EFFECT OF TECHNOLOGY CHANGES IN RELATION BETWEEN LEAN PRODUCTION AND PERFORMANCE OF PRODUCTIVE INSTITUTION OF GUILAN PROVINCE

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Abstract. Productive industries are the most prevalent industries at 21 century. Any economy can’t continue its life without productive industries. Therefore assessing institutions is the most important subject paid attention by investors, creditors, managers and governments. In this direction the main goal of this research is considering the effect of technology changes in relation with lean production and performance of productive institutions in Guilan province. Method of data collection is correlation and statistical society of research is all companies activating at industrial cities of Guilan province. Method of sampling is available improbable sampling method. Studying number includes 209 productive institutions. After data collection through standard questionnaires, for assessing relation between variables structural equation modeling techniques with partial least square approach has been used and generally all data analysis has been done through SPSS and PLS. Result of hypothesis of research denotes positive effect of cooperation with supplier and management of relation with customer on performance of lean production of institution. Positive effect of performance of lean production on financial and non-financial performance of institution was approved. Also modifying role of technology changes in relation between performance of lean production and financial performance of institution was approved. Also modification of technology changes in relation between performance of lean production and non-financial performance of institution was approved.

Keywords: Financial performance, Non-financial performance, Technology changes, Performance of lean production, Relation with customers

Introduction. Productive industries are the most prevalent industries at 21 century. Any economy can’t continue its life without productive industries (Darzian Azizi et al, 2014). Assessing performance of institutions are the most important subject paid attention by investors, creditors, governments and managers. Investors(stockholders) for assessing degree of success of management and applying their investment and decision about saving increasing or selling investment and assessing performance of investing institution are interested and pay attention to creditors for making decision about degree and rate of credit and assessing performance(Khanlori and Sabzeh ali,2014). Information related to performance enables institutions to achieve competitive advantage (Kord naeej et al, 2014). Assessing performance of institution is the phenomenon that institutions pay attention for achieving goals of institution and favorable result in the direction of achieving better performance (Bhatti et al, 2014). Performance of institution is a multi-dimensional concept and has important dimensions that its two important dimensions are financial and non-financial performance (Altuntas et al, 2014). Financial performance is a description of levels of work or goals that leads to result or favorable and satisfying output and in a related time period (Yildiz et al, 2014). Financial performance of institutions is having financial power, correct and reasonable use of assists of institutions and achieving financial goals than competitors (Lu t al, 2015). Financial performance affects total performance of institution positively and meaningfully (Al-Tally, 2014). Non-financial performance of an institution is called a set of factors such as capability of institution at increasing customer satisfaction at improving giving service and increasing satisfaction. There are many factors that affect performance of institution but factors like internal lean production, cooperation with supplier, relation with a customer and changes of technology are the most important effective factors on performance of institutions (Chavez et al, 2015).

Management account practice (MAP) is the most important effective factor on organizational performance. Lean production has been as the most favorable plan at removing ease at production and service industry so companies use it for increasing quality and utilizations (Abdul Wahan et al, 2013). The concept of lean production is applied for maximizing and optimization of resources in the direction of production regarding minimizing wastes. Lean production is a multi-dimension approach that includes an extensive set of managerial methods such as just in time production, quality systems working teams, detailed production, and management of supplier in an integrated system. Strategy of management accounting practices is positively affected by assessing obvious performance and is positively used for finding cost of value flow. Also activities of management accounting practices directly affects operational performance through activities of lean management. Customer relationship management is another factor that affects performance of organizations. Customer relationship management can be defined as administrative and managerial attempts for managing, interaction of business with customers through process and technologies of business that is going to perceive customers of a company (lehmann, 2013). Customer relationship management is an approach that empowers organizations a applying internal resources for customer relation management for the whole cycle of their life in order to create a competitive advantage and improves performance of an organization (Mohammad et al, 2014). This factor is an strategy for business that its goal is creating and developing relations based on customer knowledge that provides fields of customer relation by using information technology (Garrido- Moreno & Padilla-Melendez).

