

Consolidation of Core Activities - Customer Relation and Enterprise Resources: A Binding Association Managing Demand and Firm Success

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Abstract

Currently, the Demand management business process has been much discussed, as it is responsible for the coordination between production and the market, especially in Manufacture-to-Stock companies. In addition, the implementation of new computer systems has occurred, in order to support the large number of business activities. However, to date, the real applicability of Enterprise Resource Planning and Customer Relationship Management systems' functionalities in supporting the Demand Management business process is not clear. Therefore, the present work presents an analysis of the applicability of an ERP system and a CRM system to support the Demand Management process in Manufacture-to-Stock production environments.

Keywords: Demand Management, Enterprise Resource Planning, Customer Relationship Management, Marketing, Supply Chain, Manufacturing.

1. INTRODUCTION

The administrative-business landscape has undergone profound changes over the last decades. In this context, two concepts have especially marked the recent transformations in business ideology: the first, which had a major impact on companies during the last decade, was the concept of business processes, replacing the prevailing departmental vision and the second, currently in the process of adaptation in organizations, is the concept of collaborative management, from which other concepts such as SCM (Supply Chain Management), CRM (Customer Relationship Management), CPFR (Collaborative Planning, Forecasting and Replenishment) have emerged.

A business process, according to Author, is a series of interrelated activities that cross the functional boundaries of firms with well-defined inputs and outputs. From the

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perspective of business processes, affirms that they always existed in the companies, although they were not formalized and managed, due to the way of functional and hierarchical organization that the companies possessed. In the midst of this reorganization of companies around their business processes, Enterprise Resource Planning (ERP) systems emerged as one of the most important tools to propel such change Davenport (1998).

An ERP system has the purpose of integrating all departments and functions within a company through a unique computational tool, capable of supporting departmental needs. The adoption of ERP systems by a large number of companies, especially in the 1990s, led them to organize and optimize their internal processes, in order to transfer the competitive advantage of the business to the processes that extrapolate its borders, the second major change in the business environment: collaborative management (Porter, 2008).

In this new context of collaborative management, as already mentioned, several new business concepts emerge, among them the concept of Supply Chain Management (SCM) and the concept of Customer Relationship Management or Customer Relationship Management (CRM). The emergence and feasibility of the application of such concepts by companies is again supported by technological solutions, such as: distributed planning and programming systems commonly known as APS (Advanced Planning and Scheduling) systems; CRM systems, focused on supporting customer relationship management, storage and processing tools for business intelligence or BI tools (BusinessIntelligence); and network technologies such as the internet, intranet and extranet.

These day-to-day technologies are becoming viable for a larger group of companies, which allows for a reordering of business processes in order to optimize earnings through the functionalities contained in the systems. An example of a business process that is currently prominent within organizations, mainly due to the current characteristics of the Indian

market, is the Demand Management process. According to authors such as Jacobs (2010) and Vollmann (2005), the Demand Management process is of vital importance for companies, since it has the function of coordinating and controlling all the demand factors, so that the productive system can be efficiently used and the delivery dates of the products can be promptly met.

Considering the context presented, you can see how important it can be to understand how these new tools can help companies in their business processes. Therefore, it is the objective of this article to measure the applicability of CRM and ERP systems in the support to the Demand Management process in Manufacture-to-Stock production environments, being understood as applicability the activities / steps of the Demand Management process that can be carried out with the help of CRM and ERP systems.

In order to reach the objective presented, exploratory studies were used in order to establish relationships between the existing functionalities in selected ERP and CRM systems and the activities described by a reference model of the Demand Management business process in MTS environments.

The results obtained were limited in some dimensions. The first limitation concerns the study of ERP and CRM systems: due to the great number of functionalities and the complexity of such systems, the research was restricted to studying a single ERP system and a single CRM system (the determining factors for the elections of the systems studied will be presented later). The second restriction, related now exclusively to the selected ERP system, is the fact that the present work has considered, in its analyses, only the Sales and Distribution functionalities. Such restriction is due to the greatness of the number of functionalities existing in the ERP system, when considering all its modules, as well as the fact that Demand Management is a process driven in large part by activities related to the commercial area of a company.

