

Analyzing The Relationship of the Production Capacity System with The Raw Materials Requirements Planning System: A Case Study in Iraqi Industries

Maqdes Abdul Kadhim Abbas Al- Janab^{1*} and Raghad Falah Abdul Al-Khazraji²

¹Department of Political Science, Faculty of Political Science, University of Kufa, 54001, Najaf, Iraq

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ABSTRACT: *The research aims to explain and clarify the nature, importance and nature of the factors that have a direct impact on the material requirements planning system and affect production capacity planning and the relationship of the two to each other in Iraqi industries. The most important findings of the research are that it is possible to develop a model that includes the most important factors affecting the production capacity system and the materials requirements planning system, which would raise the efficiency and effectiveness of the production system in Iraqi industries.*

KEYWORDS: materials management, requirements planning, production capacity planning, Iraqi industries

INTRODUCTION

The requirements planning system (materials management) in production units needs attention commensurate with its importance, especially in production processes whose production depends to a large extent on raw materials, and the prices of these materials are exposed to fluctuations between high and low, which exposes the production organization to factors of instability. Therefore, research must continue. Investigation and analysis in order to find those materials that are compatible with the type of product and manufacturing method. In addition, maintaining reasonable storage levels of materials is absolutely necessary in order to provide flexibility in operation and cash liquidity in light of fluctuating economic conditions, and to study the cost of storing basic materials to obtain the most effective ways to use heads. Money and its control.

Research problem

Traditional (old) inventory models focused on independent demand in the method of estimating material supplies, assuming that the demand for materials is a continuous and independent demand, that is, the demand for the final product has no relationship to the demand for other products. It uses many methods in its predictions, such as guesswork, experience, and the use of models. It was considered a major revolution when the traditional (MRP) for inventory appeared, but the emergence of the material requirements planning system appeared, as it introduced the computer and planning into production processes. Since its appearance, important modifications have been added to management and production, and since production capacity planning is considered part of (CRP) inventory and the introduction of the energy planning system. Important decisions for production management, as it is concerned with planning production capacity to meet demand, and therefore there is a relationship that will be studied as follows in formulating the problem in questions (MRP & CRP) is significant between both of the following systems:

- What are the most important factors affecting planning material requirements?
- What are the most important factors affecting production capacity planning?
- What is the nature of the relationship between the systems for planning requirements for raw materials and planning production capacity in Iraqi industries?

Research hypotheses

In light of the problem, questions and objectives of the research, a set of hypotheses were developed as follows: There is no significant relationship between the most important factors influencing the planning of material requirements and the most important factors influencing the planning of production capacity.

Research objectives

The research aims to:

- Know what material requirements planning is.
- Identify all the factors affecting planning material requirements.
- Identifying the factors affecting production capacity planning in organizations subject to applied research.
- Identify the relationship between planning material requirements and planning production capacity.
- Providing the necessary recommendations on how to take into account those factors affecting the planning of raw material needs and leading to the best exploitation of production capacity in Iraqi industries.

The importance of research

The research highlights its importance from the importance of the two systems for planning requirements for materials and production capacity, and it is considered a field research that will contribute to providing information and a useful addition to the

process of making administrative decisions related to the system (CRP) and production capacity (MRP).

Through it, light was shed on the most important factors affecting planning material requirements and planning production capacity, which would create insights into how to deal with these factors. In addition to clarifying how to deal with the materials requirements planning and production capacity planning systems in Iraqi industrial organizations, in addition to providing the necessary recommendations and proposals to develop the two systems.

RESEARCH METHODOLOGY

Tool and means of collecting data: Secondary sources include books, articles, forums, and practical seminars. The primary sources are as follows:

- Obtaining data and information from personal interview questions with workers and those responsible for production operations in the factories under research.
- Personal observation of production processes by keeping up with the progress of the production process in the factories discussed in the research.
- Design a questionnaire specifically directed to production decision makers to learn about the most important developments and viewpoints to achieve the research objectives.

