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## ORIGINAL RESEARCH ARTICLE

### Intelligent Modeling of Managers' Data-Driven Decisions in Empowering Human Resources

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#### ABSTRACT

This study aimed to design a data-driven decision-making model for managers in the direction of empowering human resources in the police headquarter of Kohgiluyeh and Boyer-Ahmad province. Increasing amount of information and rapid changes in the environment and the need to create continuous communication with the complex and dynamic environment requires management, acquisition and distribution of knowledge as well as, proper organizing and analysis of information. The present research uses a qualitative approach. The statistical population included experts in the police force, 19 people were selected through purposive sampling and interviewed. The identified indicators of the data-driven decision-making model of managers in empowering employees were extracted in the form of 3 main categories, 17 sub-categories, and 69 concepts. The identified model was also tested based on the AdaBoost regression algorithm in Rapidminer software which led to development of the intelligence of the managers' decision-making model compared to the traditional model. The findings showed structural factors (including strategic orientations, organizational structure dynamics, performance management system, training and improvement, knowledge management system, job design system, and information technology system) behavioral factors (including management orientations, leadership style, development of psychological characteristics of employees), development of decision-making skills and competences of employees, human relations system, job attitudes, and organizational culture) and environmental factors (including legal factors, political factors, and economic factors). Based on the proposed model, the accuracy of data-driven decision-making of managers was tested and the results indicated the significance of intelligence and information in the organization.

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## 1. Introduction

Data-driven decision management in the organization is an approach to business governance that values decisions backed up with verifiable data (Fang et al, 2020). The success of the data-driven approach depends on the quality of the collected data and the effectiveness of its analysis and interpretation (Pugna et al, 2022). Traditional organizations' smartness is dependent on the intelligence of the people who work in them, and they are especially dependent on the managers' intelligence of organizations (Sharko, Gusarina & Petrushenko, 2020). Other factors that are somehow effective in making traditional organizations smarter are organizational structure and culture (Huang, 2022). But new smart organizations are different from the traditional organizations. These organizations create and use intelligent information systems. In addition to using the intelligence of internal elements, they reach a type of comprehensive intelligence independent of the intelligence of their components (Saeidi, Saeidi & Sofian, 2019). The latest type of intelligence emerges in the link between the internal and external components of the organization and their interactive context. The first characteristic of these organizations is their changeability (Guan, Dong & Zhao, 2022). It is too optimistic to think that organizations run without smart organization technology are at most flexibility as the changeability of their managers. Because managers have to spend a lot of time and resources on analyzing, planning, paying attention to employees, and attracting their participation in order to implement any changes in the organization (Huang, 2016).

In fact, information technology has brought with it new forms of organization, work, family, and a new economic system, new political conflicts, and most importantly, a changed awareness of contexts; Hence, most modern organizations face new challenges (Sun & Ma, 2022). The increase in customer influence, the intensity of competition, the shortening of the production cycle, and the continuity and acceleration in technological changes are among the issues that have

created new levels of dynamism and complexity for organizations. The application of information technology can provide a competitive advantage, increase customer service or create a flexible production environment. According to the Oxford Dictionary, the English word "Empowering" means, authorizing and becoming capable in the. This term includes the power and freedom to act for oneself. In the organizational sense, it means designing the structure of the organization in such a way that people are ready to accept more responsibilities while controlling themselves (Goldstein & Frank, 2016). There are two general perspectives on human resources empowerment: 1) Mechanical perspective: This perspective considers empowerment as the delegation of authority and power to employees to perform activities and tasks. 2) Organic view: This view considers the process of empowerment as complex and multidimensional (Chan & Balkova 2022). Organization as an open system; receives information, materials, and energy from the environment and then processes them and turns them into knowledge, goods, and services to be used in the environment; Therefore, the relationship between the environment and the organization is a two-way and vital relationship. Organizations depend on the environment to justify their continued existence and they know that the complex and unstable environment is necessary for the growth and survival of organizations in order to learn the possible situations of the present and future, and they consider this acquired knowledge necessary for changing their behavior (Lee & Edmondson, 2017).

The theorists have defined this perspective of empowerment based on the beliefs and personal orientations of employees towards their role in the job and organization (Rüth & Netzer, 2020). In this view, the conditions and features of the organization and management actions do not mean empowerment, but they are the basis and means of empowering human resources (Mothe & Nguyen-Thi, 2020). Based on this, any strategy that leads to increasing the right of self-determination

(self-efficacy) and self-sufficiency of employees will lead to their empowerment, so that empowerment leads to effective involvement, increased motivation and satisfaction of employees. It also encourages them to stay in the organization, enhances commitment and loyalty to the organization and finally, leads to continuous improvement and growth.

The daily increase in the amount of information and rapid changes in the environment and the need to establish continuous communication with the complex and dynamic environment requires knowledge management to acquire knowledge, distribute knowledge, organize and analyze and interpret them properly (Sweileh, 2020). Knowledge management helps managers to make more informed decisions in the analysis of information and their correct selection and adapt their organization to the environment for survival and growth.