Based on statistics and information of standard organization of industrial research of country, Guilan province in the view of industry situation and activity of active companies has faced problem in its industrial cities. One of the most important reasons of success of these companies is inattention to factors affecting financial performance and affective index on organizational performance. Based on reports of chambers of commerce situation of industry in
Guilan province has been located after provinces of sistan and balochestan and koredestan at the third rank. Many active industries in this direction face problem. For example textile industry of Guilan province that counted as one of the best industry has recessed. At the past many famous companies like poshesh factories, Iran barak and Iran poplin that were identified in the world have been closed completely and only Iran Poplin Company with 15 percent of nominal capacity is active. Also among companies that are active at industry, companies of food industry have important role in this cycle and based on viewpoint of experts of this area, food industry companies have the most complicated supply chain(Feiz et al, 2012). The importance of food industry due to creating employment and increasing direct or indirect cooperation in production of national income and also its low worthy in comparison with other industries, but by existence of potential facilities and potential of the region, companies of food industry haven’t presented favorable performance at all. During recent years food industries have faced many problems and couldn’t present proper performance. Many of units of food industries due to banning and shortage of primary material, excessive import of fundamental goods, tolerating much cost and other problems are forced to work at below the nominal capacity and dismissal of employees and finally have claimed bankruptcy, so we can get the point that performance of food industry companies is in the direction of other productive companies that haven’t favorable situation. Therefore the main question of research is identified as:

Do technological changes affect relationship between management accounting production and performance of productive institutions?

**Literature review.** Nowadays productive institutions in developing countries act as problem-solving, professional consulter, especially at increasing financial resources of companies and collecting and exchanging necessary information for their customers and are counted as a motor of economic motivator in any country. In the direction of constant development of countries, attention to growth of organizations such as policies is paid attention by all managers. Identification and determining degree of effect and type of relationship of these parameters with success of institutions in equipping monetary resources is an important category. Nowadays conditions and situations of institutions isn’t equal with each other’s and effective parameters on equipping monetary resources for even each branch of a group may be different. In between fluctuation of performance of institutions in relation with different cases and internal process of institutions is the discussing subject of experts. Performance is one important anxiety of stockholders and managers of institutions, managers by using new methods try to manage organizations better and present excellent performance (Kordestani and Hadilou, 2011). Performance of an organization is a criteria for measurement and determination of degree of efficiency of an organization in an specific time period that is distinguished through signs in market, customer and degree of its sale in the organization. This criterion has recently been changed into an important and applying concept in management researches. Especially in researches in which the researchers study discussions related to the organization such as structure, strategy and planning. Performance measurement helps managers at the process of making decision and also provides capability of supervision and exact control of activities of the organization (Azevedo et al, 2011). Generally we can know the goal of assessing performance as improving organizational efficiency that is the basis for utilization of the organization (roghaian et al, 2012). Organization performance has different dimensions that financial dimension is its most important dimension. Financial performance of a company is achieving organizational goals or active constructing and efficient performance. Financial performance was defined as anything that helps value of cost that not only helps reducing cost but increases its value (Karaye et al, 2014). On the other hand organizations beside attention to financial dimension have especial attention to non-financial dimension, because attention of organizations to just financial dimension can’t; support success of organizations in all aspects. Therefore organizations should identify other effective factor of financial and non-financial performance correctly and take action in the direction of improving it (Lee et al, 2015).

One key method for improving decisions is regular measurement of performance inside the organization. Many organizations have understood the importance of regular assessment and have created assessment systems. For creating a system of assessing performance some criteria should be chosen to become reflection of strategies of an organization to the best way. These criteria can be key factors of current or future success of an organization that is taken from organizational strategy. Recent researches show that only 5% of workforces are aware of strategies of companies and only 15% of managers give importance to the strategies of an organization and 60% of organizations don’t make relation between budget of the organization and strategies of an organization and 15% of administrative teams discuss on strategies of a company for less than an hour. Also concentration on the traditional method of assessing financial performance causes creation of much problems. Because managers have replaced short-term profit to long-term profit and didn’t pay attention to criteria such as development of products, improvement of human resources and so on that cause creation of long-term profit (Nematzadeh and Hayeri Meibodi, 2015).

One approach of effective management is system of management accounting production that is applied through constructive companies in different form and names. Management amounting production is the most important step that major business has tried to implement in global market for continuity of their competition. The main goals of approach of management account production are reducing cost through reduction of activities lacking value. Tools and techniques of management account production like on-time production, saving total production and equalizing production have been used at different production systems. Existing improvement and developments at management account production are achieved based on reducing cost trough deleting all additional cases related to all activities for presenting services and order to a customer. Wastes and additional cases includes all activities that use through acting cost of production from resources but they don’t have meaningful and important value for a customer (Mhod, Rohani & Zahraee, 2015).