2. GD - DEMAND MANAGEMENT

The term “Demand Management” can begin to be discussed by defining the word “demand” which, according to Proud (2013), means “a need for a particular product or component.”

Based on the understanding of the word “demand”, the business process “Demand Management” is defined, according to Blackstone (2013), as the function of recognizing all the demands for products and services to meet the market. In order to complete the presented definition, Jacobs(2010) affirm that the Demand Management aims to coordinate and control all the demand factors so that the productive system can be used efficiently and that the delivery times of products are fulfilled. They also argue that, in the short term, Demand Management is useful for determining the resources needed in production, such as raw materials, machinery and labour. In the long term, Demand Management serves as the basis for strategic decisions, such as creating new products or expanding facilities.

According to Crum (2003), the Demand Management process plays an even greater role when the production environment is the MTS, since the greatest difficulty in this environment is to provide the necessary degree of demand forecasting level of the desired product structure, since the Manufacture-to-Stock (MTS) production system can be characterized by systems that produce standardized, prediction-based products.

2.1 Main Activities of Demand Management

Some works found in the literature seek to define the main activities in a Demand Management process within an organization. Based on authors such as Arnold (2014), Proud (2013), Crum (2003) and Vollmann (2005), it is concluded that the Demand Management process can be represented in nine macro activities, which are presented below:

1) **Predicting Demand:** It is the business function that is concerned with predicting sales and use of products so that they can

be bought or manufactured in advance in the appropriate quantities Blackstone (2013);

- 2) **Communicate with the market:** This activity is responsible for collecting and analysing information in the market. Successful companies know they will have a chance to prepare for the emergence of demands if they keep their listening points close to customers. Traditionally, this is done through the sales force, who visits customer premises, talks to purchasing managers, and somehow attempts to estimate when and how new orders will be placed (Proud, 2013);
- 3) **Influencing Demand:** According to Proud (2013), communication leads to knowledge and knowledge leads to influence, i.e. with a good level of knowledge of the consumer market, the company has the power to size which market share can be influenced by their shares and which portion does not allow such influence. The influence of demand is a factor that must be investigated in order to achieve a better use of existing resources at times such as when the supply curve overlaps the demand curve and, concurrently, an increase in the volumes of inventories is considered inadequate;
- 4) **Promise deadlines:** In order for the delivery date of the product to be reliable, there must be complicity with the data (date, quantity and quality) of receipt of the raw materials and sales forecast, as well as a good functioning of the production system. Thus, the delivery date of the product is determined by means of the concept available for promise or, simply, ATP (Available-to-Promise), which, according to Blackstone (2013), “is the uncommitted portion of the firm stock and its production schedule maintained in the master planning to support the promise of orders to customers”;
- 5) **Prioritize and Allocate:** The idea behind Demand Management and master scheduling is to satisfy all customer

- demand. In any case, if there is a situation where there is not enough product available or the materials and resources needed to produce the required product are not available, the decision of which customer to meet and which one to expect should be taken (Proud 2013);
- 6) **Entering Client Orders:** Entering order is the activity of accepting and translating what a customer wants, for terms used by a manufacturer or distributor. Such a process can be as simple as creating goods shipping documents in MTS production environments or it can be a series of more elaborate activities, including design efforts for products produced under orders;
 - 7) **Planning Customer Service Level:** The concept of customer service level planning essentially relates to the availability of the end product, particularly in terms of quantity and reliability of delivery times. This planning indicates that investments in inventories increase exponentially as the objectives of customer service levels increase Vollmann (2005). The Demand Management process plays an important role in dealing with the issues inherent to the level of service, such as quantity allocation, definition of deadlines and security inventory, which are closely related to good market service Crum, (2003) ;
 - 8) **Planning Distribution:** According to Ross (1996), "distribution activities are planned based on information developed by Demand Management, such as the definition of promise of delivery dates for customers, remittances for resupply of inventories, interplanetary supplies, among others, defining what are called transport programs. The information used for the master production program (MPS - Master Production Schedule) can also be integrated with transport planning. In addition, storage and transport capabilities, and other resources that operate within the distribution function on a daily basis, can also be planned and controlled using this information;"
 - 9) **Controlling Process Performance Indicators:** The Demand Management process, like any business process, performs activities that must be monitored. The follow-up of the execution of such activities, through a structured and validated scorecard between all parts of the organizational structure involved in the process, is aimed at evaluating and interpreting the current results of the process and then allowing the elaboration of actions with the objective of improving the existing deficient points. Some performance indicators for the Demand Management process are: demand ratio of demand forecasts in both sales and monetary volume; index of stock depletion per product order (stock-outs) ; and changes in content production schedules within the frozen period (frozen zone), which deals with the tight schedule that hardly can be changed due to changes in the market (unforeseen urgent orders) or restrictions of the actual production environment.

