

The Evaluation of Technological Empowerment Level of Bank (Case Study: Melat Bank)

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ABSTRACT

Technological evaluation is a thinking framework helping the better understanding of technology and decision making. To use new technology and development, at first we should evaluate the existing technology. Here, based on the high importance of technology development, top management of economical enterprises should have correct understanding of technological empowerment of their organization, identification of technological changes in the world and considering the attempt of competitors to achieve new technologies can improve technological empowerment of their organization. In this study, we investigated technological empowerment in Melat bank located in industrial free trading and we used Ramansen and Panda model to evaluate technological empowerment levels and it was analyzed by questionnaire. We concluded that technological empowerment level of Melat bank (Free trading regions- industrial), based on the investigations to use good technology of good level.

KEYWORDS: Technology; technology management, technology empowerment

INTRODUCTION

Technological services range is wide in the current world and continuing life without technology is not imagined and this goes to the creative mind of human being. Indeed, technology is practical performance of knowledge. Technology is knowledge of technology, using scientific methods, facilities in productions, services, communications (Faqih, 2000:13). Today, by technological progress in various levels and using modern technologies, the need to evaluation of technology is felt more. Technology evaluation is a thinking framework leading into better understanding of technology and decision making about it. To develop and use new technology, we should evaluate the technology condition. As great part of service, financial and credit activities of the banks are done electronically, traditional processes are used in formulating modern plans of the banks. Now electronic services of banks are presented in the form of receives and electronically payment via ATM, PIN, PAD and POS and internet portals with other technologies being used in the form of telephone bank and mobile bank, digital signature, evaluation systems and validity of customers and bank data exchange. Melat bank as one of the six great commercial banks considered as one of the private banks use considerable technologies as public and private. After technology transfer processes, technology empowerment evaluation is a practical issue. Technology empowerment models refer to investment, operation, supporting, human skills, and communication and environment abilities. These abilities have good evaluation in technology field in a company as an economical enterprise as bank. The evaluation of empowerment of Melat bank with other competitors (Saderat) is active in free zones that besides evaluating competition capabilities, give good suggestions for management and searching of the measurements for better performance and efficiency of Melat Bank. As the maximum electronic services are occurred in customer section, interior processes of banks are done traditionally and document and fingerprint and customer signature in electronic banks are considered by the banks. The result of the investigation of developing countries is similar to our country but the main approach of the countries to E-banking is improving and developing technological empowerment by continuous process of technological learning in mass automation regime (Traditional banking). These countries by considering the implication of these technologies imported these systems and by using the collective technological skills and knowledge, used e-banking and bridge the gap with developed banks.

Based on the mentioned problems and identification of the reason of difference at e-service level in Iran banks and the existing gap between e-banking industry in Iran and developing countries in this industry, in this study, it is attempted to identify technological empowerment leading into the good application of e-banking industry as a new technology and present some strategies to remove the gap.

Melat bank used electronic technology and information well in bank competition. The recent measurements of this bank in electronic services and payment systems and internet draft and setting up Melat Bank customer association showed that consideration of top managers of this bank in e-banking and technological dimensions. Melat bank branches in free zone in competition with other branches of this bank considered their technological advantages.

METHOD

Main question

What is the technological empowerment of Melat bank branches (free trading zone-industrial)?

Main objective

The investigation of technological empowerment levels of Melat bank branches (free trading zone-industrial).

Research scope

Study time period

The study period of this study started from Khordad 2011 to the early Bahman 2011.

Study location

This study is done in Melat bank branches in free industrial trading zone with Melat bank branches as 8.

Study population and sample

The supervisors, managers and staffs of Melat bank exceeding 39 people and their education was ranging associate to BA. The method to evaluate technology in this study was selected among various models and methods of technology evaluation of Panda, Ramansen model. To determine the technology empowerment and technological gap, SPSS software was used.