By complication of economic environment and existence of business competitors there isn’t a guarantee for long-term survival. On the one hand regarding development of companies and separation of possession from
management discussion of assessment has taken significant role. Therefore balance score that has been consist of financial and non-financial assessment, with integrated and exact viewpoint to the performance of organizations has been developed as a framework for assessing proper performance. Regarding above subject performance of an organization denotes situation of its survival at the environment as emphasis of management on the role of staff at improvement of performance has manifested its importance and can be done into the form of fundamental investment at the section of human resources. Investments that is done through penetration at the work territory. By existence of such condition we can expect high and favorable performance from the organization. Regarding applied interpretation about knowledge management and organizational performance this result is achieved that by using hidden and manifested resources of knowledge and creating culture based on knowledge at the organization can be counted as a successful tool for making them more effective. With a view to the assessment of performance of an organization in current business we conclude that by concentration on financial information that is provided in the direction of managerial and controlling goals we can have system of assessing efficiency. Assessment system of improper performance is a barrier for development of an organization whereas assessment is like a communicative bridge between strategy and action. Therefore organizations should pay attention to new methods of assessing performance that maybe one effective criterion of assessing performance that includes indexes of current past and future performance and puts non-financial criteria besides financial ones. Balanced assessment presents comprehensive view from what is happening inside and outside the organization (Nematizadeh and Hayeri Meibodi, 2015). By attention to the importance of productive institution of economy of a country the subject of organizational performance is important. Therefore institutions should identify dimensions and factors affecting performance and take action in the direction of strengthening them. In the following a summary of research records are resented.

<table>
<thead>
<tr>
<th>Title</th>
<th>Result of research</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decisions of managers based on non-financial criteria of assessing performance at conditions of environmental uncertainty</td>
<td>Result of statistical analysis shows that companies that their managers use non-financial criteria for their decisions more, have better performance, but environmental uncertainty has important effect on the relation between degree of using non-financial criteria and degree of performance of a company and this effect against result of research of hock reduces effect of non-financial criteria. Also result of most analysis shows that non-financial criteria based on internal process don’t affect performance of the company.</td>
<td>Bazazzadeh (2014)</td>
</tr>
<tr>
<td>Identifying and analyzing relations of strategic planning, capability of flexibility and performance of universities and higher education institution, research cases, shahid beheshti university</td>
<td>Findings of research of strategic planning has positive and meaningful effect on flexibility and mediating role of flexibility at relationship between strategic planning and performance was approved. Also research flexibility has had positive and meaningful effect on financial performance and dimension of structural and technological flexibility. Obtained result of consideration of relation between educational and financial flexibility on financial performance and non-financial performance with financial performance showed meaningful difference and there wasn’t positive and meaningful relation.</td>
<td>Yazdanpanah and soltani (2014)</td>
</tr>
<tr>
<td>Considering effect of customer concentration on financial performance of a company</td>
<td>Findings show that customer concentration has positive relation with financial performance that is meaningful statistically. Therefore increasing customer concentration improves financial performance of companies. Also companies having high customer concentration experience more optimized management. Findings of this research support importance of major customers at the market.</td>
<td>Kordestani and abashi (2014)</td>
</tr>
<tr>
<td>Considering relations of multiple flexibility on performance of organizations at the process of strategic planning of organizations</td>
<td>Result of consideration of relations of educational and financial flexibility on financial performance and non-financial relations with financial performance has different meaning and doesn’t she positive and meaningful relation.</td>
<td>Yazdanpanah (2013)</td>
</tr>
<tr>
<td>Assessing performance of production with lean approach by using data envelope analysis</td>
<td>Proceeding research is counted quantitative research that is related with reviewing extensive literature and also questionnaire is written by implementing interviews and has used it for data collection. After doing</td>
<td>Zanjirchi and tahmores (2010)</td>
</tr>
</tbody>
</table>
techniques statistical analysis result of research was stated as how was the effect of factors and dimensions of MAP and its implementation?

