. Effective improvement of productivity like other components and organizational software processes is one of the requirements of the organization's work, which lies in improving the efficiency of productivity and the legitimacy of productivity is in its improvement and reformation. Establishing the cycle of productivity improvement management will improve productivity as a permanent process and identify the requirements for productivity and perform the necessary substrates. The productivity movement is necessary for the growth and development of the organization and will lead to institutionalization of improvement in various organizational systems. Strong technological, informational, political and economic changes have created challenges and opportunities for organizations in the present age. Organizations that are already prepared for this change, not only benefit from these challenges, but they can be the creator of such changes in the future. Any organization, whether information, industrial, commercial, or service, and training as an open system in encounter with environmental numerous variables and factors requires an efficient interactive system that can determine the route of organization and increase the interest rate through the use of information feedback. It will not be possible unless the organization can access to advanced operational and information technology. Different criteria and indicators are used to measure and evaluate the performance of each organization. Some of the indicators that are more commonly used to evaluate performance are: effectiveness, efficiency, innovation, flexibility and productivity. (Taheri, 2002, pp. 13-18) On the other hand, any organization, regardless of the type of activity, size, structure, maturity or success rate in achieving its organizational goals, needs to measure and evaluate its success in achieving its business ideals and strategies. Hence, complex organizations along with other Islamic Iran organizations and institutions and according to their critical duties have put some actions on their agenda, including the attention of this organization to organizational excellence subject. In this article, we briefly describe the organizational excellence performance and its stages with respect to organizational structure. Finally, a proposed model for implementation of this issue is described in complex organizations of Ilam province.

### **Theoretical framework of research**

The word productivity was first introduced by Quizenni in 1776. Adam Smith, in 1776, proposed some issues about work productivity and job expertise to increase profits reduce fatigue and increase the use of technology. He refers to efficiency and expertise in relation with the concept of productivity, and considers division of work on the basis of efficiency and productivity. Economists, including Seinor, explained productivity in terms of physical, mental, intellectual, intelligence, skill and physical and intellectual strength of the worker. But the revolution in productivity started by Taylor in 1881, which can be regarded as the history of formal and scientific studies of productivity management (Dlouhý, 2012).

In addition, scientists such as Mescon et al., Contes and colleagues (1986), Monga (1997), Boon and Kurtz (1992), Robbin (1991), Ranfeltal (1989), Stoner & Freeman (1993), Shermacheren (1989) Landlow (1986) also argues that productivity involves the effectiveness and efficiency of performance, which efficiency means to do the right thing and effectiveness in doing the right thing, and increasing the productivity level in the organization is the result of management efficiency, which is due to the good management (Mirzaei, 2012).

Wright (1989) summarizes the barriers existing in the productivity as follows: lack of path, weak organizational structures, payment systems, and management choices. On the other hand, productivity management is the process of planning, coordinating and monitoring the productivity programs in the organization. Lemwong argues that a productive manager is one who can take responsibility for important tasks and duties. Capleman (1986) considers four main environmental factors, organizational characteristics, work characteristics, and individual characteristics to be effective in productivity. Ross (1977) also considers productivity of the organization as a source of resources, management of subordinates and managerial responsibilities, and believes that directing employees to more use their talents and abilities, will lead to a higher level of organizational productivity and, consequently, job satisfaction. Also, human resource

management and management practices are effective about job designing, enrichment and job prosperity, job turnover and job movement on employee productivity levels. Beretta (1996) emphasizes the role of measuring productivity in increasing government transparency and believes that collecting key data and improving it in the public sector and providing this information to decision-makers of government policies and executives and stakeholders can improve the decision-making. Productivity can be defined as effective application and resource efficiency to achieve returns. Effectiveness is defined as the level of return, and efficiency is presented as the ratio of output (or output) to the data. Using efficiency and effectiveness in defining its productivity is more comprehensive than efficiency, and this is confirmed by many scholars. As far as some of them believe that limiting productivity to efficiency leads to an ambiguous and does not provide accurate information for the organization. Among these are Ilgen, D, R. Klein, H.J (1988). Kelly, J.M (2002) argues that: in the public sector, in addition to measuring efficiency and effectiveness, equality should be measured too. Profit organizations focus more on efficiency measurement, while governmental organizations more emphasize on effectiveness, and only equality is taken into account in governmental organizations. Rao, P .M, Miller, D.M (2004) argue that measuring performance is a key point in measuring productivity, which governmental organizations must pay attention to it. Long-term returns and outputs must be recognized to measure effectiveness. Long-term returns measure the organization's ultimate goals. Such goals range from three to five years, and sometimes more. Output is defined as direct returns that represent the immediate results of a strategy, which art often referred to as short-term returns; the first difficulty in measuring the effectiveness is identifying key returns and outputs. The returns of programs are not usually transparent, when managers are responsible for new responsibilities, they can identify the important returns of the organization through questions from staff and stakeholders. In this way, the importance of different returns and outputs is determined according to the needs of customers and clients. The second problem is that it is sometimes difficult to measure the returns, the usual strategy in these cases is first to focus on the returns that can be measured and then use the subjective assessment of customers and citizens to collect data about this type of return measurement. Efficiency is also measured in different ways. In a simple approach, efficiency is achieved by identifying all returns and dividing them into all the data. This type of measurement is called comprehensive efficiency. Comprehensive efficiency requires all reported costs, such as salaries, overhead, materials, etc., but most of the efficiency measurement focuses on a return, which this kind of measurement is called the minor efficiency. This measurement is useful in some circumstances, but evaluating the minor efficiency indicators individually can be misleading. In some cases, efficiency measurement is also interpreted as estimation of benefit cost or estimation of effectiveness cost. Cost-benefit analysis or cost-effectiveness of all costs and returns should be specified. Workload should also be measured to measure productivity. Workload measurement is done through the evaluation of activities or strategies. Equality measurement is also an important part in measuring productivity. Comparative comparison has also been expanded today. Comparative comparisons are based on standards that measure actual performance. In this type of comparison, the outputs are measured as the measured workload ratio. In other words, the performance of the best organization is compared with similar organizations (Ray, 2012).