2.2 Reference model in Demand Management for MTS

The reference model analysed in this work was developed in the Advanced Manufacturing Nucleus (NUMA) of EESC - USP, and the ARIS (Architecture for Integrated Information System) modelling architecture was used for its design. In its graphical form, the model presents three levels of detail, as shown below:

- Planning and Controlling Production: This level aims to locate the Demand Management process within a larger environment: the planning and production control, representing the interaction of the process "Manage Demand" with other processes of the PCP;
- Managing Demand: In the model adopted for the research, the process "Manage Demand" has 8 sub processes, namely: Generating Information, Forecasting Demand, Influencing Demand, Supporting Distribution Planning, Planning Customer

Service, Managing Portfolio Orders, Manage ATP and Enter Customer Order. It is important to note that the 8 proposed sub processes are based on the macro-activities found in the available literature on the topic, presented in topic 2.1 Main Activities of Demand Management.

- Demand Management Sub processes: The lowest level of the reference model details the 8 sub processes of Demand Management at the EPC (Event Process Chain) level, that is, the sequences of activities and events supported by the information that is used and generated in the sub processes. It is at this level that the applicability analyses of the CRM and ERP systems studied were structured.

3. Relationship Management with customers (CRM - Customer Relationship Management)

Also known as “**Marketing Customer Relationship**” (Customer Relationship Marketing) or Marketing 1 to 1, the CRM (Customer Relationship Management) is defined as a business strategy that enables companies to select and manage their customers in order to maximize its value long term. This fact requires the adoption of a philosophy of customer-focused business processes that effectively supports marketing, sales, and interdepartmental processes that act directly or indirectly with customer interaction channels.

For Stone (1996), CRM means learning to implement the best customer management practices, as well as the systems that allow such implementation. Similar to this definition, Rigby (2002) state that CRM is the means of building strategies and processes with the customer, supported by appropriate software, in order to improve consumer loyalty and, consequently, the company’s profitability. According to Author, the term CRM is associated with the development of actions to win new customers, to keep the current ones, and even to give up those who do not bring returns. The author also emphasizes that the conquest of a new client, more often than not, is costlier than the maintenance of an existing

customer and, due to this fact, the companies start to seek a proactive stance to know closely the needs of existing customers, in search of greater loyalty.

Through the CRM definitions presented, it is possible to notice that there is still no convergence to the real scope of the concept. This means that although CRM is an extremely relevant practice in today’s business scenario, it is difficult to implement, mainly due to the lack of agreement of its real objectives and potentialities by the different groups within the organizations.

Since the early work in the area of customer relationship management in the early 1990s, it was clear that the success of this topic was directly associated with the advancement of information technology Stone (1996). Knox (2003) considers that information technology plays a pivotal role in the implementation of the CRM concept in companies by allowing them to maximize their profitability through a more precise focus on the market segments and the micro-segments within them. The author further notes that the use of new information technology tools, such as database, data warehouses and data mining, are helping companies increase customer value and profitability.

3.1 Features in CRM Systems

There are several ways in the literature to classify the functionalities found within a CRM system. A classic classification found is presented by Peppers and Rogers (2001), in which the functionalities are grouped in: operational (Operational CRM); Analytical CRM; and Collaborative (Collaborative CRM). Operational functionalities, such as sales force automation or call centre functionalities, aim to improve the relationship between customers and the company by integrating the customer’s various contact channels with the back-office systems from the company. The analytical functionalities allow to identify and follow the actions of different types of clients of a company and, in possession of this information, support the determination of the strategy to meet the different needs of the identified

clients. Finally, the collaborative functionalities support the company in the automation and integration of all the points of contact of the client with the company, allowing, in this way, a more effective exchange of information between both parties.