### Table 2: Review and summary on external research

<table>
<thead>
<tr>
<th>Title</th>
<th>Result of research</th>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actions of internal management account production and performance: regarding the role of technology changes</td>
<td>Result of hypothesis of research denotes positive and meaningful effect of cooperation with supplier and customer relation with performance of internal MAP. Also positive and meaningful effect of performance of internal MAP on financial and non-financial performance has been approved. Finally at final hypothesis of research modifying role of technology changes in relation between performance of internal MAP with financial and non-financial performance was approved.</td>
<td>Chavez et al (2015)</td>
</tr>
<tr>
<td>Effect of activities of MAP on operational performance and business performance</td>
<td>Result denotes that activities of MAP should be implemented totally. Activities of MAP have meaningful effect on operational performance and business performance. Also operational performance plays moderating role at relation between activities of MAP and performance of business.</td>
<td>Nawanir et al. (2013)</td>
</tr>
<tr>
<td>MAP and operational performance in Brazilian companies</td>
<td>Result regarding moderating role of the variable of competitive skills showed a positive relationship between MAP and operational performance.</td>
<td>Giro Moori, (2013)</td>
</tr>
<tr>
<td>Choosing supplier and assessment of performance and on-time production and environmental variables</td>
<td>Result of more analysis showed that choosing a supplier affects performance assessment and also non-financial criteria based on internal process don’t affect performance of a company.</td>
<td>Aksoy &amp; Ozturk, 2011)</td>
</tr>
<tr>
<td>Relationship between MAP and performance of a company: case study: productive companies in Sweden</td>
<td>Result shod that MAP has positive and meaningful effect between performance of a company(both financial and non-financial performance).</td>
<td>Granstrom (2010)</td>
</tr>
</tbody>
</table>

### Research conceptual model.
Research model is taken from research model of Chaves et al (2015). In this model cooperation with supplier and relationship with a customer has role as independent variables, performance of MAP as mediating variable, technology changes as modifying variables and financial and non-financial performance as dependent variable. Performance of internal MAP is one factor that affect financial and non-financial performance of institutions (Chaves et al, 2015). Such research that was done in the area of MAP was done by Archi, Lakmi. This research is one Ph.D thesis of Georgia University at America that was defended with the title of <<effect of measurement systems of performance at choosing factories and productive institutions at global level>>. In this thesis different factors and criteria of identifying factors as production at global level were considered and the most important factor at preventing achievement of production at global level is lack of criteria of assessment of performance. Assessing performance and its continuity to systems of production, sale, storage and equipment’s, repair and saving, logistic and supporting have been known as important tool for reducing prices of products, increasing quality of productive goods and reducing time of expectation for delivering good to a customer(Seyyed Hosseini ans Yatork, 2015). The way of implementing correct MAP is the challenge that should pay attention to it. This problem seems more srious by considering implementation of lean activities in other sections of economics(productive, service and business). MAP is a coherent technical social system that its main goal is deleting waste through decreasing or minimizing internal changes simultaneously, changing supplier and customer change. This definition due to having features of clarity, capability of transferring to others, constancy, separation, comprehensiveness and forbidding can be basis of many research (Jafarnezhad et al, 2011).

Based on research of chavez et al (2015) technology changes is another factor that affects financial and non-financial performance(chavez et al, 2015). Nowadays societies and environment are affected by technological changes. Development of technologies especially in recent decades have placed structural and deep content effect in societies and economic and social institutions and competitive power of different institution and industries. Therefore assessing technology has been placed at the center of attention of planners of developing technologies of countries. Also in any system being informed of situation of performance is one basis of management. One tool of being inform in any system is assessing performance(Sadehnaei et al, 2007).technology changes is vital and determining feature of transformational
economies and challenges structure of institutions (Chen & Wu, 2011). Technology changes are related to the degree of changes and predicting changes of technologies of service or products. When technological changes is partial, close relation of buyer and supplier act as a inconsistent environmental barrier (Terawatanavong et al., 2011). In turbulent market, cooperation with supplier has strong effect on performance of companies (Chen & Wu, 2011). Therefore relation and cooperation with supplier helps institutions for achieving technology information also it causes achieving better performance (Campo et al., 2014).

Cooperation with supplier and relation with customer is another factor that affects performance of MAP (Chavez et al., 2015). Nowadays creating coordination mechanism among members of supply chain is one important anxiety in recent years (Mohajer Tabrizi et al., 2009). Any institution for saving competitive powet has close cooperation with members of supply chain such as suppliers. Therefore nowadays supply chain and choosing supplier has been changed into an important subject and researchers have paid attention to research in this area. It is natural that degree of demands of institutions becomes level of capacity of suppliers, level of quality of products and so on at varied time. Determined supplier for a period may not be proper for the next period for supplying the same good. Therefore choosing a supplier dynamic in action (Nemati et al., 2014). On the other hand the importance of function of supply chain management is added every day because saving and acquiring competitive advantage has depended to cooperation with suppliers, distributors and customers. Most researchers claims that in current period any institution doesn’t do all activities related to production and selling products alone and this action has led to increasing independence and independent nature of supplying and distributing institutions. Therefore enhancing utilization and performance of the process of production and sale of products has had direct relation with level of relations and quality of interaction with other members of supply chain (Torabi et al., 2015). On the one hand needs and demands of customers and productive priorities is changing rapidly and strategies of productive institutions should change proper with these changes. Therefore these factors caused productive institutions face new challenges and use different method and technologies for responding customers need that MAP is the most important strategy, because at improving performance of institutions it can be effective (Moran Jori and Alikhani, 2009). Regarding theoretical framework relation between variables of research has been shown in pattern (1) in below:

![Figure 1: Research conceptual model (Chavez et al., 2015)](image)

Regarding research model some hypothesis has been written as below:

H1: Cooperation with supplier has positive effect on performance of MAP of productive institutions in Guilan province.