Considering the features of the Epstein model, such as: scientific support of the model, model comprehensiveness, availability of model information to make the model native, attention with efficiency and effectiveness, managerial view towards productivity, system thinking instead of specificity and comment of specialists were selected as reference model for designing a model for measuring productivity in complex organizations in Ilam province. Epstein, P. D, (1992) defines the productivity of the public sector and the sensitivity to the needs and intentions of citizens by optimizing resources. The productivity definition is divided into two parts to be useful and measurable for managers, a part that applies preferences and needs, and a part that applies the optimal use of resources. The two main elements of public sector productivity lead to measurable triple dimensions of public sector productivity, including effectiveness, efficiency, and income in special cases, and effectiveness and efficiency are proposed as two important dimensions of productivity

measurement. In effectiveness, the organization has an outward perspective, and in efficiency it has an inward perspective to the organization's operations. But little attention has been paid to the income dimension because increasing the income may be because of the increase in the tax or the price of goods, but if the increase in income is due to the proper use of limited resources, it is considered as a good criterion. "Epstein" proposed four categories of measurement components which were useful for measuring effectiveness. The proposed components include measuring the improvement and enhancing the community conditions, measuring the services provided to the community and the customers of the organization, measuring the perceptions and customer satisfaction, and measuring the unintended and negative outcomes of the organization's services (Taghavi, 2011).

#### **Research purposes:**

The overall purpose of the research is to identify the dimensions, components and indicators of productivity in complex organizations in Ilam province. In order to achieve the general purpose of this research, the following goals are pursued as specific objectives.

1. Identification of effective dimensions on productivity in Ilam's complex organizations
2. Identification of effective components on productivity in Ilam's complex organizations
3. Identification of effective indicators on productivity in Ilam's complex organizations
4. Prioritization of dimensions, components and indicators affecting productivity in complex organizations in Ilam province.

#### **Materials and Methods**

The present research is applied based on the purpose, which its result is obtaining applied results in identifying the dimensions, components and indicators of productivity in complex organizations of Ilam province. This research is descriptive from the viewpoint of the method of collecting information. This research is also a survey type. At the end, the present study is also a type of field research. Due to the fact that various factors have been mentioned in the literature and each of them is directly or indirectly related to the research model and its parts, in the first step in order to identify the factors, a consulting was done with the experts in this field in complex organizations of Ilam province, an interview was conducted with them and they were asked to tell factors about the dimensions, indicators and components of productivity in complex organizations in the province of Ilam, and introduce the factors based on the knowledge and experience they have in this regard. Then, these factors were extracted to identify them by referring to various sources such as journals, internal and external researches in this field. In order to reach an early consensus on the performed categorization, this information was provided to the expert group. In the selection of this group of 15 people who are experts and managers of complex organizations in Ilam province, they have considered factors such as the history of professional activity on complex organizational issues, related work experience, the history of doing scientific research in this field, and so on. The questionnaires were designed completely open so that any comments about factors such as deleting or editing the agent, completing the description of the agent, merging factors, changing the classification of the agent or adding new factors will be possible. This is considered as an effective step for the validity of the questionnaire. The questionnaires were carefully evaluated after the collection and the views of the respondents were evaluated and summarized. The results of the studies carried out in the above steps resulted in identifying 68 factors related to the components of the model. Regarding the fact that in the continuous of the study there was an expectation to change the factors, the research questions were codified generally and in terms of the characteristics related to the classification and their importance on the component of the relevant component. In this research, the statistical community consists of 70 middle and senior managers of complex organizations in Ilam province. In this research, a researcher-made questionnaire was used in the form of a 5-option Likert spectrum (very high 5, high 4, medium 3, low 2 and very low 1). In this research, structural equation test has been used to measure the

questions. It should be noted that the above-mentioned tests were performed using SPSS software version 22 and Liserl software version 8.5.