Research community

The research community identified large industrial organizations in the Iraqi Republic. The large organizations were selected for the following reasons:

- Its size has increased.
- Multiple production lines.
- The large number of workers there.
- The variety and variety of products it produces.
- The historical roots of these organizations and the long experience they have accumulated over the years.

Research sample

A random sample was chosen, estimated at approximately 45%. 493 organizations were selected, and questionnaires were distributed. It was found that 60 questionnaires were invalid, while 433 forms were analysed.

Analytical methods

To frame the theoretical aspect, the researchers relied on what was published in books and research, while the applied aspect was directed towards field research in the available CRP&MRP that dealt with the subject of Iraqi factories. It relied on the use of a five-point Likert scale for the weights of the items, and some statistical indicators and measures were used that are useful in analyzing Research questionnaires, which

include the arithmetic mean, standard deviation, and Pearson scale to identify the degrees of relationship and variance between factors and items.

Validity of the research tool

In order to ensure the questionnaire's comprehensiveness, safety, and suitability for the purposes for which it was designed, the apparent validity of the tool was used through its evaluation.

By (11) professor-level referees and specialists who expressed their observations, the validity of its internal consistency and the stability of the tool were confirmed using the Cronbach's alpha coefficient, which reached 0.899, which is high, which confirms the stability of the tool.

Theoretical framework of the research

Material requirements planning system

Concept

The Materials Requirements Planning (MRP) system represents a response to the changing needs of many companies to manage the production system and deliver the inventory of derived demand and approved demand. It represents a computerized information system that helps in particular in managing the approved order inventory and scheduling orders to replenish the inventory size ((Krajewski & Ritzman, 2002: 725. All production planning and control systems, including the MRP system)) aim to find the best way to produce products that meet requirements and desires. Different customers with the characteristics and specifications of the product within the scope and limits of a set of administrative, financial and technical restrictions and specifications

Dilworth (2000: 505), and the decisions adopted on planning and control systems affect production, storage, cost, quality, and reliability of delivery, or what is called scheduling efficiency (493): Chase et al. (2003) The MRP system refers to a mathematical planning tool based on the main production scheduling to determine the needs of approved (derived) components such as raw materials, basic parts, and sub-assemblies. This system is not only used in the manufacturing environment, but is compatible with the distribution and storage environment by knowing the storage levels. The current and list of materials that go into the installation of the specific final product, so the MRP explains (Waller, 2002: 394)

1. Types and quantities of materials that can be purchased from outside the organization, taking into account current storage levels.
2. Types and quantities of materials that can be manufactured internally, taking into account current storage levels.
3. At any time these orders are issued (purchasing from abroad, manufacturing internally), taking into account the waiting periods specified for these materials.

Material requirements planning system and traditional systems:

The reorder point system, which is used for independent orders, is a statistical method that relies on past experience and determining the future need for industrial inventory. It has failed to control industrial inventory based on the data for reasons of not taking into account demand and derivatives. We can realize the difference between the two systems with the following points in the following table:

Table 1. The points of difference between the materials requirements planning system and traditional systems

level re the demand R.O.L	System Planning needs from Materials System
the demand independent and its shape random	the demand derivative and its shape crispy
Complete Forecasting By orders LSD	Commands she needs Complete Drink it _
Lack The result in level Inventory By credit on the demand the past.	according to what he Existing in Scheduling Production Main.
get up with control on some Items	get up with control on all Items
Aim to to interview Need the customer	Aim to to interview the job Manufacturing And need the customer
He is size Quantity in it In a way size Batch Economic.	He is size the job separates in all level on The other
Inventory in it goods Perfect Made	Species Inventory in its Material And parts Industrial