In today's organizations, knowledge is emphasized as a valuable asset, and knowledge management as the first and most basic priority. In order to achieve this, today's organizations implement strategies that help make the organization smarter (Wee & Taylor, 2018). The strategy of making the organization smarter actually follows a measured and appropriate response to environmental changes and developments (Sattari, Khodabandehlou & Lashkari, 2021). Therefore, organizational knowledge allows organizations to create, select, organize, and disseminate important knowledge and information, and to learn expertise that is necessary for activities such as problem-solving, dynamic and continuous learning, strategic planning, and decision-making. put strategic management on their agenda (Babaie, Danaie, & Faezi Razi, 2022).

Today, many organizations have realized that to achieve success in the economy, both in the current world and in the future, they need more than accidental and uninformed acquisition of integrated knowledge.

In order to manage this knowledge, which is considered a vital resource in a smart organization, people are needed to identify and understand the knowledge and to

document the real impact of the knowledge in the organization.

According to the mentioned materials, in the current research, this basic question is answered, "What is the decision-making model of managers in empowering employees?" To answer this question, the following secondary questions were addressed:

1- What are the smart decision-making indicators of managers in empowering human resources?

2- What are the smart decision-making components of managers in empowering human resources?

3- What are the smart dimensions of managers' decision-making to empower human resources?

## 2. Literature Review

Information technology makes it possible to delegate service activities to other organizations. By using information technology, these organizations focus their attention on knowledge-based products, which makes them superior in the field of competition. Then the intelligent organization uses intelligent information management systems to coordinate many activity centers that meet the needs of customers in a dispersed manner (Qi & Wang, 2015).

The contemporary post-industrial world has its own complexities and characteristics, in a way that has completely transformed our surroundings, questioned our beliefs, challenged norms, and severely affected our relationships. This phenomenon is the product of three highly specialized fields of social sciences (Li, 2014). These areas include politics, economics, and communication. Politics is the working tool of political agents and has its own mathematical games, and we are subject to complex global policies whether we like it or not, sometimes we stand in front of each other and sometimes we align and reach common interests (Zeng, 2013). On the other side, we have economics, which is the science of scarce resources and insatiable behaviors, behaviors that hinder the free movement of global policies, and on the other side, there is communication science, a science that allows the connection and

constructive interaction between economics and politics (Chen, 2009). This statement is valid both in the macro dimension and in the micro perspective and is applicable in both cases. On the other hand, the industrial world reacts to the alignment of post-industrial countries and has its own behaviors, and in order to exploit the achievements of human knowledge in the aforementioned fields, it finds it necessary to use the model of liberalization and seek growth. It is the intelligentization of their organizations to enhance the process of constructive interaction in practice (Wu, 2018).

Enterprise Information Management (EIM) and consequently Business Intelligence (BI) as a tool to achieve a comprehensive and analytical view of the information and data collected from current operational processes at the organizational level. becomes Business intelligence and organizational information management by collecting relevant data from various operational processes at the organizational level providing the possibility of analyzing events and making correct

decisions. The business intelligence solution is based on the establishment of an integrated information management system (EIM) and is supported by a wide platform of parametric information bases, reporting and data visualization in the form of a management dashboard available to system managers and managers. Organizational softwares that are created with parametric information bases provide a suitable and reliable way to obtain functional reports and calculate organizational performance indicators with an approach to EIM. Today's view in this field is the customized design of enterprise information management (EIM) and business intelligence (BI) systems in every organization. The customization of these systems ensures maximum compliance with the information needs of every organization and business, as well as a significant improvement in the accuracy and precision of the collected information and the calculation of practical indicators. In the following, the backgrounds in line with the research objectives have been examined:

**Table 1.** An overview on research background

Author	Title	Result
Huang (2022)	Intelligent Decision-Making Model of Enterprise Management Based on Random Forest Algorithm	Through the simulation of the proposed model, the accuracy of this system can reach 96%, which is about 17% more than other systems.
Sun and Ma (2022)	The intelligent decision-making process construction of emergency intelligence based on the big data: -taking the epidemic prevention and control of COVID-19 as an example	The findings address big data in the application of global public emergency management and innovation, change and disclosure to enhance emergency decision-making from the perspective of information applications, and provide wisdom for government emergency decision-making.
Li et al. (2022)	Intelligent Decision Analysis and Applications	Decision Analysis and Applications" aims to provide a forum for some of the cutting-edge research in this emerging field and outline new and important developments in the foundations, approaches, models and intelligent decision support systems with applications in various fields.
Guan et al. (2022)	Ethical Risk Factors and Mechanisms in Artificial Intelligence Decision Making	Technological uncertainty, incomplete data, and managerial errors are the main sources of moral hazard in AI decision-making, and the intervention of risk governance elements can effectively block societal risks arising from algorithmic, technological, and data risks.
Cao et al. (2021)	Understanding managers' attitudes and behavioral intentions towards using artificial intelligence for organizational decision-making	The results provide a more comprehensive model to explain and predict managers' attitudes and behavioral intentions towards the use of artificial intelligence.
Khamehchi and Rangriz (2021)	Meta-analysis of antecedents and consequences of psychological empowerment of employees	Using the meta-analysis approach, they showed that among the antecedents of psychological empowerment of employees, the variables of benevolent leadership, knowledge management, social capital, authentic leadership, organizational memory, and spiritual leadership have the greatest effect.
Kamkar and colleagues (2019)	Strategies for scientific and knowledge empowerment of the young generation	They showed that the empowerment of the young generation of the armed forces must necessarily take place within the framework of a systemic approach (using all four mechanical, organic, project and process approaches) and in accordance with the conditions and ideals of the organization and the country.
Soheili et al. (2019)	Identification of individual factors effective on the empowerment of health insurance employees	They showed that factors such as participation, support of the organization, training, attention to employees, delegating responsibility, clarity of goals, clarity of roles, and granting of authority are effective factors in empowering employees.