### Research Findings

In this qualitative study of Delphi technique, there were 15 experts and managers of complex organizations in Ilam province, the stages of which were:

**Stage One:** In an interview, this interview was conducted among the members of the group without knowing each other and they were asked what are the dimensions, components and indicators affecting productivity in the complex organizations of Ilam province? After the interview, the group's replies, which were raw data, were regularly written and reviewed and evaluated. It was determined that the dimensions, components and indicators of productivity in the complex organizations of Ilam province included two dimensions (efficiency and effectiveness), seven components of effectiveness consists of five components including: measuring the provided services, measuring employees' issues, measuring perceptions and customer satisfaction, measuring the organization's improvement and enhancement, and measuring unwanted results, as well as, two components which are minor efficiency and general efficiency) and 68 indicators. After the first round and writing all the dimensions, components and indicators in the form of a table, the group members were again asked to identify other factors. Due to the repetition of the factors in the second round, we reached the saturation stage. So, 68 indicators identified by the experts and managers of the complex organizations of Ilam province entered the analysis stage.

**Stage two:** 68 identified indicators were arranged in the form of a quantitative questionnaire with 5 Likert scale options and provided to 70 senior, middle, and elite managers of the complex organizations of Ilam province and asked them to give points to the identified factors. After collecting information from all the senior, middle, and elite managers of Ilam province complex organizations, it was found that 58 of the identified factors had an average higher than 3, and these 58 factors remained in the research, and 10 factors with a lower average of 3 were deleted.

**Stage Three:** 58 identified indicators that remained in the research were encoded through encoding in the form of 7 components and returned to the group members. At this stage, members of the expert group were asked to evaluate the indicators for each component that was identified during the coding (theme analysis). A total of seven identified components were approved following the collection of expert group information. The following three stages are reported in the following tables.

**Table 1:** Average of each productivity indicator in the complex organizations of Ilam province

Result	Average	Indicator	Row
Confirmation	4.46	The accuracy of the provided services	1
Confirmation	4.13	Overall quality of service	2
Confirmation	4.06	Service delivery speed	3
Confirmation	4.20	The usefulness of employees' current efforts	4
Rejection	2.14	Employees' efforts to meet the needs of the client	5
Confirmation	4.27	Good and appropriate behavior of employees	6
Confirmation	4.07	Timely production and delivery of services	7
Confirmation	4.16	Organization efforts to improve service	8
Confirmation	4.10	Continuity of service	9
Confirmation	3.61	Variety of methods for providing services	10
Confirmation	3.43	Cost of providing service	11

Confirmation	3.93	Proper and timely delivery of services	12
Confirmation	4.09	Acting on promises	13
Rejection	2.59	Location of providing the service	14
Rejection	2.69	Spend time to get the service	15
Rejection	2.63	Number of referrals to receive the service	16
Confirmation	4.34	Use of advanced security systems	17
Confirmation	4.24	Promote employees' trainings	18
Confirmation	4.37	Promote motivation and morale of employees	19
Confirmation	4.01	Assessing employees' performance	20
Confirmation	4.13	Improve management style	21
Confirmation	4.34	Improve livelihood and salaries of employees	22
Confirmation	4.19	Protective and informational education of employees	23
Confirmation	3.97	Responsiveness to the client	24
Confirmation	4.01	Positive reputation of organization	25
Confirmation	3.93	Ease of understanding the provided information	26
Confirmation	3.96	Quality of information for decision making	27
Confirmation	3.89	Coordination of the information with the needs of the client	28
Confirmation	4.24	Understandable forms and instructions	29
Confirmation	3.66	The stability of the provided information	30
Rejection	2.39	Number of the provided complaints	31
Rejection	2.00	Answering to client's complaints	32
Rejection	2.79	The time spent by the organization for reformation	33
Confirmation	3.73	Understanding the needs of the special client	34
Confirmation	3.24	Specify the services of other organizations	35
Confirmation	4.16	Managers' guidance	36
Rejection	2.51	The number of people in the queue of providing services	37
Confirmation	3.96	Increasing organization's accountability	38
Confirmation	4.23	Increasing the trust of citizens	39
Confirmation	4.20	Creating justice and equality in the distribution of services	40
Confirmation	4.23	Increasing observance of laws and regulations	41
Confirmation	4.34	The institutionalization of morality in the organization	42
Confirmation	4.17	Promoting public culture and organization's knowledge	43
Confirmation	3.86	Establishing quality control standards	44
Confirmation	4.19	Increasing general welfare and quality of life	45
Confirmation	4.07	Creating equity in distributing public benefits	46
Confirmation	3.84	Environmental protection and health	47
Confirmation	3.91	Creating justice in the distribution of information	48
Confirmation	4.01	Increasing health	49