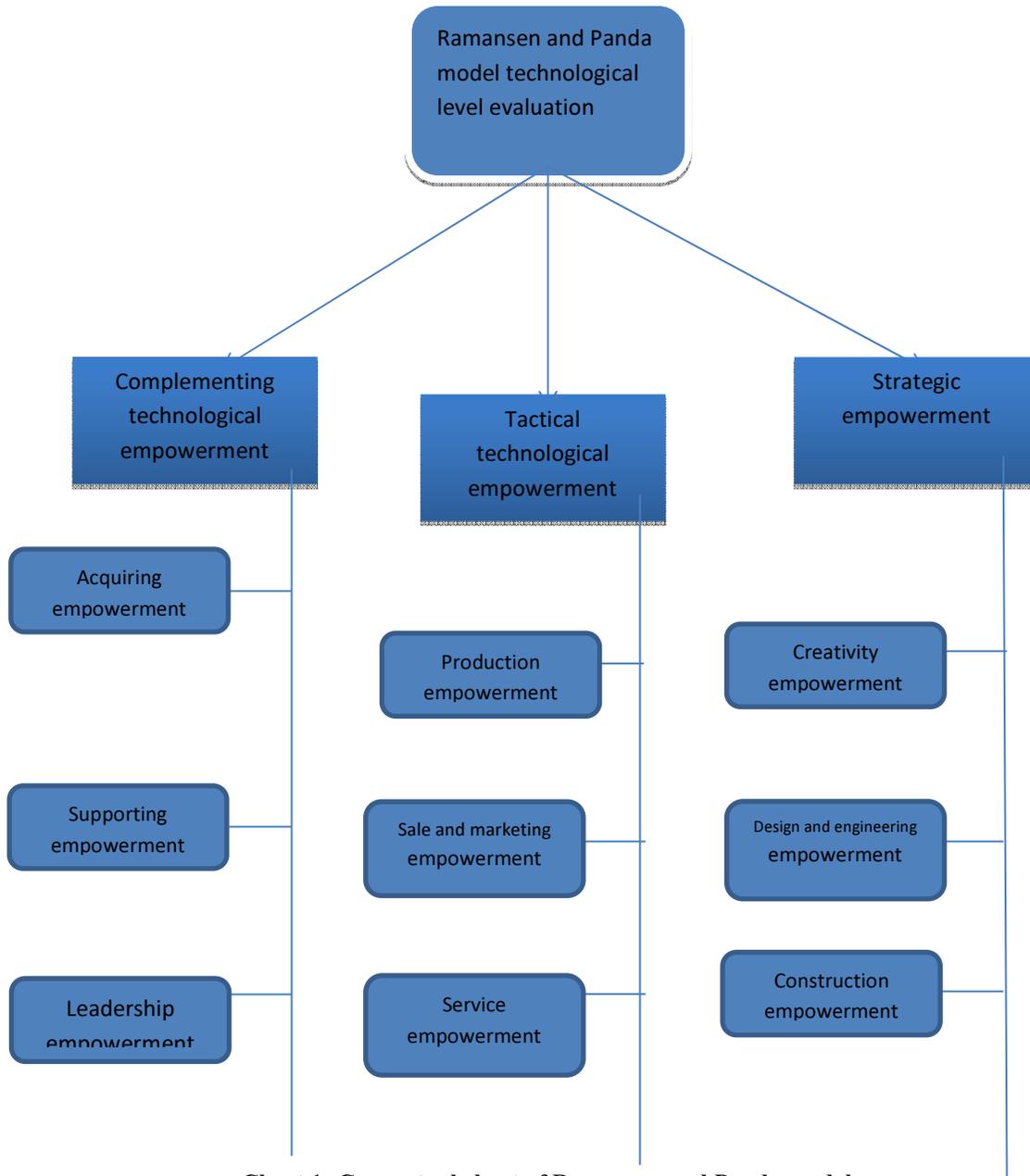


Chart 1: Conceptual chart of Ramansen and Panda model

Technological empowerment level (Ramansen and Panda)