On the other hand, SCN education (2013) indicates that the functionalities contained in CRM systems can be divided into three aspects. The first aspect considered is the **Automation of Marketing** (Marketing Automation), composed of applications that optimize the marketing process in a company, with the objective of allocating resources to target markets with the highest potential values. These applications, which range from data mining tools and database marketing, help plan and execute marketing campaigns by

managing customer and market profiles, identifying target markets with high potential for profitability and profitability, generating leads, selecting the appropriate means of contact (for example, letter, phone, or brochure) and tracking the customer's initial contact efforts through channels. The second aspect refers to the **Automation Sales Force** (Sales Force Automation), whose set of software's manages and optimizes the sales cycle of the company, increasing its productivity mainly by optimizing the execution of contracts. These applications manage and track the submission and negotiation process; generate product / service proposals and preliminary quotations; and create final sales packages based on automatic pricing and product configuration. They integrate the company's sales force (field

Table 1: SAP CRM System Features - Version 3.0

Scenario of Business	SAP System Features CRM - version 3.0
Marketing administration	Creation of marketing plan Campaign management Custom message elaboration Leads Administration Creation of target group Product Propositions
Sales	Administration of opportunities Sales Order Processing Processing of sales contracts Revenues Pricing and conditions
Field sales	Territory administration Planning visits
Internet sales	Catalog management and product recommendation Real-time web collaboration Web behavior analysis Web auction
Provision of customer service	Elaboration of service contract for the maintenance of installed base Internet Customer Self Service (ICSS) Confirmation of service provision Claim Processing Return Processing
Field service and Dispatch	Service Processing with resource planning Provision of services using Handhelds Provision of services using Mobile
Central interaction	Lead Qualification and Opportunity via CIC (Customer Interaction Center) Inbound Telesales Outbound Telesales Information Help Desk

and internal) with the office and its database and facilitate increased communications between sales force and management. The last aspect deals with the Customer Support and Service (Customer Service & Support), which are found in applications developed apart from other packages CRM, such as automated help desks and call centre systems. The primary purpose of these applications is to document all iterations with customers in the company database in order to maximize their satisfaction and retention while minimizing the effort of the customer service workforce.

3.2 Introduction to the SAP CRM System

As discussed earlier, one of the objectives of the present work was to perform an exploratory study on the functionalities of a CRM system and an ERP system, from the point of view of the Demand Management sub processes. The selection of the CRM system to be studied led to the SAP CRM system of German software house SAP.

The Table 1 below summarizes the key features found in the system SAP CRM version 3.0. This synthesis was performed, based on two sources: a description of the system SAP CRM and business scenarios presented by the tool SAP Library - Integrated Business Content for SAP CRM, the business scenarios presented by the SAP Library exclusively serve to group some of the system's functionality around its proximity or similarities of use. In this way, each business scenario encompasses several functionalities contained in the system and, related to these functionalities, the adherence to the activities of the reference model in Demand Management was analysed.

4. ERP - ENTERPRISE RESOURCES PLANNING

Systems ERP today are the result of the evolution of traditional management systems of material requirements (MRP - Material Requirements Planning), widely used by the manufacturing industry since the 70s.

An MRP system is based on the logic that if all the components of a given product are

known and the times of obtaining each of them, then, based on the forecast of the availability needs of the product in question, calculate the timing and quantities of purchase or production of each component of that product. In short, MRP logic is part of the future vision of a product and has been "exploding" its component requirements backwards and forwards in time.

However, questions such as "Is there sufficient capacity to carry out the production plan suggested by MRP?" or "Are the human resources and equipment sufficient to meet the plan on time?" led MRP systems to expand and integrate with other company activities, extending their application of material management to the management of manufacturing resources Slack (1995). This new scope of MRP systems then went on to be called Manufacturing Resource Planning or MRP II - Manufacturing Resources Planning.

Based on the need for manufacturing management systems to share information with systems in other areas of the company, other modules began to be incorporated into MRP II systems by their suppliers in order to increase the focus of the systems sold, the scope of manufacture. When system vendors came to believe that their integrated solutions were sufficiently capable of supporting the information needs of all of the company's internal processes, they began to call themselves vendors, not more of MRP II systems, but of ERP systems - Enterprise Resources Planning.