Confirmation	3.57	Failure to respond to clients and citizens	50
Confirmation	3.86	Creating trust in the client and the citizen	51
Confirmation	3.89	Failure to observance the laws and regulations and lack of coordination with other organizations	52
Confirmation	3.57	Increasing the time spent by citizens	53
Confirmation	3.66	Dissemination of letter and over rituals	54
Confirmation	3.53	Impose low quality costs	55
Rejection	2.93	Environmental pollution	56
Rejection	2.63	Parallel work	57
Confirmation	3.83	Fund	58
Confirmation	4.17	Manpower	59
Confirmation	3.99	Amount of spent budget	60
Confirmation	3.80	Average time of providing service	61
Confirmation	3.70	Number of employees	62
Confirmation	3.76	The cost of spent resources	63
Confirmation	3.90	Applied equipment	64
Confirmation	4.13	The use of information technology in providing employees' services	65
Confirmation	3.86	Physical assets	66
Confirmation	3.87	Total expenditures (inputs)	67
Confirmation	3.97	Total achieved accomplishments (outputs)	68

**Table 2:** Encoding dimensions, components and productivity indicators in the complex organizations of Ilam province

Indicators	Components	Dimensions
How much of an organization's productivity is affected by each of the following items?		
The accuracy of the provided services	Measuring the provided services	Effectiveness
Overall quality of service		
Service delivery speed		
The usefulness of employees' current efforts		
Employees' efforts to meet the needs of the client		
Good and proper behavior of employees		
Timely production and delivery of services		
Organization's efforts to improve service		
Continuity of service		
Variety of methods for providing services		
Cost of providing service		
Proper and timely delivery of services		
Acting on promises		
Location of providing the service		

Spend time to get the service		
Number of referrals to receive the service		
Use of advanced security systems		
Promote employees' trainings	Measuring the staff related issues	
Promote motivation and morale of employees		
Assessing employees' performance		
Improve management style		
Improve livelihood and salaries of employees		
Protective and informational education of employees	Measuring perceptions and customer's satisfaction	
Responsiveness to the client		
Positive reputation of organization		
Ease of understanding the provided information		
Quality of information for decision making		
Coordination of the information with the needs of the client		
Understandable forms and instructions		
The stability of the provided information		
Number of the provided complaints		
Answering to client's complaints		
The time spent by the organization for reformation		
Understanding the needs of the special client		
Specify the services of other organizations		
Managers' guidance		
The number of people in the queue of providing services		
Increasing organization's accountability		
Increasing the trust of employees		
Creating justice and equality in the distribution of services		
Increasing observance of laws and regulations		
The institutionalization of morality in the organization		
Promoting public culture and organization's knowledge		
Establishing quality control standards		
Increasing general welfare and quality of life		
Creating equity in distributing public benefits		
Environmental protection and health		
Creating justice in the distribution of information	Measuring unwanted results	
Increasing health		
Failure to respond to clients and citizens		
Creating trust in the client and the citizen		
Failure to observance the laws and regulations and lack of coordination with other organizations		
Increasing the time spent by citizens		
Dissemination of letter and over rituals		
Impose low quality costs		
Environmental pollution	Measuring minor efficiency	
Parallel work		
Fund		
Manpower		
Amount of spent budget		

Average time of providing service		Efficiency
Number of employees		
The cost of spent resources		
Applied equipment		
The use of information technology in providing employees' services		
Physical assets		
Total expenditures (inputs)	Measuring general efficiency	
Total achieved accomplishments (outputs)		

**Factor analysis Confirmation of productivity indicators (effectiveness dimensions)**

Productivity (effectiveness dimension) has 47 indicators. Below are the results of the factor analysis confirmation of the indicators of productivity (effectiveness dimension).

Model in standard estimation mode

**Figure 1:** Factor analysis confirmation of productivity indicators (effectiveness dimension) in standard estimation mode

Model in significant coefficients mode

**Figure 2:** Factor analysis confirmation of productivity indicators (effectiveness dimension) in the case of significant coefficients

**Factor analysis confirmation of productivity indicators (efficiency dimension)**

Productivity (efficiency dimension) has 11 indicators. Below are the results of factor analysis confirmation of the productivity indicators (efficiency dimension).