Concept	Dimensions	Components	Index
The evaluation of technological empowerment level	Strategic empowerments	Creativity empowerment	Improving current products and processes
			Innovating new products and processes
			Creating new organization structures
			Planning, supervision and control of R&D projects
		Design and engineering empowerment	Evaluation of projects based technical, economical, financial, environmental and social outcomes criteria
			Common designs and partial engineering in processes and products
			Renovating purchased technology
			Planning, supervision and control design activities and contracts engineering
		Construction empowerment	Supporting feasibility studies and ability to do value engineering
			Doing the activities of constructing the structures
			Contractor activities
			Planning, supervision and controlling construction, construction and set up
	Tactic technological empowerment	Production empowerment	Effective control of technology in main supporting processes
			Guarantee quality, inspection and invoice control
			Removing the defects and maintenance and preventive keeping and repair
			Production schedule and scheduling equipments repair and maintenance
		Marketing and sale empowerment	Identifying customers, stating tender price and negotiation about sale conditions
			Supplying product or services to customers
			Planning, supervision and coordination of marketing and sale activities
		Service empowerment	Recognizing the problems, corrective measurements and taking out the product
			Giving technical proposal to the customers
			Doing the studies of identifying the customers need and determining their satisfaction level
			Planning, supervision and coordination in giving service and schedule of equipments and service staffs
	Technological completing empowerment	Acquiring empowerment	Identification, evaluation, negotiation and finalization of technology acquiring conditions and supportive facilities
			Identification, evaluation, negotiation and finalization of financial credit conditions
			Identification, evaluation, negotiation and finalization of human resources conditions
			Planning, supervision and coordination of resources providing process
Supporting empowerment		Giving education plans	
		Strategic planning	
		Networking and information support	
		Keeping high level of security	
Leadership empowerment		Technology sale	
		Routing	
		Taking decision and performance	
		Integration of organization activities	
		Empowerment of prediction of required technology	
Empowerment of evaluation of environment to formulate strategy			

In this study, to measure the attitudes of respondents regarding the technological empowerment evaluation level of Melat bank, the responses to the questionnaire was used in a 5-rank Likert scale with very weak, weak, relatively good, good and very good choices. (Measuring scale was 1, 2, 3,4, 5)

Table 1: Likert spectrum

Choices	Very weak	Weak	Relatively good	Good	Very good
Specialized analytical code	1	2	3	4	5

As each of the questions of the questionnaire had numerical values, to evaluate the validity of the questionnaire, Cronbach's alpha was used. The validity coefficient of the questionnaire was 84% significant at alpha level 1% showing the high validity of measurement instrument.

The validity of the current study questionnaire was determined by content validity method. Content validity is a kind of validity being used to investigate the components of a measurement instrument. Content validity of a measurement instrument depends upon the constituent questions. If instrument questions show special skill the researcher measures it, the test has content validity.

RESULTS

The staffs and managers of separate sections of Melat bank of free trading-industrial zone being selected randomly were exceeding 31 people and the staffs of Saderat bank were more than 30 people. Their education level was ranging from Diploma to BA and was questioned.

Table 2: The descriptive parameters of Melat Bank respondents

No.	Education level	Number	Work history average
1	Diploma	15	12.5
2	Associate	9	11.5
3	BA	15	6.1

Table 3: The statistics of Melat Bank respondents

Name	The number of Melat bank respondents
Central Kish	12
Kish pardis market	4
Commercial center market	5
Arabs market	7
Goods stock	2
Qeshm central bank	4
Dargehan bank of Qeshm	2
Free zone of Chabahar	3

In the following table, the sum of the results of answering the sent questionnaires to Melat bank of industrial trading zone expressed by experts. The collected data were summarized and classified by descriptive indices and the research findings were analyzed and besides describing the data via frequency tables of descriptive indices, the definite data were described.