H2: Customer relationship has positive effect on performance of MAP of productive institutions in Guilan province.

H3: Performance of MAP has positive effect on financial performance of MAP of productive institutions in Guilan province.

H4: Cooperation with supplier has positive effect on non-financial performance of MAP of productive institutions in Guilan province.

H5: Technological changes have modifying role at relation between performance of MAP and financial performance of productive institutions of Guilan province.

H6: Technological changes has modifying role at relation between performance of MAP and non-financial performance of productive institutions of Guilan province.

Methodology. This research regarding goal is counted as applied research. Researches based on the way of achieving required data are divided into two groups: descriptive research (non-experimental) and experimental research. Descriptive research includes a set of methods that its goal is describing considering conditions or phenomenon’s. Therefore current research is descriptive. On the other hand current research since studies features of people in the society and considers current situation of society in the form of some attributes or variable it is descriptive-surveying research. Also this research is correlation type regarding type of research. Statistical society of research is all productive institutions in Guilan province that its statistics was obtained by referring to the website of standard organization of industrial research of Iran. Studying number are 209 institutions, sampling methods are available improbable method. It is necessary to explain that the latest updating was claimed in February in 2016 so information related to the number of
active companies at industrial cities of Guilan province is exact. Number of these companies have been mentioned in table (3).

<table>
<thead>
<tr>
<th>Industrial city</th>
<th>Number of institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bandar Anzali</td>
<td>115</td>
</tr>
<tr>
<td>Talesh</td>
<td>51</td>
</tr>
<tr>
<td>Kharshak</td>
<td>4</td>
</tr>
<tr>
<td>Daryasar</td>
<td>2</td>
</tr>
<tr>
<td>Rasht(sefidroud)</td>
<td>126</td>
</tr>
<tr>
<td>Roudsar</td>
<td>22</td>
</tr>
<tr>
<td>Siyahkal</td>
<td>35</td>
</tr>
<tr>
<td>Shaft</td>
<td>57</td>
</tr>
<tr>
<td>Somesara</td>
<td>54</td>
</tr>
<tr>
<td>Fouman</td>
<td>6</td>
</tr>
<tr>
<td>Lahijan</td>
<td>27</td>
</tr>
<tr>
<td>Langeroud</td>
<td>20</td>
</tr>
<tr>
<td>Loshan</td>
<td>65</td>
</tr>
<tr>
<td>Masal</td>
<td>3</td>
</tr>
<tr>
<td>Astaneh ashrafieh</td>
<td>33</td>
</tr>
<tr>
<td>Astara</td>
<td>11</td>
</tr>
<tr>
<td>Total number</td>
<td>651</td>
</tr>
</tbody>
</table>

Regarding that statistical society in the research is limited and from limited Cochran formula amount of sample is estimated:

$$n = \frac{N \times \left( Z_{\alpha}^2 \right) \times s^2}{\varepsilon^2 (N - 1) + \left( Z_{\alpha}^2 \right) \times s^2}$$

$A$: standard error  
$N$: volume of society  
$E$: maximum error that is accepted by a researcher  
$Z_{\alpha}^2$: size of variable is at normal distribution that is extracted from table at considering certainty.  
$s$: standard deviation of dependent variable

$$\frac{651 \times (1.96)^2 \times (0.5)^2}{(0.05)^2(651 - 1) + (1.96)^2 \times (0.5)^2} = 207$$

Number of studding samples in this research is 207 companies. Questionnaires distributed among 220 companies and 209 ones were collected. It is necessary that regarding that level of analysis is organizational in any company a questionnaire has been distributed. Responsible person for questionnaire were top managers of productive companies. For considering content validity, questionnaire of research was given to supervisor professor, experts and authorities and in some sessions third considering reform was acted on structure and content of questionnaire. For considering validity researcher distributed 30 questionnaires in experimental form. Regarding that degree of cronbach alpha for all variables of questionnaire was obtained higher than 0.7 so validity of questionnaire is approved. Exact amount of these coefficients has been mentioned in table(4):