Model in standard estimation mode

**Figure 3:** Factor analysis confirmation of productivity indicators (efficiency dimension) in standard estimation mode

Model in significant coefficients mode

**Figure 4:** Factor analysis confirmation of productivity indicators (efficiency dimension) in significant coefficients mode

**Factor analysis confirmation of components**

Productivity, effectiveness dimension has 5 components and efficiency dimension has 2 components. Below are the results of factor analysis confirmation of the productivity components.

Model in standard estimation mode

**Figure 5:** Factor analysis of productivity components in the standard estimation mode

Model in significant coefficients mode

**Figure 6:** Factor analysis confirmation of productivity components in significant coefficients mode

**Factor analysis confirmation of productivity dimensions**

Productivity has 2 dimensions. Below are the results of factor analysis confirmation of the productivity dimensions.

Model in standard estimation mode

**Figure 7:** Factor analysis of productivity dimensions in standard estimation mode

Model in significant coefficients mode

**Figure 8:** Factor analysis confirmation of the productivity dimensions in significant coefficient mode

**Results of test questions**

**Question 1: What are the effective dimensions on productivity in the complex organizations of Ilam province?**

In response to this question, based on the poll of experts, two dimensions of efficiency and effectiveness were derived for productivity as are shown in Table (4).

**Table 4:** Factor load and significance coefficient of productivity dimensions

Variable	Dimensions	Component	Factor load	significance coefficient	Result
productivity	effectiveness	Provided services	0.77	7.44	Confirmation
		Issues related to employees	0.86	8.69	Confirmation
		Customer perception and satisfaction	0.74	6.95	Confirmation
		Improvement and enhancement of organization	0.92	9.82	Confirmation
		Unwanted results	0.56	2.08	Confirmation
	efficiency	Total expenditures (inputs)	0.74	7.07	Confirmation
		Total achieved accomplishments (outputs)	0.62	5.51	Confirmation

Based on the result of factor analysis of Table 4, given that all factor loads of the productivity dimensions (efficiency and effectiveness dimension) are greater than 0.50 and their significant coefficients are greater than 1.96, then both dimensions of productivity (effectiveness dimension and efficiency dimension) are confirmed. It can be said that effectiveness and efficiency are two dimensions of productivity in complex organizations of Ilam province.

**Question 2: What are the components that affect productivity in the complex organizations of Ilam province?**

In response to this question, based on the experts' poll, five components were extracted for the effectiveness dimension, and 2 components were extracted for the efficiency component, which have been shown in Table (5).

**Table 5:** Factor load and significance coefficient of productivity components

Dimensions	Component	Factor load	significance coefficient	Result
Effectiveness	Provided services	0.71	6.42	Confirmation
	Issues related to employees	0.75	8.26	Confirmation
	Customer perception and satisfaction	0.75	6.86	Confirmation
	Improvement and enhancement of organization	0.92	9.49	Confirmation
	Unwanted results	0.57	2.09	Confirmation
Efficiency	efficiency Minor	0.81	7.09	Confirmation
	efficiency General	0.67	5.65	Confirmation

Based on the factor analysis of Table 5, given that all factor loads of the productivity components (effectiveness dimension and efficiency dimension) are greater than 0.50 and their significant coefficients are greater than 1.96, then all five components of effectiveness dimension and 2 dimensions of efficiency are confirmed. It can be said that the provided services, issues related to employees, customer perception and satisfaction, organizational improvement and promotion, and the unwanted results of the components of minor effectiveness and efficiency dimensions and the general effectiveness constitute the components of efficiency dimension in the complex organizations of Ilam province.

**Question 3: What are the effective indicators on productivity in the complex organizations of Ilam province?**

In response to this question, based on the experts' poll, for the component of the provided services, 13 indicators for the component of issues related to employees, 6 indicators for the component of perception and customer satisfaction, 10 indicators for the component improvement and promotion of the organization, 12 indicators and for the unwanted result component, 6 indicators were extracted in the effectiveness dimension, which are presented in Table (6). Also, for minor efficiency measurement component, 9 indicators were extracted and for the general efficiency measurement component, 2 indicators were extracted in the efficiency dimension, which are shown in Table 7.