Table 4: The results of answer to Melat bank questionnaire

Concept	Dimensions	Components	Index	The average of each index of 5	Success percent of average of each index
The evaluation of technological empowerment level	Strategic empowerments	Creativity empowerment	Empowerment of adjusting and changing the processes, applications, existing communication infrastructures	3.612903226	72.25806452
			Empowerment of presenting telecommunication services in creating new organization structure	3.666666667	73.33333333
			Empowerment of planning, supervision and control of D&R projects	3.322580645	66.4516129
		Design and engineering empowerment	Empowerment of evaluating the projects based on technical, economical, financial, environment and social outcomes	3.258064516	65.16129032
			Empowerment of adjusting and changing the process, applications, communication service and infrastructures	3.419354839	68.38709677
			Empowerment of the organization in performing new services	3.64516129	72.90322581
			Empowerment of modernization of network	3.806451613	76.12903226
			Empowerment of planning, supervision and control of design and engineering activities and contracts	3.419354839	68.38709677
		Construction empowerment	Empowerment of supporting feasibility and doing value engineering	3.290322581	65.80645161
			Empowerment of preparing comprehensive technical	3.322580645	66.4516129

			plan				
			Empowerment of management of common investment collaboration	3.870967742	77.41935484		
			Empowerment of planning, supervision and control of construction of the network	3.774193548	75.48387097		
	Tactic technological empowerment	Production empowerment		Empowerment of organization for development of the channel of sending without service	3.451612903	69.03225806	
				Empowerment of organization in increasing the number of customers for improved services	3.870967742	77.41935484	
				Empowerment of organization to identify company customers or business users and high value	3.838709677	76.77419355	
				Empowerment of organization in customer need analysis	3.322580645	66.4516129	
		Marketing and sale empowerment			Our bank has the power to identify the customers, proposal and negotiation of sale conditions of service	3.290322581	65.80645161
					Our bank has the power to provide service giving to the customers with each contract	3.290322581	65.80645161
					Our bank has the power for planning, supervision and coordination of sale activities and marking	3.580645161	71.61290323
		Service empowerment			Our bank can recognize the problems, corrective measurements and removing the product	3.322580645	66.4516129
					Our bank can give new suggestions to the customers	3.741935484	74.83870968
					Our bank can do the researches of identifying the customers' needs and their satisfaction level	3.677419355	73.5483871
					Our bank can plan, supervise and coordinate the service giving capacity and schedule of equipments and services staffs	3.35483871	67.09677419
		Acquiring empowerment			Empowerment of doing the projects/investment	3.838709677	76.77419355
					Empowerment of identification, negotiation and finalization of technology conditions being achieved	3.548387097	70.96774194
					The empowerment of having update information about the properties, quality and accessibility and the price of required components	3.677419355	73.5483871
					Empowerment of evaluation, negotiation and finalization of financial conditions	3.612903226	72.25806452
					Empowerment of organization in planning, supervision and coordination of development acquiring of seller	3.483870968	69.67741935
		Supporting empowerment			Empowerment of having a calculation system and issuing flexible bill	3.64516129	72.90322581
					Empowerment of presenting education for improvement of the skills of staffs and their motivation	3.612903226	72.25806452
					Empowerment in giving information support and network	3.774193548	75.48387097
					Empowerment of having a calculation system and issuing flexible bill	3.838709677	76.77419355
	Empowerment in keeping data bank for common reject rate of service				3.419354839	68.38709677	
	Technological completing empowerment	Leadership empowerment		Empowerment of commitment to strategic planning	3.870967742	77.41935484	
				Decision making and performance empowerment	3.774193548	75.48387097	
				Empowerment of integration of organization activities	3.677419355	73.5483871	
				Empowerment of predicting required technology	3.806451613	76.12903226	
Empowerment of environment evaluation to formulate strategy				3.612903226	72.25806452		

Main question: What is the level of Technological empowerment of Melat bank branches (free trading-industrial zone)?

To answer this question based on technology empowerment level, we used Panda and Ramansen model and classified empowerment levels in three parts of organization strategic empowerment, tactic technological empowerment and complementing technology empowerment and we investigated each separately.

What are the levels of organization strategic empowerments?

To answer this question, 12 indices were designed estimated in the form of 12 questions in questionnaire and the data are shown in table 5 for Melat bank.