Source: Prepared by the researchers

Factors affecting material requirements planning

Planning requirements for materials is linked to many factors, the most important of which are sales expectations, programs and production plans, the nature of the necessary production materials and supplies, specifications, characteristics and nature of the products made by the industrial establishment and other technical and economic considerations specific to the establishment. It is generally possible to classify these considerations and influencing factors that affect On planning material requirements based on internal and external factors as follows: (Noori and Rendford, 1995:196)

Internal factors: These are the factors that determine strengths and weaknesses. Strengths are the capabilities, resources, or internal capabilities that can be used efficiently and effectively to achieve the set goals. What we mean by weak places are the constraints and internal weaknesses that limit the achievement of the set goals. We emphasize here that the internal environmental factors It can be controlled and directed in a way that serves the set goals. Using a preliminary analysis, we see it as follows:

Production plan

What is meant by the production plan is that it is the program that specifies the types and specifications of the products to be manufactured, the required quantities of each type, and the time schedule for their production. This plan also includes the production

factors required to be provided to fulfill the production plan. This means the size of the demand for raw materials, which is considered the basis for the estimating process of the required needs of materials. This is what makes making a plan and anticipating orders important. As for raw materials, it is necessary to determine the types and sizes of products included in the production plan. By accurately specifying the types of final products, it is possible to determine the types and quantities of raw materials and semi-finished goods that are required to be provided to implement the production plan. Here, one can refer to the lists of raw materials prepared by the Product Design Department from a technical standpoint. When preparing the design plan in its various stages, which explains the technical composition of the product, which specifies the number of units required from each part of the product and the levels of each part within the technical composition and composition.

Adam and Ebert (1996: 163))

Determine material specifications

Ascertaining the organization's need for materials puts it at another stage in which it needs to determine its specifications. What is meant by determining material specifications is to determine the type, nature, and form of the material that requires use in the specific production process to produce a specific product. Determining the specifications of materials and the types required of them depends mainly on determining the specifications of the final product, and the share is determined. One unit of the final product consists of materials and parts necessary to implement the plan by multiplying the number of units expected to be produced throughout the plan period by the share of one unit of raw materials and parts of various types.

Workers' skills: The workers' abilities to accomplish their work efficiently and effectively depend on the extent to which materials are preserved, rationalized, and used.

(Mahfouz Ahmed, 2010: 99)

Storage capabilities and capacities

Inventory is defined as raw materials, supplies, spare parts, semi-finished materials, and finished materials located in warehouses awaiting future use. There are many classifications of inventory that are used to define many things, including: Hill (2000: 193))

- The level of available storage available at a given time.
- Storage spaces.
- Storage, preservation and handling equipment.
- A tool for measuring accounting and financial restrictions, based on the total value of the stock of goods owned by the institution in a specific unit of time (week - month - year).

In light of inventory planning, inventory policies must contain:

- Establishing inventory rates within the limits of monthly sales, or within maximum and minimum limits, or according to a specific inventory turnover rate.
- Preparing technical methods by which we can ensure that the inventory conforms to the prescribed rates.

Production capacity

There are several concepts of energy (designed, planned, available, actual energy, etc.) and what is important in this field is the production capacity expressed by the potential of the production line during a certain period or as: “the highest quantity of output for a system (the production system) For example (during a specific period of time), outputs are expressed in various ways, including quantity, such as the number of (tons, gallons, cartons, boxes, meals, etc.) during a specific period of time, or it can be expressed in terms of machine working time, such as the number of working hours for each machine. In (day, week, month, year), or in financial value (dollar, dinar, riyal). The energy decision is considered one of the important decisions that affect other decisions related to production decisions, including location decisions, evaluating the internal arrangement and basket of products, and planning material needs. Whenever the decisions taken are correct, they inevitably lead to reducing costs, and they cannot be separated from the dimensions of demand. (Davis et, al, 2003:307)

Determine the quantities of materials to be purchased

Determining the purchase quantity is one of the important issues that the purchasing and warehouse management should pay attention to because it has a direct impact on production, marketing and financing plans. Here, it is necessary to develop appropriate purchasing policies that help reduce costs and achieve the organization's goals.