**Table 6:** Factor load and significance coefficient of productivity indicators (effectiveness dimension)

Component	Indicator	Factor load	significance coefficient	Result
Measuring the provided services	The accuracy of the provided services	0.70	6.48	Confirmation
	Overall quality of service	0.59	5.27	Confirmation
	Service delivery speed	0.56	4.91	Confirmation
	The usefulness of employees' current efforts	0.53	4.65	Confirmation
	Good and appropriate behavior of employees	0.53	4.65	Confirmation
	Timely production and delivery of services	0.82	8.22	Confirmation
	Organization efforts to improve service	0.80	7.86	Confirmation
	Continuity of service	0.70	6.51	Confirmation
	Variety of methods for providing services	0.58	5.12	Confirmation
	Cost of providing service	0.57	4.99	Confirmation
	Proper and timely delivery of services	0.51	4.35	Confirmation
	Acting on promises	0.63	5.68	Confirmation
Measuring issues related to employees	Use of advanced security systems	0.76	7.23	Confirmation
	Promote employees' trainings	0.82	8.18	Confirmation
	Promote motivation and morale of employees	0.85	8.61	Confirmation
	Assessing employees' performance	0.61	5.44	Confirmation
	Improve management style	0.85	8.72	Confirmation
	Improve livelihood and salaries of employees	0.86	8.80	Confirmation

	Protective and informational education of employees	0.72	6.84	Confirmation
Measuring perceptions and customer satisfaction	Responsiveness to the client	0.52	4.44	Confirmation
	Positive reputation of organization	0.57	4.95	Confirmation
	Ease of understanding the provided information	0.74	6.84	Confirmation
	Quality of information for decision making	0.67	6.07	Confirmation
	Coordination of the information with the needs of the client	0.69	6.24	Confirmation
	Understandable forms and instructions	0.59	5.15	Confirmation
	The stability of the provided information	0.59	5.14	Confirmation
	Understanding the needs of the special client	0.58	4.51	Confirmation
	Specify the services of other organizations	0.57	4.98	Confirmation
	Managers' guidance	0.64	5.68	Confirmation
Measuring the organization's improvement and promotion	Increasing organization's accountability	0.68	6.36	Confirmation
	Increasing the trust of citizens	0.80	8.28	Confirmation
	Creating justice and equality in the distribution of services	0.78	7.68	Confirmation
	Increasing observance of laws and regulations	0.70	6.56	Confirmation
	The institutionalization of morality in the organization	0.77	6.80	Confirmation
	Promoting public culture and organization's knowledge	0.71	6.71	Confirmation
	Establishing quality control standards	0.70	6.94	Confirmation
	Increasing general welfare and quality of life	0.77	7.91	Confirmation
	Creating equity in distributing public benefits	0.68	6.30	Confirmation
	Environmental protection and health	0.65	6.01	Confirmation
	Creating justice in the distribution of information	0.69	6.46	Confirmation
	Increasing health	0.83	8.39	Confirmation
Measuring unwanted results	Failure to respond to clients and citizens	0.80	8.30	Confirmation
	Creating trust in the client and the citizen	0.85	9.70	Confirmation
	Failure to observance the laws and regulations and lack of coordination with other organizations	0.89	9.18	Confirmation
	Increasing the time spent by citizens	0.61	5.49	Confirmation
	Dissemination of letter and over rituals	0.68	4.09	Confirmation
	Impose low quality costs	0.56	4.91	Confirmation

**Table 7:** Factor load and significance coefficient of productivity indicators (efficiency dimension)

Component	Indicator	Factor load	significance coefficient	Result
Measuring minor efficiency	Fund	0.63	5.57	Confirmation
	Manpower	0.65	5.87	Confirmation
	Amount of spent budget	0.72	6.72	Confirmation
	Average time of providing services	0.64	5.77	Confirmation
	Number of employees	0.61	5.41	Confirmation
	The cost of spent resources	0.73	6.78	Confirmation
	Applied equipment	0.78	7.54	Confirmation
	The use of information technology in providing employees' services	0.74	6.96	Confirmation
	Physical assets	0.75	7.04	Confirmation

Measuring general efficiency	Total expenditures (inputs)	0.95	8.21	Confirmation
	Total achieved accomplishments (outputs)	0.76	6.52	Confirmation

According to factor analysis of Table 6, all factor loads of productivity indicators (effectiveness dimension) are greater than 0.50 and their significance coefficients are greater than 1.96. So, 47 indicators of productivity are confirmed (effectiveness dimension). And 10 indicators of parallel work, environmental pollution, number of people in the service queue, time spent by the organization for reformation, response to client's complaints, number of provided complaints, number of visits to receive services, time spent on receiving services, location of supplying services and employees' efforts to meet the needs of the clients were also rejected.

According to the factor analysis of Table 7, given that all factor loads of productivity indicators (efficiency dimension) are greater than 0.50 and their significance coefficients are greater than 1.96, then 11 indicators of productivity (efficiency dimension) are confirmed.

**Question 4: What are the prioritizing of dimensions, components and indicators affecting productivity in complex organizations in Ilam province?**

**4-1: What is the prioritizing of effective dimensions on productivity in complex organizations in Ilam Province?**

Friedman's test is used to determine the order of the effective dimensions on productivity in the complex organizations of Ilam province.