4.1 Main features of ERP systems

After a first wave of deployment of ERP systems, there are some common features found in multi-vendor systems on the market. The most common features are:

- (a) **The Structure:** With respect to its structure, it can be said, in a simplified way, that ERP systems are composed of a central database supported by several application modules. The central database receives and provides data for the various modules, supporting the activities of the

organizations' business processes. When new information is manipulated by a module and stored, other information is automatically updated. In this way, the integration between the application modules is guaranteed Davenport (1998). The modularization of ERP systems Shanks (2003). In this way, it is possible to add the external modules to the system Shanks (2003).

- b) **Generality:** An ERP system must be able to support a variety of organizational structures and should be suitable for a wide range of types of organizations Shanks (2003). The adaptation of the software to each specific requirement of each company happens through the configuration. The configuration ensures flexibility for ERP systems as, through configuration, companies can adjust system functionality to their requirements and characteristics.
- c) **Client / Server architecture:** A broad definition of client / server software architecture classifies as "client" software that can request a service and, as "server", software that can provide a service. With the client / server technology, the software can be

centralized in a computer, being accessed by several peripheral computers, clients, that are located next to its users Curran (1998); and

- d) **Based on Reference Models of Best Business Practices:** The last identified characteristic of such systems is that, because ERP systems are in principle generic systems, that is, of application in various sectors and industries, their functionalities must be based on the best practices in the market.

4.2 Introduction to the SAP R / 3 System

The ERP system selected for the exploratory study of this research was the SAP R / 3 system, version 4.6 C. Based on a cross-platform client-server architecture, SAP R / 3 is divided into three main areas: finance, administration human resources and logistics. Within each of these areas, modules with specific functionalities are available. The modules in SAP R / 3 are represented in the following table.

As previously mentioned, the analyses of this work take into account only the Sales & Distribution module of the SAP R / 3 system, which is highlighted in Table 2.

Table 2. SAP R / 3 System Modules for their Functional Areas

Business	Human Resource Management	Logistics	
(FI-Financial Accounting)	(PA-Personnel Management) (Payroll)	(LE - Logistics Execution)	(MM - Materials Management)
(CO - Controlling)		(SD - Sales and Distribution)	(QM - Quality Management)
(IM - Investment Management)	(PT - Personal Time Management)	(PP - Production Planning and Control)	(PM - Plant Maintenance)
(TR - Treasury)	(PE - Training and Event Management)	(PS - Project System)	(EHS - Environment Management)
(EC - Enterprise Control)			

As the name implies, the SD module is designed to support the key processes involved in running a company's sales and distribution area. The understanding of its characteristics, along with related reference

models, allows the identification of functionalities available in the module. The determination of a functionality seeks to follow the level of detail of the activities of the reference model in Demand Management,

thus avoiding future problems of comparison between both (activities and functionalities).

The following are the main functionalities found in the SD module of the SAP R / 3 System;

- Generation of sales orders;
- Generation of sales quotation;
- Generation of sales order via Internet;
- Generation of remittance programs;
- Generation of customer contracts;
- Claim management;
- Processing of request delays;
- Check of sales order status via Internet;
- Determination of sales price and conditions;
- Check material availability / Available for Promise;
- Exception message determination;
- Billing of goods;
- Shipping of goods;
- Transportation of goods;
- Reports;
- Processing of service contracts;
- Service quotation processing;
- Return and repair processing; and
- Foreign trade support (procedures and tariffs).

5. RESULTS OF THE APPLICABILITY OF CRM AND ERP SYSTEMS IN THE BUSINESS PROCESS OF DEMAND MANAGEMENT IN PRODUCTION ENVIRONMENTS. MANUFACTURE-TO-STOCK

In order to analyse and organize the activities of the Reference Demand Management model that can be executed with the help of the functionalities found in the systems studied, two matrices "model activities versus system functionalities" were developed (one for the CRM system and another for the ERP system). Each matrix was structured so that the activities of the model were listed in the

rows of the table, while the system functions in its columns. In order to join each row-column, an evaluation was made as to the degree of coverage that the system's functionality provides to the activity of the reference model.