Genghis et al. (2019)	Presenting the proposed model of human power empowerment	It has been identified in the form of seven factors: managerial, group, individual, environmental, structural, organizational, and ethical.
Jabarzadeh et al. (2018)	"Presenting the model of empowerment of commanders and training managers of the police force	Factors such as: patience, being ethical, strength and stability in decision-making, psychological skills, continuing education, evaluating performance and providing feedback, meritocracy, personal training, financial resources and sufficient budget, appropriate technological infrastructure, job alignment with people's expertise, identified the reward system and motivational mechanisms, the atmosphere of empathy, commitment, increased authority and participation in decision-making as the dimensions of the empowerment model of commanders and training managers of the police force.
Bakhtiari and Rajabi Farjad (2018)	Elaboration of employee empowerment model	The dimensions identified in order of priority include managerial dimensions, self-efficacy, organizational and individual resources.
Mansouri et al. (2018)	Validation of organizational empowerment model based on human resources processes	They showed that views and attitudes towards human resources have a significant effect on resource processes in the electricity industry of Hormozgan province, and human resource processes, background conditions, and intervening conditions have a significant effect on organizational empowerment (intra-organizational, inter-organizational, and extra-organizational empowerment).
Chang et al. (2016)	HR practice, Organisational Commitment and citizenship behavior, Employee Relations	Empowerment is one of the effective processes in terms of improving efficiency and increasing organizational performance
Razaka et al. (2017)	the relationship between psychological empowerment and job involvement	They found that there is a positive and significant relationship between employee empowerment and job involvement.
Kim and Kim (2013)	Leaders moral competence and employee outcomes: the effects of psychological empowerment and person- Supervisor fit	They conclude that the moral competence of the leader has a positive effect on the psychological empowerment of the employees.
Hanaysha (2016)	Examining the effects of employee training on organizational commitment	He realized that empowerment, in addition to strengthening collective and group work and improving the knowledge and skills of employees, also helps to improve organizational commitment.

### 3. Method

The current research is qualitative in terms of its practical purpose and in terms of data collection and analysis., It uses the qualitative content analysis techniques. The participants of this research included 19 experts who worked in the headquarters of the police force of Kohgiluyeh and Boyer-Ahmad province at the time of conducting the present research in 2019. They were selected using non-probability purposive sampling. the criteria for selection were expertise (knowledge and expertise) and having working experience and partial knowledge of the research subject. The data collection tool was a semi-structured interview with experts. The interview sessions were arranged through telephone calls. the interviewees were audio-recorded. The duration of the interviews was between 45 and 60 minutes. The interviews progressed until the researcher reached the theoretical adequacy of the data and theoretical saturation. The collected data were analyzed using the qualitative content analysis method. In this research, inductive approach was used to analyze the qualitative content of the data. The inductive approach is more necessary when the researcher wants to provide the necessary background knowledge regarding the subject under investigation. This approach

seeks to convert extensive textual information into summary content and extract the most important topics in it. According to the inductive approach, the texts of the interviews are analyzed word by word, line by line, and paragraph by paragraph, in this way, semantic units are extracted and based on them, primary conceptual codes are extracted. Then, by comparing the codes, the data that had more conceptual similarity and affinity were gathered in the form of a concept. In the second step, to create sub-categories, similar concepts were arranged and categorized in the form of related categories during a complementary process. In the third stage, to form the main (overall) categories, the subcategories were classified based on verbal and semantic sharing and the relationships between them in the form of main categories. The analogical approach was used in order to gain confidence in naming, defining, categorizing, and determining the relationships between concepts and categories by using theories and research background. Finally, in order to ensure the validity of the findings obtained from the qualitative analysis, criteria such as the review by experts (three interviewees) and the reliability calculation method between two coders were used. In order to calculate the reliability of the

interview with the within-subject agreement method of two coders (rater), a doctoral student knowledgeable and proficient in qualitative analysis and coding was invited to conduct the coding. After providing relevant explanations, the researcher along with this

colleague randomly selected the number of three interviews and coded them again. The percentage of agreement within the subjects, which is used as a reliability index of the analysis, was calculated using the following formula:

$$\text{Intra – subject agreement percentage} = \frac{\text{Number of agreements} \times 2}{\text{Total number of codes}} \times 100$$

The results obtained from these codings are shown in table (2).