**Table 8: Friedman's Test**

Number	Chi-square	Degrees of freedom	Significance level
<b>70</b>	<b>67.429</b>	<b>1</b>	<b>.023</b>

Based on the value of the chi-square test (67.429) which is significant at the error level less than 0.01, it should be said that statistically by 95% confidence level of productivity in the complex organizations of Ilam province is determined based on the dimensions.

**Table 9: Average ranking test**

Factors	Average	Rank
effectiveness	1.57	1
efficiency	1.43	2

According to Table 9, effectiveness with a mean score of 1.57 and efficiency with a mean score of 1.43, respectively, are the effective dimensions on productivity in the complex organizations of Ilam province.

**4-2: What is the prioritizing of the effective components on productivity in the complex organizations in Ilam province?**

**4-2-1: What is the prioritizing of the effective components on the effectiveness in the complex organizations in the Ilam province?**

Friedman's test is used to determine the order of the components that affect the effectiveness in the complex organizations in the province of Ilam.

**Table 10: Friedman's Test**

Number	Chi-square	Degrees of freedom	Significance level
<b>70</b>	<b>44.032</b>	<b>4</b>	<b>.000</b>

Based on the value of the chi-square test (44.032) which has a significance level of less than 0.01, it should be noted that statistically by 99% of the reliability of the effectiveness value in the complex organizations of Ilam province is based on the determined components.

**Table 11:** Average ranking test

Factors	Average	Rank
Issues related to employees	3.81	1
Provided services	3.03	2
Customer's perception and satisfaction	2.68	3
Organization's improvement and enhancement	2.38	4
Unwanted results	2.41	5

According to Table 11, issues related to employees with an average of 3.81, provided services with a mean score of 3.03, customer's perception and satisfaction with an average of 2.68, improvement and enhancement of the organization with a mean score of 2.38, and unwanted results with a mean score of 2.41, respectively, are the effective components on effectiveness in the complex organizations of Ilam province.

**4-2-2: What are the priorities of effective components on efficiency in the complex organizations of Ilam province?**

Friedman's test is used to determine the order of effective components on the efficiency of the complex organizations in Ilam province.

**Table 12:** of Friedman's test

Number	Chi-square	Degrees of freedom	Significance level
<b>70</b>	<b>50.341</b>	<b>1</b>	<b>.000</b>

Based on the value of the chi-square test (50.341) which is at the error level of less than 0.01, it should be noted that statistically by 99% of the reliability of the efficiency value is based on the determined components in the complex organizations of Ilam province.

**Table 13:** Average ranking test

Factors	Average	Rank
efficiency Minor	1.55	1
efficiency General	1.45	2

According to Table 13, the minor efficiency with a mean score of 1.55 and general efficiency with an average of 1.45, respectively, are the components that affect the efficiency in the complex organizations of Ilam province.

**4-3: What is the prioritizing of effective indicators on productivity in the complex organizations of Ilam Province?**

Friedman's test is used to determine the order of effective indicators on productivity in the complex organizations of Ilam province.

**Table 14:** Friedman's test

Number	Chi-square	Degrees of freedom	Significance level
<b>70</b>	<b>453.583</b>	<b>57</b>	<b>.000</b>

Based on the value of the chi-square test (453.583) which is significant at the error level of less than 0.01, it should be said that statistically by 99% of confidence level of productivity in the complex organizations of the province of Ilam is based on the determined indicators.

## **Discussion and Conclusion:**

The productivity model provides a framework for productivity measuring system in the complex organizations of Ilam province and provides an opportunity to evaluate the performance of the organization. The mentioned model has the ability to re-implement in different time periods. The coefficient of importance of each indicator and the coefficient of importance of the total factors of productivity provides the possibility of comparing the complex organizations of Ilam province with each other. In implementing this model, first, the managers of the organization should be aware of the components and indicators. Then, this system will be coordinated with the strategic plan of the organization. Effectiveness and efficiency are the two important dimensions for measurement of productivity. In effectiveness, the complex organization of Ilam province has an outdoor view and in efficiency it has an indoor view to the organization's operations.

Five components were proposed to measure the effectiveness; the component of the measurement of issues related to employees with an importance coefficient of 24% of the total compared to other four components has the first priority among the components of effectiveness.

The component of measuring the services provided to society and customers of the organization with an importance coefficient of 22% of the total has the second priority. The provided services and customer's satisfaction are closely interlinked, so that one increase can lead to another increase. In this section, attention should be paid to four important areas, including cost, quality, time and innovation. The organization's efforts must be more conducive to lowering costs, increasing quality, faster responsiveness and more innovation.