Timing of purchase

Purchasing is not sufficient unless it is linked to the time factor, as there are three main methods for determining purchasing time that we believe can affect the planning of material requirements, which are as follows:

- Purchase as needed.
- Buying according to price fluctuations in the market.
- Contracted for a long period.

An important group of factors are:

- Financial capacity and capabilities. (Schroeder, 1989:279)
- Future plans and expansions.
- Company policies in manufacturing or purchasing.

External factors: We mean by those factors that are out of control and represent opportunities and threats, and we see opportunities that can be exploited and benefited from, while threats represent a potential danger and limit their ability to achieve their goals, which are as follows:

Demand for main products

Operations planning and control requires an estimate of the demand for the product or service that the organization expects to provide in the future. There are two basic types of production systems: production supplied to markets and production according to customer requests. As for the process of production supplied to markets, sales can be estimated using various statistical tools and methods. Such as the method of least squares, correlation, or other statistical tools. As for the production process according to customer requests, the sales estimate here depends on the experience of salesmen gained through their continuous contact with customers and market research, as well as in light of sales records during previous years for this type of sales. (Omar, 2020, p. 61) It also requires taking into account what is already present in the organization's stores of finished products, as in light of these factors, the expected production number is reached during the time period for which the plan is prepared.

Availability of materials

The availability of materials in the market has a significant impact on the number of purchases and thus on inventory, which is considered one of the main components of the materials requirements planning system.

Consumer tastes

The instability of consumer tastes and their changes from one period to another is considered an important matter affecting the planning of material needs through its direct impact on demand and thus on production orders. (Boudiaf, 2010:18)

Purchasing power

There is no doubt that purchasing power has an important aspect in influencing demand rates for the commodity and thus its impact on the demand for the commodity, which will be directly reflected in production orders and institutions that produce for markets where most of their consumers are low-income individuals to use high-quality materials. As is the case in production for markets whose consumers are high-income individuals, therefore, the planning and policies of institutions are directed according to the level of purchasing power, consumers' abilities, patterns, and standards of living.

Competition

The competition element is considered one of the important aspects that greatly influences the determination of demand rates, which will undoubtedly affect the determination of production orders. Shafer and Meredith (1998:334-335)

Suppliers

Suppliers, whether from (local or external sources) and their ability to provide materials and the appropriateness of their policy, and the extent to which materials are available in the markets or resort to foreign markets and the presence of appropriate external suppliers. The policies of purchasing institutions are also very important, as they adopt the policy of purchasing from one or several suppliers and other policies,

and therefore they are important in that there are many benefits, including reducing costs and inventory, increasing productivity, and maximizing the consumer.

Quality in the markets

The degree and level of quality required to be available in each type of item to be produced, the most important of which are the natural and chemical characteristics that can be worked and processed, dimensions, and similarities in terms of appropriate color and the degree of preference and approval that the item receives in the markets. Improving quality has an important impact on productivity. Increasing production, revenues and profits. (2004:18, Al-Bakri)

B. 8. Competing establishments: Competing establishments with similar products or supplies of materials and supplies. (Russell and Taylor, 1998: 520)

Production capacity

Concept

We previously touched on production capacity as one of the most important factors affecting planning material needs, and it is one of the planning requirements. Therefore, we will discuss the types of production capacity as follows:

- Theoretical production capacity: It is the design capacity, which is the highest possible production capacity under ideal working conditions, and it is usually clear in the manuals for the machine.
- Available production capacity: This is the energy expected to be achieved as a percentage of the theoretical production capacity and is usually 85% of the theoretical capacity.
- Exploited productive capacity: It is the actual productive capacity, which is the energy that was actually achieved and produced during a certain period of time. (Heizer and Render, 1999: 243)
- Idle production capacity: This is the untapped portion of the available production capacity for various reasons.
- Estimated production capacity: This is the standard capacity that is relied upon for production planning purposes. Chase and Aquilano, 2001: 354)