**Table 2.** Results obtained from codes

	Interview ID	The total number of codes	Number of agreements	Number of disagreements	Agreement between two coders (percentage)
1	P2	37	16	1	86.49
2	P10	33	15	3	90.91
3	P11	32	15	2	93.75
Total		102	46	5	90.20

As seen in table (2), the agreement between the two coders is equal to 90.20%. Since this value is more than 60%, the reliability of coding procedure is confirmed.

In this section, based on the extracted codes from the qualitative analysis and the presented model, based on the operationalization of the model codes, the data mining techniques have been used to measure the efficiency of the model in the organization's environment. Each piece of data is localized in the organization and attributed to a relevant quantity. Based on regression technique, data mining analysis has been done in Rapidminer software.

AdaBoosting was the first successful boosting algorithm for binary classification. Also, it is the best starting point to understand the concept of reinforcement. In addition, modern boosting methods are based on AdaBoost, including stochastic gradient boosting machines.

Generally, AdaBoost is used with small decision trees. In this way, the first tree is created and its performance on each training sample is used to measure the attention of the next tree to the samples. Therefore, the tree should consider all training samples and give more weight to the training data that is difficult to predict, while giving less weight to the data that is easy to predict.

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#### 4. Findings

Based on the analysis, the extracted codes were categorized based on the level of conceptual similarity and 69 concepts were extracted. Identified concepts were classified into 17 sub-categories and 3 main categories as shown in Table No. (3).

Table 3. Identification and classification of main and subcategories and empowerment indicators using the qualitative content analysis method.

Source	Indicator ID	indicators (concepts)	ID of subcategories	Subcategories	ID of general categories	Main categories	general concept
- Interview with experts - Jazni and Rostami (2011) - Ahmadvand et al. (2008) - Mansouri et al. (2018) - Niaz Azari and Taghvaie Yazdi (2013)	111	A clear understanding of the organization's members from the vision, mission, goals and leaders of the organization	11	Strategic directions of the organization	-	Structural factors	The decision-making model of managers in the direction of empowering employees
	112	Alignment of human resources strategy with the upper documents of the organization					
	113	Formulating clear and common strategies for the successful implementation of empowerment					
	114	Alignment of human resources management goals and programs with empowerment programs					
- Interview with experts - Azariniaz and Taghvaie Yazdi (2013) - Hajizadeh and Hafezian (2018) - Ahmadvand et al. (2008) - Jabarzadeh et al. (2018) - Mansouri et al. (2018)	121	Flexibility of organizational structure	2	Dynamics of organizational structure	-	Structural factors	
	122	Decision of power and delegation of authority					
	123	Proportion of responsibility and authority					
	124	Facilitating the flow of information					
	125	Development of skills and expertise					
	126	Compilation and clarification of all applicable laws and regulations and instructions for empowerment.					
- Interview with experts - Niaz Azari and Taghvaie Yazdi (2013) - Ahmadvand et al. (2008) - Jabarzadeh et al. (2018)	131	Determining goals and performance indicators in order to empower employees	3	Performance management system Subcategories	-	Structural factors	
	132	Performance evaluation based on competence and providing feedback					

Continuation of Table 3. Identifying and categorizing the main and sub-reasons and indicators of empowerment using the qualitative content analysis method.

Source	Indicator ID	indicators (concepts)	ID of subcategories	Subcategories	ID of general categories	Main categories	general concept
-Feli et al. (2017)	133	Development of meritocracy management approach	3	Performance management system	-	Structural factors	The decision-making model of managers in the direction of
	134	Performance-based reward					
- Interview with experts - Niaz Azari and Taghvaie Yazdi (2013)	141	Identification of training needs in the field of employee empowerment	4	Training and improvement	-	Structural factors	
	142	Determining goals and training programs and implementing					

- Ahmadvand et al. (2008)		them in order to empower employees					
-Jabarzadeh et al. (2018)	143	Continuous improvement of employees' performance					
- Mansouri et al. (2018)							
- Interview with experts - Niaz Azari and Taghvaie Yazdi (2013)	511	Aligning the knowledge management process with the goals and empowerment approach	5	Knowledge management system			
	512	Documentation of professional knowledge and experiences					
	513	Continuous exchange of experiences and learnings between employees					
	514	Continuous learning in work and emphasis on study and research					
- Interview with experts - Jazni and Rostami (2011)	611	job enrichment	6	Job design system			
	612	Job rotation					
	613	Management of career development and future work					
	-Jabarzadeh et al. (2018)	614					

Continuation of Table 3: Identification and classification of main and subcategories and indicators of empowerment using the qualitative content analysis method.