The component of measuring the perception and satisfaction of client with an importance coefficient of 20% of the total is the third priority compared to other four components. Today, complex organizations in Ilam province, like other organizations, must take steps to satisfy customer demands. Performed researches in many countries also confirm that higher productivity organizations have increasingly focused on customer satisfaction, and customer orientation. The customer satisfaction can be achieved through its crystallization in the goals and missions of the organization, finding the necessary knowledge about their needs, the commitment of the organization, and using the feedbacks of the clients.

The component of community-based improvement and promotion with an importance coefficient of 19% of the total is the fourth priority compared to other four components. In this section, the complex organizations of Ilam province evaluate the conditions of the community in terms of their missions in order to measure productivity. Considering the important role of complex organizations in Ilam province in developing and improving the conditions of the community, all efforts of these organizations should be in the way of using the indicators mentioned in this section.

The component of measuring the unwanted and negative results from the organization's service delivery with an importance coefficient of 15% of the total is the fifth priority. Considering the efforts of organizations to reduce unwanted and undesirable results, this component is less important than other effectiveness components.

To measure the efficiency of the two components, the component of the minor efficiency measurement with the importance coefficient of 54% of the total compared to other component has the first priority among the efficiency components. The general efficiency measurement component with an importance coefficient of 45% of the total has the second priority compared to the other components.

The importance of the proposed indicators for each dimension was compared. The similarities and differences in the significance of the indicators were identified on this basis. In measuring the dimension of perception and satisfaction of citizens, indicators of ease of understanding the provided information, the suitability of information with the client's needs, the quality of information for decision-making, guidance of managers, the comprehensibility of forms and instructions, the stability of the provided information, perceive the need of the particular client, identification of the services of other organizations, the positive repetition of the organization and the responsiveness toward the client are of importance according to the mentioned order.

In the dimension of measuring the provided services, indicators of timely production and delivery of services, the organization's efforts to improve services, use of advanced security systems, accuracy of the provided services, service continuity, acting on promise, the overall quality of services, the variety of methods to provide the services, the cost of service delivery, the speed of service delivery, the usefulness of current efforts of employees, the good behavior of the staff, and proper and suitable time for delivery of the services are of importance according to the mentioned order.

In terms of measuring the improvement and promotion of community conditions, indicators of increasing health, increasing citizens' trust, creating justice and equality in the distribution of services, institutionalizing ethics in society, increasing general welfare and quality of life, promoting public culture and community knowledge, increasing observance of laws and regulations, establishment of quality control standards, creation of justice in the distribution of information, increased accountability of the organization, creation of equality in the distribution of public benefits and the protection and health of the environment are of importance according to the mentioned order.

In measuring dimensions of employees' issues, indicators of improvement of livelihoods and salaries of employees, increasing motivation and morale of employees, improvement of management style, promotion of employees' training, employees' protective and informational training, and assessment of employees' job performance are of importance according to the mentioned order.

In the dimension of unwanted results, indicators of non-observance of laws and regulations and lack of coordination with other organizations, lack of trust in the citizen and the client, non-response to clients and citizens, distribution of letters and formalities, increase of citizens' loss of time and imposition of the low quality costs are of importance according to the mentioned order.

In the dimension of measuring the minor efficiency of the used equipment indicators, physical assets, use of information technology in providing staff services, the cost of spent resources, the amount of spent budget, manpower, the average time of service delivery, capital and number of employees are of importance according to the mentioned order.

In the dimension of measuring the general efficiency of the total indicators of the spent cost (inputs) and the total achieved accomplishments (outputs) are of importance according to the mentioned order.

### **Proposals based on research findings**

1. Since most of the knowledge, insight, skills, abilities and acquired behaviors, and its transfer to people is possible through education, it is suggested that these features are implemented through effective training courses using various methods, coordination with the time of the audience will be transferred to the employees of the complex organizations of Ilam province, including:
  - Organizing appropriate training courses aimed at changing the attitude of the members towards the philosophy of the complex organizations of Ilam province and using their experiences;
  - Correct communication training and introduction of benefits and positive outcomes;
  - education and information on technologies and innovations through publications and educational posters, and so on;
  - Training creativity and innovation skills;
  - Training the correct and rational principles of accepting hazards and introducing the benefits and positive outcomes;
  - Training to enhance the skills in entrepreneurship;
  - Training technical skills;
2. In order to improve these indicators, it is possible to use strategies such as increased occupational enrichment and holding training courses related to tasks and works.
3. Creating a smooth and orderly working environment and using systems of compensation for services and promotion on the basis of certain criteria and indicators will help to improve the efficiency and cooperation of the staff.

4. Employees have good behavior toward the client.
5. Use advanced protection systems to increase productivity.
6. Respond to the complaints of the client in the shortest possible time.
7. Alleviates the distribution of letters and redundancy.
8. Use up-to-date equipment with minimal cost to provide services.
9. Provide information technology services to employees.

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