Factors that determine the size of production capacity

The size of production capacity varies from one institution to another in terms of the number and type of machines, equipment and devices needed within the technological path designed for production, which is what makes us strive for the presence of capacity, which is due to a number of factors affecting the size of production capacity and we will discuss them successively as follows:

Internal factors: They are as follows:

- Utilization level: It is the extent of the work system followed in the organization, and the work available (the ratio of productive work to the total working time of machines). (Al-Qairouti: 2000, p. 333)
- Technological and technical level: introducing new machines or developing existing ones will lead to a reduction in the time required to complete production operations.
- The nature of the raw materials and their properties: The degree of suitability of the materials' properties for operation affects the determination of the size of the production capacity, as the size of the organization's production capacity is determined on the basis of using the most suitable types of materials for the machines.

Production methods used: Any product can be produced using multiple manufacturing methods, and the amount of products that can be made in a given time varies from one manufacturing method to another.

- The degree of specialization of the organization: There is a direct relationship between the degree of specialization of the organization and the size of production capacity. The production capacity of machines and the rate of use is affected by the degree of product assortment.

Degree of skill and training of workers

Relating this to the production process: Training gives the worker skill in performing his work, so his productivity increases, and this leads to an increase in the production capacity of machines and equipment.

- The level of organization of work and production: There is no doubt that the higher the level of organization of work will inevitably lead to an increase in the volume of production capacity and its use.
- Appropriate operating conditions: The physical working conditions, including ventilation, lighting, and cooling, undoubtedly play a major role in determining the size of production capacity.

External factors: These are (Evans, 1993: 199

- increasing of demands.
- Seasonal fluctuations.

Practical framework: Presentation and discussion of results

Presentation and discussion of results related to personal data:

Through some of the characteristics of the target sample members, namely number of years of service, qualification, gender, and number of training courses, shown in Table (2), we can analyze and discuss the personal characteristics of the sample as follows:

Number of years of service: It is noted from the previous table that the rate of years of service for those who were more than 15 years reached 30% and those between 6-15

years reached 27%, while the rate of those whose experience was less than 3 years was 18%. Thus, most employees have experience based on the number of years of service they have.

Academic qualification: The indicators of the previous table reflected that most of the workers, or a large percentage of them with education, hold a diploma, as their percentage reached 30.2% of the respondents, and then after that comes the percentage of secondary education and bachelor's degrees for each of them, at a rate of 22.4%, while the lowest percentage was related to primary education. The percentage reached about 2.6%, and it appears that the percentage of workers in the research sample holds a qualification between secondary school and diploma, or bachelor's degree, at a rate of 75%.

T- Gender: It became clear from the questionnaires submitted to individuals that the percentage of males was 75.4%, while the percentage of females was 24.7%.

Table 2. Shows personal data

	The ratio	the number	Statement	Adjective
433-100%	18	78	Less than 3 years	number Years the service
	25	108	3-5 years	
	12	52	6-10 years	
	15	65	11-15 years	
	30	130	More than 15 years	
433-100%	2.6	11	primary	qualification
	18.3	79	preparatory	
	22.4	97	secondary	
433-100%	401	131	diploma	Sex
	75.3	97	Bachelor's degree	
433-100%	24.7	18	Postgraduate	the age
	25.4	326	Less than 30 years old	
	26.6	107	From 31-40 years old	
	28	110	From 41 years and above	
433-100%	33.2	202	nothing	Courses Training
	40.5	121	Less than two sessions	
	19.2	144	6-3	
	7.1	175	More than 6	

Source: Prepared by the researchers

W- Age: The indicators of the previous table showed that most of the managers in the questionnaire were between the ages of 31 and 40, at a rate of 46.6%, while the percentage of those aged 41 and over was 28%, and the percentage of the most important ones under 30 years old received a percentage of 25.4%.