Table 5: The average strategic empowerment of Melat Bank

Dimensions	Components	Index	Success percent of each component
Strategic empowerment	Creativity empowerment	Empowerment of adjusting and changing the processes, applications, existing communication infrastructures	70.68100358
		Empowerment of presenting telecommunication services in creating new organization structure	
		Empowerment of planning, supervision and control of D&R projects	
	Design and engineering empowerment	Empowerment of evaluating the projects based on technical, economical, financial, environment and social outcomes	70.19354839
		Empowerment of adjusting and changing the process, applications, communication service and infrastructures	
		Empowerment of the organization in performing new services	
		Empowerment of modernization of network	
	Construction empowerment	Empowerment of planning, supervision and control of design and engineering activities and contracts	71.29032258
		Empowerment of supporting feasibility and doing value engineering	
		Empowerment of preparing comprehensive technical plan	
		Empowerment of management of common investment collaboration	
		Empowerment of planning, supervision and control of construction of the network	

Table 6: The average empowerment level of technological empowerment of Melat bank

Dimensions	Components	Success percent of each component
Strategic empowerment	Creativity empowerment	70.68100358
	Design and engineering empowerment	70.19354839
	Construction empowerment	71.29032258
Total average of strategic empowerment		70.72162485

What is the level of tactic technological empowerment of the organization?

To answer these questions, 11 indices were designed in 11-items in questionnaire and the data are shown in Table 7 for Melat bank.

Table 7: Empowerment average of tactic technology of Melat bank

Dimensions	Components	Index	Success percent of each index	Success percent of each component
Tactic technological empowerment	Production empowerment	Empowerment of organization for development of the channel of sending without service	69.03225806	72.41935484
		Empowerment of organization in increasing the number of customers for improved services	77.41935484	
		Empowerment of organization to identify company customers or business users and high value	76.77419355	
		Empowerment of organization in customer need analysis	66.4516129	
	Marketing and sale empowerment	Our bank has the power to identify the customers, proposal and negotiation of sale conditions of	65.80645161	67.74193548

		service		70.48387097
		Our bank has the power to provide service giving to the customers with each contract	65.80645161	
	Our bank has the power for planning, supervision and coordination of sale activities and marking	71.61290323		
	Service empowerment	Our bank can recognize the problems, corrective measurements and removing the product	66.4516129	
		Our bank can give new suggestions to the customers	74.83870968	
		Our bank can do the researches of identifying the customers' needs and their satisfaction level	73.5483871	
		Our bank can plan, supervise and coordinate the service giving capacity and schedule of equipments and services staffs	67.09677419	

Table 8: The average technological empowerment level of Melat Bank

Components	Success percent of each component
Production empowerment	72.41935484
Sale and marketing empowerment	67.74193548
Service empowerment	70.48387097
Total average of tactical technology empowerment	70.21505376

What is the level of complementing technological empowerment of the organization?

To answer these questions, 12 indices were designed in 12-items in questionnaire and the data are shown in Table 9 for Melat bank.

Table 9: The average completing technological empowerment of Melat Bank

Dimensions	Components	Index	Success percent of each component
Completing technological empowerment	Acquiring empowerment	Empowerment of doing the projects/investment	72.64516129
		Empowerment of identification, negotiation and finalization of technology conditions being achieved	
		The empowerment of having update information about the properties, quality and accessibility and the price of required components	
		Empowerment of evaluation, negotiation and finalization of financial conditions	
	Supporting empowerment	Empowerment of organization in planning, supervision and coordination of development acquiring of seller	73.16129032
		Empowerment of having a calculation system and issuing flexible bill	
		Empowerment of presenting education for improvement of the skills of staffs and their motivation	
		Empowerment in giving information support and network	
		Empowerment of having a calculation system and issuing flexible bill	
	Strategic empowerment	Empowerment in keeping data bank for common reject rate of service	74.96774194
		Empowerment of commitment to strategic planning	
		Decision making and performance empowerment	
Empowerment of integration of organization activities			
		Empowerment of predicting required technology	
		Empowerment of environment evaluation to formulate strategy	

Table 10: The average completing technological empowerment of Melat Bank

Components	Success percent of each component
Acquiring empowerment	72.64516129
Supporting empowerment	73.16129032
Strategic empowerment	74.96774194
Average total completing technological empowerment	73.59139785

Based on average complementing technological empowerment of Melat bank 73.5, we can say that complementing technological empowerment of the sample organization is in good condition.