Source	Indicator ID	indicators (concepts)	ID of subcategories	Subcategories	ID of general categories	Main categories	general concept
- Interview with experts - Ahmadvand et al. (2008)	711	Integrating information technology systems and processes	7	Information technology system	1	Structural factors	The decision-making model of managers in the direction of empowering employees
	712	Facilitating access to information systems and ensuring information security					
	713	Connecting to the national information network and information sharing					
- Interview with experts (2013) - Ahmadvand et al. (2008) - Mansouri et al. (2018)	211	Managers' strategic and capital attitude towards human resources	21	Management orientations		Attitudinal and behavioral factors	
	212	Practical support and commitment to empowerment values					
	213	Managers' participation in employee empowerment programs and processes					
- Interview with experts - Niaz Azari and Taghvaie Yazdi (2013) - Ahmadvand et al. (2008) -Jabarzadeh et al. (2018) - Mansouri et al. (2018) - hajizadeh and hafezian (2018)	221	Delegation of authority and support of employees' decisions	22	leadership style	2		
	222	Involving employees in decision-making and considering suggestions					
	223	Creating motivation and satisfaction					
	224	Supporting group and team work and generalizing information					
- Interview with experts	231	Developing a sense of competence (self-efficacy)	23	Development			



-hajimolamirzaie (2014) -Abtahi and Ayesi (2013)	232	Cultivating the feeling of having the right to choose (self-righteousness)					
	233	Cultivating a sense of effectiveness					
	234	Cultivating a sense of meaning					
	235	Cultivating a sense of trust in others					

Continuation of Table 3: Identification and classification of main and subcategories and indicators of empowerment using the qualitative content analysis method.

Source	Indicator ID	indicators (concepts)	ID of subcategories	Subcategories	ID of general categories	Main categories	general concept
- Interview with experts - Ahmadvand et al. (2008) -Jabarzadeh et al. (2018) -tabebordbar and Aghaie (2013)	241	The ability of self-management and self-control	24	Cultivating employees' competences and decision-making skills	2	Attitudinal and behavioral factors	The decision-making model of managers in the direction of empowering employees
	242	Recognition and adaptation skills					
	243	Problem solving skills					
	244	Critical thinking and bilateral learning					
	245	Information and decision-making skills					
	246	Effective communication skills					
- Interview with experts - Hajizadeh and Gafezian (2018)	251	Improving all-round communication in the organization	25	Human relations system	2	Attitudinal and behavioral factors	The decision-making model of managers in the direction of empowering employees
	252	Reforming and improving human relations in order to share efforts					
	253	Strengthening social capital in the organization					
	254	Creating a suitable space for expressing new ideas, innovations and creativity					
- Interview with experts - Niaz Azari and Taghvaie Yazdi (2013)	261	job satisfaction	26	Career attitudes	2	Attitudinal and behavioral factors	The decision-making model of managers in the direction of empowering employees
	262	Job attachment					
	263	organizational commitment					
	264	Quality of working life					
- Interview with experts	271	Development of cooperative culture	27	Or ga ni			

- Demirchi et al. (2018) - Jabarzadeh et al. (2018) - Mansouri et al. (2018)		and collective and team work in the organization					
	272	Development of organizational learning culture					
	273	Developing a culture of creativity and innovation					
	274	Developing a culture of continuous improvement					

Continuation of Table 3: Identification and classification of main and subcategories and indicators of empowerment using the qualitative content analysis method.

Source	Indicator ID	indicators (concepts)	ID of subcategories	Subcategories	ID of general categories	Main categories	general concept
-The vision document of the police force of Iran in the horizon of 1404 - Interview with experts - Niaz Azari and Taghvaie Yazdi (2013) -Jabarzadeh et al. (2018)	311	Knowledge and meritocracy	31	legal agent	3	Attitudinal and behavioral factors	The decision-making model of managers in the direction of empowering employees
	312	Professional ethics with an Islamic approach					
	313	Transparency and accountability					
	314	Legalism					
Interview with - experts Police force - perspective document. Iran on the horizon of 1404 Ahmadvand et al. (2008)	321	The absolute leadership and authority of the jurist	32	Political factors	3	Attitudinal and behavioral factors	The decision-making model of managers in the direction of empowering employees
	322	Authority and national security					
	323	Political trust					
	324	The preventive force of the Islamic Revolution					
- Interviews with experts - upstream documents of the organization Ahmadvand et al. (2008) -Jabarzadeh et al. (2018)	331	Organization budget	33	Economic factors	3	Attitudinal and behavioral factors	The decision-making model of managers in the direction of empowering employees
	332	provide livelihood					
	333	Availability of welfare facilities and life support					