Training courses: It is clear from the table above that those who received less than two courses had the highest percentage at about 40.5%, and from 6-3 courses the percentage was about 19.2%, while those who did not receive training courses in their work had

the highest percentage at about 23.2%, and this is a very high percentage. It shows the extent of lack of interest in training courses related to their field of work, despite how important the courses are to them.

Presentation and discussion of aspects related to the material requirements planning and production capacity planning systems

By presenting and analyzing the results related to the most important factors affecting planning material requirements, Table (3) shows the following indicators:

Determining material specifications has a mean of 3.99 and a standard deviation of 1.179. This indicates that it is one of the most important factors influencing the material requirements planning system.

It is also noted that the production plan obtained an arithmetic mean of 3.90 and a standard deviation of 1.220, which confirms the importance of the production plan according to this system.

Production capacity planning obtained an arithmetic mean of 3.66 with a standard deviation of 1.407. This confirms the importance of production capacity and its impact on planning material requirements.

The demand for the main products is an important factor in planning material needs, as it obtained a score of 3.65, with a standard deviation of 1.345, while determining the quantities of materials to be purchased, the arithmetic mean of which was 3.54, with a standard deviation of 1.348, which confirms the importance of each of them and the necessity of paying attention to it when preparing and designing this the system.

The timing of purchase was an important factor that must be taken into consideration when preparing and designing this system, with a mean of 3.34 and a standard deviation of 1.451, and financial capacity and capabilities obtained a mean of 3.11 and a standard deviation of 1.412.

A group of factors had a good influence on planning material requirements, including workers' skills and storage capabilities and capacities.

While some factors received moderately influential importance from the point of view of the research sample, including quality in the markets, plans and expansions, competition, and the availability of materials.

Some factors were also found to be of good importance, such as suppliers, alternative institutions in the markets, and company policies in manufacturing or purchasing.

Table 3. Most important factors affecting planning material requirements

standard deviation	the middle	Sample volume	Paragraph	T
1.220	3.90	432	plan Production	1
1.179	3.99	430	to set specifications Materials	2
1.425	3.07	425	skills staff	3
1.453	2.99	430	Potential And energies Storage	4
1.407	3.66	426	energy Productivity	5
1.348	3.54	428	to set quantities Materials the duty Purchased	6
1.451	3.34	425	timing the purchase	7
1.412	3.11	432	Ability Finance And the possibilities	8
1.359	2.63	425	Plans And expansions future	9
1.408	2.52	426	Policies Company in Manufacturing or the purchase	10
1.345	3.65	430	the demand on Products Main	11
1.466	2.59	430	Bezel Availability Materials	12
1.461	2.43	400	Tastes Consumers	13
1.401	2.40	425	Power Purchasing	14
1.501	2.61	430	The competition	15
1.438	2.55	425	Suppliers	16
1.462	2.70	429	the quality in Markets	17
1.462	2.55	430	Institutions Alternative And the complement	18

Source: Prepared by the researchers

By presenting and analyzing the results related to the most important factors affecting production capacity planning, the following table (4) shows the following indicators: The increase in demand was one of the most important indicators in planning production capacity, and this was evident from the opinions of the research sample, as it obtained a mean of 3.75, with a standard deviation of 1.426. The new technological and administrative means also had an important impact on production capacity, and this was evident with a mean of 3.64, and a standard deviation of 1.359.

It also became clear that the importance of each of the seasonal fluctuations in demand has an important effect, as it obtained a mean of 3.58, with a standard deviation of 1.433.

The degree of skill and training of workers may obtain 3.33, with a standard deviation of 1.409, and this indicates its importance among the influencing factors.

The degree of specialization of the organization had an important ranking, as it obtained a mean of 3.23 with a standard deviation of 1.313, and the nature and degree of raw materials and their properties obtained an arithmetic mean of 3.22 and a standard

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deviation equal to 1.425. Likewise, the nature and degree of progress of machinery and equipment obtained a mean of 3.22 with a deviation of 1.425, and the level of use obtained an arithmetic mean of 3.21. With a standard deviation of 1.329, this confirms the importance of the factors and their impact on production capacity.