Table 11: The average technological empowerment level of Melat Bank

Dimensions	Average of each dimension	Average percent of each dimension
Strategic empowerment	3.536081243	70.72162485
Tactic technological empowerment	3.510752688	70.21505376
Completing technological empowerment	3.679569892	73.59139785
Total average	3.575467941	71.50935882

In order to investigate that technological empowerment of Melat bank is at good level, to test the hypothesis, we have the following results.

T-student test

This test is a parametric test being applied to compare the averages. In sum, there kinds of t-tests are classified as:

Table 12: Statistical test of Melat Bank

Technological empowerment	Existing level	Good level	Quantity amount of gap between existing and good level	Statistical test	Significance level
Strategic empowerment	70.72+13.67	100	29.28	T=-11.75	0.01
Tactic empowerment	70.21+15.5	100	29.79	T=-10.41	0.01
Completing empowerment	73.59+14.6	100	26.41	T=-9.92	0.01
Total technology empowerment	71.5+13.46	100	28.5	T=-11.5	0.01

As is shown in the above table, the average strategic empowerments in Melat bank is 70.72 with standard deviation of 13.67 having significant difference with good level, 100 ($p < 0.05$). As is shown in the above table, at confidence level 100, significance level of the test was smaller than error 0.05 (first type error), the average strategic empowerment of the organization is in suitable condition compared to the good level.

The average strategic empowerments in Melat bank is 70.21 with standard deviation of 15.5 having significant difference with good level, 100 ($p < 0.05$). As is shown in the above table, at confidence level 100, significance level of the test was smaller than error 0.05 (first type error), the average tactic empowerment of the organization is in suitable condition compared to the good level.

The average complementing empowerments in Melat bank is 73.59 with standard deviation of 14.6 having significant difference with good level, 100 ($p < 0.05$). As is shown in the above table, at confidence level 100, significance level of the test was smaller than error 0.05 (first type error), the average complementing empowerment of the organization is in suitable condition compared to the good level.

The average technological empowerments (total questions) in Melat bank is 71.5 with standard deviation of 13.46 having significant difference with good level, 100 ($p < 0.05$). As is shown in the above table, at confidence level 100, significance level of the test was smaller than error 0.05 (first type error), the average technological empowerment of the organization is in suitable condition compared to the good level.

DISCUSSION

The main question of the study was such that what is the level of technological empowerment level of Melat bank in free trading zone and to answer this question, we designed a questionnaire based on Ramansen and Panda model. We found that technology empowerment level was in good level.

Table 13: The quantity average of the gap between the existing and good level in Melat Bank

Technological empowerment	Existing level	Good level	Quantity level of the gap between existing level and good level
Strategic empowerment	70.72	100	29.28
Tactic empowerment	70.21	100	29.79
Complementing empowerment	73.59	100	26.41
Total average	71.50	100	28.50

Conclusion

1- To answer the first question that what is the level of technological empowerment level of Melat bank branches (free trading-industrial zones). Based on technology empowerment levels, we used Ramansen and Panda model and classified the empowerment levels as organization strategic empowerments, tactic technological empowerment and complementing technology empowerment and investigated each separately and concluded that:

a. Technological empowerment level of Melat bank branches (free trading-industrial zones) based on the investigations by using good technologies had good level and this showed good condition of Melat bank and by using human ware, organization ware, information ware could be successful.

b. These results showed that Melat bank with good conditions in terms of management and the most important success factor is successful management.

2- To answer the second question, the improvement and filling the gaps, the following suggestions are presented to improve the gap to reach the good level (100%).

Recommendations

a. It is recommended that we consider applied technology life cycle and innovations rate and innovation rate in the bank to achieve better improvement of the existing condition.

b. Formulating technology strategy and technology map is on the priority in terms of technological empowerment.

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