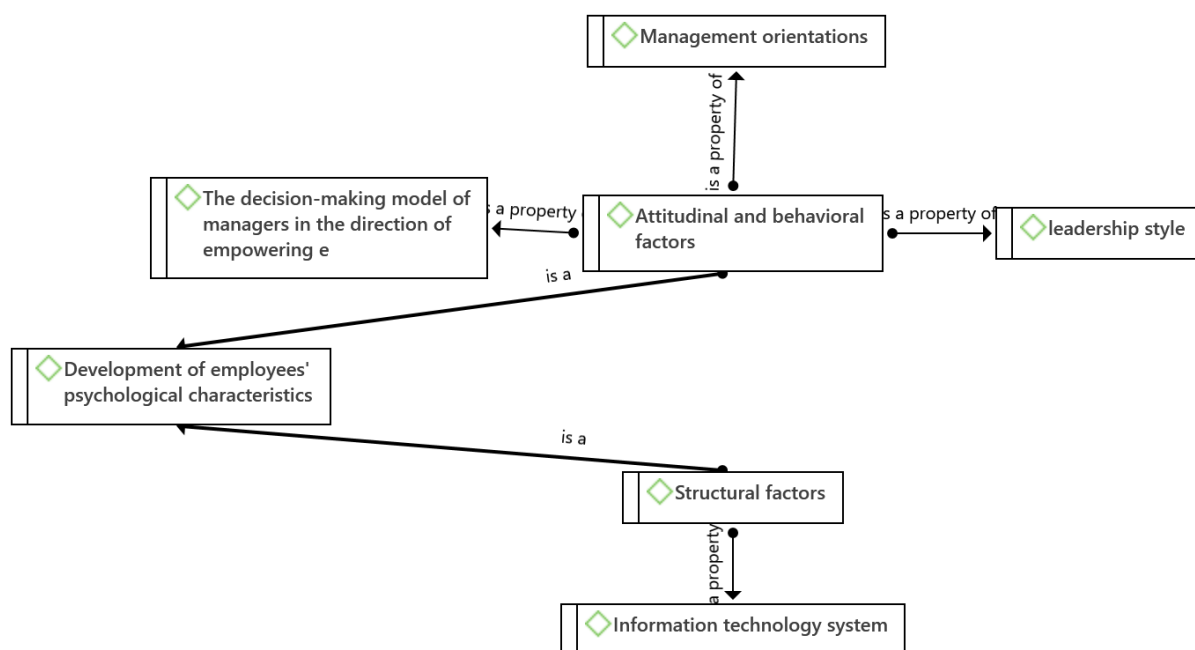


Figure 1. Network of themes

Based on the obtained data, a network of themes has been extracted from the software, this model specifies cause and effect relationships. As can be seen from the findings in Table (3), after analyzing the interview transcripts, 69 concepts were identified using the qualitative content analysis method. The identified concepts were first classified in the form of 17 subcategories. Finally, the subcategories were classified in the form of 3 main categories as follows:

#### Intelligent Decision-Making Model

Based on the subcategories obtained in the qualitative analysis, a worksheet has been prepared. Based on this worksheet, information is collected from the organization's database. Based on the subcategories obtained from the qualitative analysis, a worksheet was prepared. Based on this worksheet, the data were collected from the organization's database. In this part, based on the identified factors, the intelligent decision-making model of managers was developed using Prediction algorithms in Rapidminer software. The input data was normalized using the following formula:

$$x_i = \frac{x_i - x_{\min}}{x_{\max} - x_{\min}}$$

In this formula,  $x_i$  is the value of the  $i$ -th feature (Subcategories),  $x_{\min}$  is the lowest value of the feature and  $x_{\max}$  is the highest value of the desired feature. Normalizing the data gives a better result from the implementation of different models. Forecasting is the same as classification, with the difference that in forecasting algorithms, the results emerge in the future. One of the famous prediction techniques is AdaBoost.R. AdaBoost Regression can be used for regression problems that are calculated by boosting algorithm. For a problem with  $n$  samples  $S=(x_1,y_1),(x_2,y_2),\dots,(x_n,y_n)$ , the learning algorithm  $A$ , an integer  $T$  and a real number  $\Delta$ , the pseudocode of the AdaBoost Regression algorithm can be summarized as follows.

Initialize the weight vector  $w_i^1 = D(i)$  for  $i=1,\dots,N$   
 Do for  $t=1,2,\dots,T$

$$P^{(t)} = \frac{w^{(t)}}{\sum_{i=1}^N w_i^{(t)}}$$

1. Set
2. Choose randomly with distribution  $P^{(t)}$  the sample  $S^{(t)}$  from  $S$ ; Call the learning Algorithm  $A$  and get the hypothesis  $h_t=A_{S^{(t)}}$

3. Calculate the error follows.

$$\varepsilon_t = \sum_{i=1}^N P_i^{(t)} HS(\|h_t(x_i) - y_i\| - \Delta)$$

if  $\varepsilon_t > 1/2$  then  $T=t-1$  and abort loop.