The measurement was based on the subjective evaluation of the researchers, which can be valued by the experience they have in the implementation of the systems in question, and adopted the following criteria:

- **Coverage Total:** means that the functionality of the system fully covers the execution of the activity;
- **Partial Coverage:** The functionality helps to execute the activity, but it does not satisfy it completely, that is, the use of the functionality does not guarantee the success of the activity that is normally supported by other functionalities existing in complementary systems or by human execution activities; and
- **No Copper / Does not apply:** The functionality does not help or does not apply to the proposed activity.

The results obtained from the mentioned matrices were then analysed. In view of the elaborate descriptions on the support of the functionalities found in the SAP CRM and SAP R / 3 - SD systems to the activities of the Demand Management model for Manufacture - to - Stock environments, a new analysis was performed in order to graphically visualize the possible application of such systems in the studied process. This analysis was elaborated from the calculation of the percentage of activities of each sub process of Demand Management, which are supported by the functionalities found in the systems. For this, an indicator was developed, called "IA - Functionality Applicability Index", which aims to present a percentage value of the tools support to each of the sub processes in the model (Equation 1).

$$IA = [(C + 0,5 * P)/T] * 100\% \quad (1)$$

On what:

- **IA:** index of applicability of the system in the sub process;
- **C:** Number of sub process activities fully covered by the system;
- **P:** Number of sub process activities partially covered by the system, regardless of the number of functionalities that assists each activity; and
- **T:** Total sub process activity.

It is also worth noting that although the partiality of the use of a system functionality in the execution of a process activity does not necessarily mean that it will be 50% supported

by the system (as shown in Equation 1), this value was adopted as an average value, because there is the possibility of several functionalities interacting in the support of a single activity.

Thus, through calculations according to Equation 1, Table 3 presents the results of the application of the SAP R / 3 - SD and SAP CRM systems for the eight sub - processes of Demand Management established in the reference model studied. The applicability index (IA) was calculated separately, that is, for each of the systems studied, and considering the two systems together.

Table 3: SAP System Applicability Indices R / 3 (SD Module) and SAP CRM in the Sub Processes of Management of Demand in MTS Environments

Sub-Processes	IA _{R/3 - SD} (%)	IA _{CRM} (%)	IA _T (%)
Generate information	10	10	16
Predict demand	0	0	0
Influencing demand	0	54,17	54,17
Support planning distribution	0	0	0
Plan service level to customers	5	5	10
Manage wallet orders	12,50	16,66	25
Manage ATP	100	0	100
Log in customer orders	1000	100	100
Average applicability two sub-processes	32,50	25,36	43,60

From the results obtained and with the purpose of facilitating their visualizations, a system of ranges of percentages of the indices of applicability of the systems was adopted, thus allowing the creation of radar-type graphics.

To that end, the percentage ranges for the Applicability Index (IA) were defined as

follows: for AI values equal to 0%, the range 0 was adopted; for AI values between 0.01% and 49.99%, range 1 was adopted; for AI values between 50% and 99.99%, the range 2 was adopted; and for AI values equal to 100%, lane 3 was adopted (see Table 4).

Thus, the radar graphs of the applicability of the systems to the reference model are presented in Figures 1, 2 and 3.

Table 4: Applicability Index of the Systems Using the View of Percentage Ranges

Sub-Processes	IA _{SD}	IA _{CRM}	IA _T
Generate Information	1	1	1
Predict Information	0	0	0
Influencing Information	0	2	2
Support planning distribution	0	0	0
Plan service level to customers	1	1	1
Manage wallet orders	1	1	1
Manage ATP	3	0	3
Log in customer order	3	3	3

Figure 1: Graph of the Applicability of the SAP R / 3 System (SD Module) in the Sub-Processes of Demand Management in MTS Environments

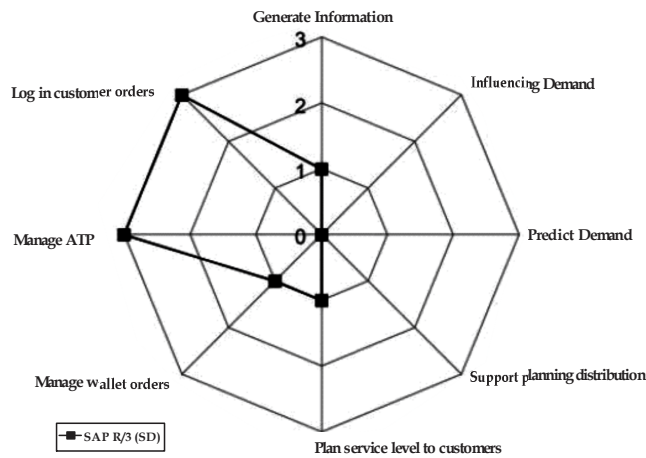


Figure 2: Graph of the Applicability of the SAP CRM System in the Sub-Processes of Demand Management in Environments MTS