<table>
<thead>
<tr>
<th>Variables of model</th>
<th>Cronbach alpha coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial performance</td>
<td>0.908</td>
</tr>
<tr>
<td>Non-financial performance</td>
<td>0.914</td>
</tr>
<tr>
<td>Technology changes</td>
<td>0.896</td>
</tr>
<tr>
<td>Performance of MAP</td>
<td>0.872</td>
</tr>
<tr>
<td>Cooperation with supplier</td>
<td>0.796</td>
</tr>
<tr>
<td>Customer relationship</td>
<td>0.893</td>
</tr>
</tbody>
</table>

Considering hypothesis of research by using structural equation modeling

Fig(1) and (2) shows output of model in standard estimation mode and meaningfulness of coefficient and obtained parameters of the model that all coefficients have become meaningful. Basis of approving or rejecting hypothesis of
research is considering model in meaningfulness coefficient mode. Regarding mentioned cases all hypothesis of research are approved. Result of considering hypothesis of research have been mentioned in table (5).

Figure 1: Research model in standard solution mode

Figure 2: Research model in meaningful coefficient mode

Table 5: Summary of result of research hypothesis

<table>
<thead>
<tr>
<th>Hypothesis of research</th>
<th>$\beta$</th>
<th>Standard effect coefficient</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperation with supplier has positive effect on performance of MAP at productive institutions of Guilan province.</td>
<td>12</td>
<td>0.307</td>
<td>Approved</td>
</tr>
<tr>
<td>Customer relationship management has positive effect on performance of MAP at productive institution of Guilan province.</td>
<td>6.453</td>
<td>0.164</td>
<td>Approved</td>
</tr>
<tr>
<td>Performance of MAP has positive effect on financial performance of productive institution at Guilan province.</td>
<td>7.319</td>
<td>0.269</td>
<td>Approved</td>
</tr>
<tr>
<td>Performance of MAP has positive effect on non-financial performance of productive institution at Guilan province.</td>
<td>10.341</td>
<td>0.341</td>
<td>Approved</td>
</tr>
</tbody>
</table>
Regarding result of structural equation modeling it is regarded that technology changes has modifying role at relationship between performance of MAP and non-financial performance of productive institutions of Guilan province. Result of this test is directed with the result of research of Chavez et al (2015), Navanir et al (2013), Giromori et al (2013), Granstrom (2010), Zanjirchi and Tahmores (2010).

Regarding result of structural equation modeling it is regarded that technology changes has modifying role at relationship between performance of MAP and financial performance of productive institution at Guilan province. Result of this test is directed with the result of research of Chavez et al (2015), Yazdanpanah and soltani (2011), Bazazzadeh (2014), Yazdanpanah (2013).

Indexes related to fitting model was obtained with its favorable amounts

<table>
<thead>
<tr>
<th>Criteria of variable</th>
<th>Mixed credit</th>
<th>Mean of extracted variable</th>
<th>Determination coefficient</th>
<th>Cronbach Alpha</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperation with supplier</td>
<td>0</td>
<td>0.665102</td>
<td>---</td>
<td>0.832179</td>
<td>102</td>
</tr>
<tr>
<td>Customer relation</td>
<td>0</td>
<td>0.684588</td>
<td>---</td>
<td>0.884752</td>
<td>588</td>
</tr>
<tr>
<td>Performance of MAP</td>
<td>0</td>
<td>0.804508</td>
<td>0.185774</td>
<td>0.757100</td>
<td>508</td>
</tr>
<tr>
<td>Technology changes</td>
<td>0</td>
<td>0.619982</td>
<td>---</td>
<td>0.797346</td>
<td>508</td>
</tr>
<tr>
<td>Financial performance</td>
<td>0</td>
<td>0.532476</td>
<td>0.526238</td>
<td>0.828625</td>
<td>982</td>
</tr>
<tr>
<td>Non-financial performance</td>
<td>0</td>
<td>0.492777</td>
<td>0.371976</td>
<td>0.818595</td>
<td>476</td>
</tr>
</tbody>
</table>

Discussion and conclusion. Regarding consideration of research model through structural equation modeling the following cases are important regarding result of current research:

Regarding result of structural equation modeling it is regarded that cooperation with supplier has positive effect on performance of MAP of productive institution at Guilan province and coefficient of standard effect is 0.307 so it can be said that for increasing a unit of cooperation with supplier degree of performance of MAP increases 0.307. result of this test is directed with result of research of Chavez et al (2015), oksoy and Oztork (2011), Bazazzadeh (2014), Yazdanpanah (2013).