The increase in promotional activities also received a mean of 3.18 and a deviation of 1.390, while appropriate operating conditions obtained a mean of 3.11 and a standard deviation of 1.396, and the production methods used had a mean of 3.10 and a standard deviation of 1.421, which shows that they have an impact on production capacity planning.

The last factor was the level of organization of work and production. It obtained a mean of 2.51 and a deviation of 1.450. This indicates a moderate effect according to the opinions of the research sample.

Table 4. Most important factors affecting production capacity planning

deviation Standard	the middle	Sample volume	Paragraph	T
1.329	3.21	427	level the use	1
1.425	3.22	429	nature And a degree progress Machines And equipment	2
1.300	3.23	431	nature Materials Raw And its properties	3
1.421	3.10	425	Methods Production used	4
1.313	3.23	431	degree specialty the organization	5
1.409	3.33	425	degree Skill And training staff	6
1.450	2.51	431	level to organize the job And production	7
1.396	3.11	432	conditions Employment Occasion	8
1.390	3.18	429	more Activities Promotional	9
1.426	3.75	432	more the demand	10
1.433	3.58	433	Oscillations Seasonality To order	11
1.359	3.65	431	means Technological And administrative New	12

Source: Prepared by the researchers

Research hypothesis testing

Null hypothesis (H0): There is no significant relationship between the influencing factors of the two systems for planning materials requirements and the production capacity system.

Alternative hypothesis (H1): There is a significant relationship between the influencing factors of the materials requirements planning system and the production capacity system.

Using the Pearson correlation coefficient between the two systems, it is clear from Table (5) that the correlation between the material needs and production energy systems is a weak direct correlation, as the Pearson correlation coefficient was equal to (0.241). It is also clear that Sig. = 0.00, which is less than 0.05, so we reject the hypothesis. We accept the alternative hypothesis that there is a significant relationship between the material needs and production energy systems.

Table 5. The correlation coefficient between the two systems shows the material requirements and energy production capacity

		Materials	energy
Materials	Pearson Correlation	1	.241**
	Sig. (2-tailed)		.000
	N	433	433
energy	Pearson Correlation	.241**	1
	Sig. (2-tailed)	.000	
	N	433	433

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

CONCLUSIONS AND RECOMMENDATIONS

Through this research, and especially when analyzing the previous results, a set of conclusions were reached, the most important of which are:

There are a group of factors that have a very important impact on the material requirements planning system, the most important of which are: determining material specifications, developing a production plan, production capacity, demand for main products, determining the quantities of materials to be purchased, timing of purchase, financial capacity and capabilities, workers' skills, Storage capabilities and capacities. There are a group of important factors affecting production capacity planning, which are as follows: increased demand, seasonal fluctuations in demand, new technological and administrative means, the degree of skill and training of workers, the degree of

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specialization of the organization, the level of use, the nature and degree of progress of machinery and equipment, and the nature of raw materials and their properties.

It becomes clear through studying the most important influencing factors between the production capacity planning and materials requirements planning systems that there is a weak direct relationship between the factors of each of the two systems, and this confirms the relationship between the two systems.

In light of the research results and conclusions, the following recommendations were made:

- Developing a model that includes the most important factors affecting planning material requirements, which are: determining material specifications, developing a production plan, production capacity, demand for main products, determining the quantities of materials to be purchased, timing of purchase, financial capacity and capabilities, workers' skills, and storage capabilities and capacities.
- Management's interest in giving greater importance to planning production capacity when building a materials requirements planning system.
- We recommend that the industrial organizations sample the research prepare a comprehensive system that takes into account production capacity planning and pay attention to the most important factors affecting it, especially demand and its fluctuations.
- Paying attention to the aspects of the degree of skill and training of workers in the organizations sampled for the research for their role in planning production capacity and making the most of it.

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