$$\beta_t = \frac{\varepsilon_t}{1 - \varepsilon_t}$$

4. Calculate

5. Set the new weight vector to be

$$w_i^{(t+1)} = w_i^{(t)} \beta_t^{1 - HS(\|h_t(x_i) - y_i\| - \Delta)}$$

Output: the hypothesis

$$h_f = \arg \max_{y \in \{0,1\}} \sum \alpha_t HS(\Delta - \|h_t(x_i) - y_i\|)$$

$$\alpha_t = \log \frac{1}{\beta_t}$$

where

An upper band for error  $\varepsilon^{2\Delta} = \sum HS(\|h_f(x_k) - y_k\| - 2\Delta)$  is given as

$$\sum_{\|h_f(x_k) - y_k\| > 2\Delta} D(k) \leq 2^T \prod_{t=1}^T \sqrt{\varepsilon_t (1 - \varepsilon_t)}$$

AdaBoost regression method, used in this study, is a very powerful method used in the field of predicting various models. By taking the necessary steps to prepare the data, the necessary minimums of a data set for modeling by the clustering technique in data mining have been created. But since the modeling is done with the help of specialized data mining software and the most reliable software in data mining is RAPIDMINER software, the data format was adjusted at this stage. By doing this set of actions, the created data set is ready for the modeling process.

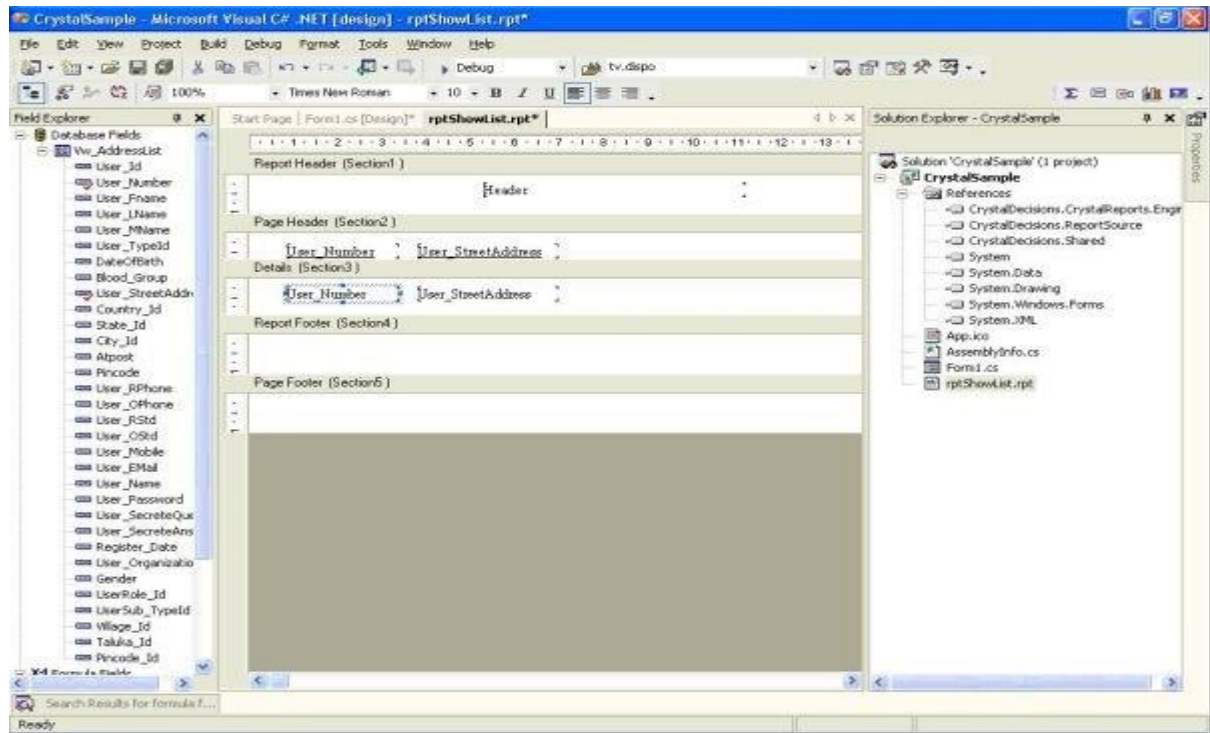
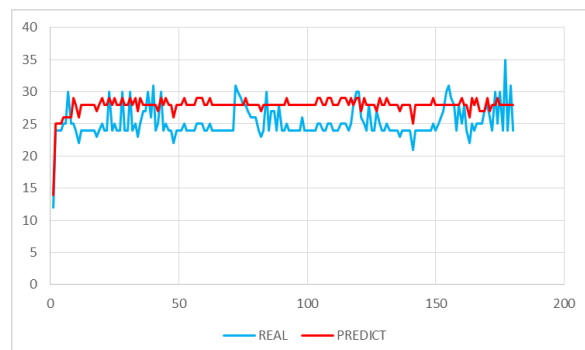


Figure 2- Report prepared with Crystal Report

The data entered in the data mining software is clear. The data is sifted and clear so that it can be used for proper analysis. As shown in Figure2, the blue line represents the current status of the organization and the red line represents the intelligent decision modeling based on specified indicators.