Regarding result of structural equation modeling it is regarded that customer relationship has positive effect on performance of MAP of productive institutions at Guilan province and standard effect coefficient is 0.164, so it can be said that for increasing a unit of customer relationship degree of performance of MAP increases 0.164, result of this test is directed with the result of researches of Chavez et al (2015), Yazdanpanah and soaltani (2014), kordestani and Abbasi (2014). Regarding result of structural equation modeling it is regarded that performance of MAP has positive effect on financial performance of productive institutions of Guilan province and standard effect coefficient is 0.269, so it can be said that for increasing a unit of performance of MAP degree of financial performance increases 0.269, result of this test is directed with the result of research of Chavez et al (2015), Navanir et al (2013), Granstrom (2010), Zanjirchi and Tahmores (2010).

Regarding result of structural equation modeling it is regarded that performance of MAP has positive effect on non-financial performance of productive institution at Guilan province and standard effect coefficient is 0.341, so it can be said that for increasing a unit of performance of MAP degree of non-financial performance increases 0.341. Result of this test is directed with the result of researches of Chavez et al (2015), Navanir et al (2013), Giromori et al (2013), Granstrom (2010), Zanjirchi and Tahmores (2010).

Regarding result of structural equation modeling it is regarded that technology changes has modifying role at relation between performance of MAP and performance of productive institutions and standard effect coefficient is 0.264, so it can be said that technology changes has modifying role at relation between performance of MAP and financial performance of productive institutions of Guilan province. Result of this test is directed with the result of research of Chavez et al (2015).

Suggestion of research result. Industrial cities are counted as the most important parameter of industry of a country. Experiences of many developing countries shows that industry section due to different reasons can be axial role at economic and industrial development. Importance of industrial development at developing countries caused that many countries consider formation and strengthening great industries at industrial regions in the form of cluster as an
strategy of regional industrial strategy. Therefore strengthening active units in this city can be problem-solving at
strengthening economy of the country and region. Guilan province is one province that has strong potential about great
and heavy industry and industrial units of this country in the past years were active as one of the most powerful
productive units at the industry of country. For example Iran Poplin Company and Iran Barak that were counted as one
of the greatest textile industry of the world, have been closed completely. Experts of industry area have claimed in their
formal reports that more than % of productive capacity of Guilan province has been closed completely. On the other
hand much debt of active companies to banks shows occurrence of problem about output rate of investment, sale rate,
net profit and efficient management of cost. On the other hand low competitive power of these companies has provided
market for other producers. This province is the province that beside brilliant past at industry is counted as one of the
weakest province in country. As based on statistics that is distributed annually by standard organization of research,
Guilan province in the view of industrial development index is located at the row of provinces of Kordestan and sistan
balochestan. Therefore every year holiday of some companies happens at industrial cities. Experts of industry believe
that one reasons of failure and holiday of these units is lack of interest to innovation at production of more products and
low rate of introducing new products. As many companies without attention to demand of market and customer need
supply a product to the market that doesn’t create value added for the company and doesn’t have position at customer
shopping basket. Of course many reasons have been counted for occurrence of problems but the most important reason
is inattention to the principles of marketing. On the other hand fundamental problem of productive companies in the
country is lack of cooperation or decreasing cooperation with foreign partners that the most important factor is existence
of much bans that has faced industry of the country with much problems in recent years. Regarding this problem most
organizations that demanded investment and common cooperation with foreign countries could only make limited
cooperation with partners. According to the plan of industry ministry the share of Iran at global trade will reach proper
number up to 1404 and institutions and companies of great industrial and business companies of Iran are situated among
the best institutions of world. Because up to 1404 the share of value added of Iran industry in the world will reach 0.5
and share of value added of this industry, mine and trade from internal gross production reaches to 35% that share of
value added of industry from internal gross production is 18.5, mine 2% and trade 14.5%, however many experts and
critics believed that by current process that exist at industry achieving Iran to this position up to 2014 will be far from
access. On the other hand the subject of market disorder and competition is one fundamental problem that for its
assessment there is different criteria. Competition at market is an important and axial subject that is mentioned as a tool
for achieving favorable economic growth and constant development. Identification of new atmosphere of global
economy for achieving proper situation at new system of international production has especial importance. Nowadays
by development of markets and importance of competition at international trade, counties of the world need correct perception of their relative position in comparison with other countries so that to be able to adapt
economic policies especially industrial ones with their relative situation and based on new approaches of global
economy that in this relation productive companies haven’t presented proper performance. In this direction researcher
has presented some suggestions for presenting applied suggestions regarding relation between variables and weak
constructions:

Regarding approve of first hypothesis based on effect of cooperation with supplier on performance of MAP of
productive institutions at Guilan province it is suggested top managers of companies by co-thinking with suppliers try in
the direction of reducing costs, because averagely 70% of value of final products of factories is consist of cost of buying
raw material and receiving services from outside. This ration at companies with high technology reaches even above
80%. It is obvious that increasing cost of primary material has direct effect on finished price and pricing product.
Therefore in this field by increasing cost of primary material has direct effect on finished price and pricing product.
Also it is suggested top managers of companies at making long-term interaction with suppliers has been emphasized more and for monthly sessions with suppliers consider some sessions at organizational
calendar and try to identify different problems through expertized group work and solving them take immediate
action.

Regarding approving second hypothesis based on effect of customer relation on performance of MAP of
Guilan province it is suggested that managers of marketing identify needs and demands of customers through
cooperation with marketing experts and by presenting distant products of competitors create distinct performance by
customers. In this direction companies should consider complaints of customers through consisting different
organizational workgroups solve them. In this relation companies should increase their communicative ways by a
customer and collect their viewpoint through present meeting, phone interview and regard at designing new products.

Regarding approve of third hypothesis based on effect of performance of MAP on financial performance of
productive institutions at Guilan province it is suggested that top managers of companies increase their required budget
for development of new products and try to regard techniques like matrix of house of quality, taste and viewpoints of
customers at producing new products. Also by planning with unit of innovation and development of produce it
strengthens pilot line at the company so that rate of introducing new products increases. Also it is suggested companies
design their internal process based on analysis of preventing process and while acting. Because as it was observed most
process of companies have been designed based on action dimension and this factor can reducing utilization and
organization efficiency. For strengthening this factor companies should identify their sick process through engineering
and before succession and existence of problem make necessary strategies.

Regarding approve of fourth hypothesis based on effect of performance of MAP on non-financial performance
of productive institution at Guilan province it is suggested top managers of productive companies increase their
investment at the field of inclusive technology and by strengthening the process of research and development and study of the market, increase rate of new products. Also in this field marketing managers of this company should identify products that don’t create value added and plan for reducing production and stopping its presentation to the market.

Regarding approve of fifth hypothesis based on approving modifying role of technology changes in relation between performance of MAP and financial performance of productive institution of Guilan province it is suggested that top managers of companies in relation with assessment of empowerment and attractiveness of technological area prioritize these capabilities so that as attractiveness of technologic capability for the considering industry becomes more and also as empowerment of centers of research and main technology at development of its technology of that area becomes more, that area has more priority for concentration and technologies and finally these strategies affect performance of companies.

Regarding approve of sixth hypothesis based on approving modifying role of technology changes at relation between performance of MAP and non-financial performance of productive institutions at Guilan province it is suggested managers of productive companies for determining technological needs should use competitive strategies and determine technological needs of an institution based on key factors of market success.

Limitation and future suggestion for doing research
1. In this research all industrial productive companies of Guilan province have been chosen as statistical society of research and obtained information of them were considered in the form of research model. This subject is one fundamental limitations of this research. In case of lack of this limitation a researcher could consider type of mission and their goals, type of industry being active and number of forces being busy at them, relationship between independent and dependent variables in each industrial group are considered. It is suggested next researchers consider relation between independent and dependent variable of this research among different industries and compare obtained result with the result of this research.

2. In this research all productive companies without considering favorability of performance or unfavourability have been considered. It is suggested in future research companies that have located at favorable level should be considered so that effect of effecting factors on financial and non-financial performance should be considered regarding research model.

3. Especially and skill of supplier especially at projects of production and development of products is as the most effective important factor on improvement of financial and non-financial performance that in this research hasn’t been considered. It is suggested in future research variable of especially and skill of supplier should enter in research model as modifying variable.

4. In this research organizational performance has been assessed regarding financial and non-financial dimensions and other dimensions haven’t been considered. It is suggested in future research organizational performance is considered regarding dimensions of balanced scoring card.

5. In this research questions related to variable of customer relationship management by top managers of productive companies has been answered and in this section managers should give high scoring. It is suggested in future research questions related to the variable of customer relationship management should be given to customers and answer their questions.

References