*Figure 2-* Actual and predicted (smart) decision making by AdaBoost.R algorithm

The difference between the simulation model and the real model is determined based on software data analysis. As displayed in Figure 3, the diagram shows the continuous process of the proposed intelligent decision making model.

## 5. Discussion

Day by day, increase in the amount of information, rapid changes in the environment, and the necessity of continuous communication with the environment that is always changing and transforming requires making the organization smarter through acquiring accurate, correct, and timely knowledge and organizing and analyzing them properly. Knowledge management helps the managers of organizations to achieve a proper analysis of the organization's issues and make more informed decisions. Smart organization is created by linking the knowledge of three groups of experts: professional experts, information experts, and information technology experts. Information specialists' knowledge and skills are actually considered the basis of the knowledge of the intelligent organization,

These professionals jointly help organize information and knowledge policies, structures, processes, and systems that develop organizational learning.

Organizations of the 21st century need more and more effective cooperation of information specialists so that they can take fundamental steps towards an intelligent organization. The new working world requires the ability to understand new problems that change with environmental situations. Therefore, the intelligent organization not only seeks the right answers to adapt to the environment, but also tries to raise the right questions. In this view, it is necessary to form all the work processes to innovate, create, distribute, modernize and apply the existing knowledge in the organization in order to survive and help the organizational growth.

The current research was conducted with the aim of designing an intelligent decision-

making model for managers in order to empower human resources. In this research, the three-faceted research model was used as a suitable framework for classifying the main categories. After extracting the concepts, the sub-categories and each of the main categories were categorized into one of the structural, behavioral, and environmental branches. The structural factors of empowerment include all the factors and physical conditions of the organization, which make up the organization's systems with a specific and continuous framework order. Structural factors included seven subcategories such as strategic directions of the organization, organizational structure dynamics, performance management system, training and improvement, knowledge management system, job design system, and information technology system. This part of the research findings is consistent with the results of the research conducted by Ghasemi et al. (2018), Soheili et al. (2019), Changizi et al. (2019), Jabarzadeh et al. (2018), Bakhtiari and Farjad (2018), Mansouri et al.(2018), Lotfi et al. (2018), NiazAzari Taqhvai Yazdi (2013), Jazni and Rostami (2010), Ahmadvand et al. (2018), Razaka et al. (2017), Hanaysha(2016), Kim and Kim (2013). Based on the findings of the research, the second main category of the empowerment model is behavioral factors. Behavioral factors included factors and human relations in the organization, which express the attitudes and behavior of the organization's members toward the issue of empowerment. In fact, these factors are considered the mobility and dynamics of the organization, and any factors and variables that are directly related to human resources are included in this branch. In the main category of behavioral factors, seven subcategories of managerial orientations, leadership style, development of employees' psychological characteristics, development of employees' competencies and decision-making skills, human relations system, job attitudes, and organizational culture have been identified and categorized. The results of this part of the research is in line with the results of Ghasemi et al. (2018), Soheili et al. (2019), Lotfi et al. (2018), Niaz Azari Taqavi

Yazidi (2013), Jazni and Rostami (2010), Ahmadvand et al. (2018), Razaka et al. (2017), Hanaysha (2016), Kim and Kim (2013).

The third main category included the environmental factors. Based on the findings, environmental factors included three sub-themes such as legal factors, political factors, and economic factors. In this regard, Jabarzadeh et al. (2018), NiazAzari (2013), Ghasemi et al. (2019), Changizi et al. (2019), Mansouri et al. (2018), Ahmadvand et al. (2008) have mentioned the role of environmental factors in empowering employees. The most important limitation was the data collection and face-to-face interviews, which made the process of information gathering time-consuming. Also, one of the most important limitations of qualitative research is that its results cannot be generalized to other societies.

## 6. Conclusion

The smart organization has the special ability and skill to acquire, organize and share all types of knowledge of their organization. With knowledge management, these organizations are able to adapt their behavior to the changing and dynamic environment and increase their performance.

According to the results of the research, it is suggested that in line with the demands of the Supreme Leader of the country and upstream documents, the police force, should adopt appropriate strategies for the effective implementation of employee empowerment programs. In this regard, the following recommendations are made:

- 1- Drawing a strategic and operational plan for empowering employees based on the goals, and missions of the police force.
- 2- Supporting managers and commanders in formulating and implementing employee empowerment programs at different organizational levels.
- 3- Streamlining the organizational structure of the police force
- 4- Creating cultural and educational platforms for the institutionalization of transformationalism among the commanders and employees of the police force.

5-Improving the system of human relations and encouraging collective and teamwork and promoting organizational trust.

## Declaration of Competing Interest

The author declares that he has no competing financial interests or known personal relationships that would influence the report presented in this article.

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