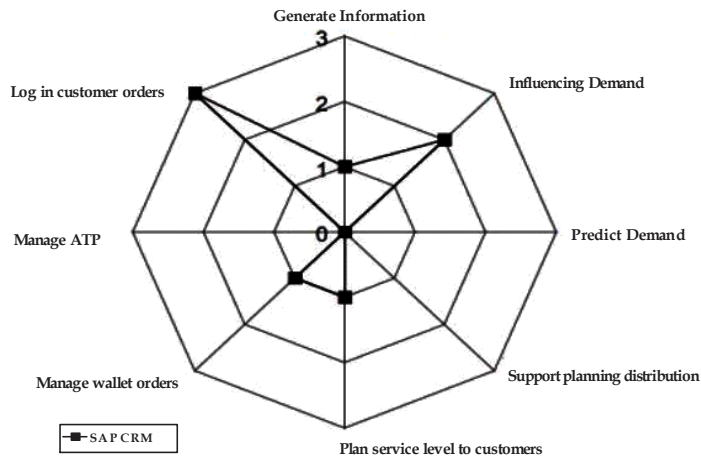
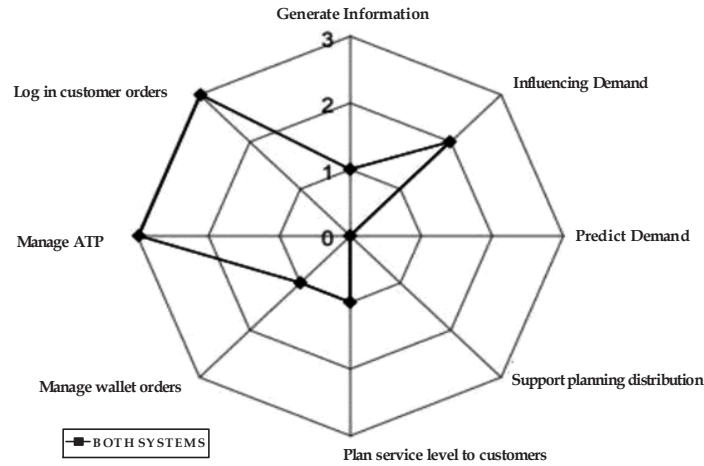


Figure 3: Graph of the Applicability of the SAP R / 3 (Module SD) and SAP CRM Systems (Together) in the Sub-Processes of Demand Management in MTS Environments



6. CONCLUSION

The applicability indexes presented present great distortions when analysed from the perspective of the various sub processes of Demand Management. When analysing the obtained AI values, it is concluded that the studied systems, treated in isolation, have low indices of applicability when the processes that involve analytical-based activities are visualized. This fact can be verified through the indexes presented for the sub processes Generate Information, Manage Portfolio of Orders and Plan Service Level to Customers, which is justified by the large number of activities in these sub processes that involve analyses of information that are usually contained in data warehouses and in support systems for strategic business planning, as well as activities that are based on unstructured information, that is, subjective analysis of the people involved in the process. Today, data warehouse systems become the central element of data across all enterprise systems, from which a large part of analytics reports are generated. "Peripheral" systems, as it is possible to call a system CRM, use analytic features that search data in the company's data warehouse, perform certain analyses, and store their results back into the data warehouse. Because of this feature, it is currently uncommon to run a CRM tool deployment project without prior or

concurrent implementation of a data warehouse tool.

From the results of the research, it is concluded that the sub-processes Prevent Demand and Support Distribution Planning present activities that are not the focus of the systems studied. Support for these activities is, for example, within the scope of SAP's ERP system planning (PP) module and APS (Advanced Planning and Scheduling) tools, which are intended to support key business planning processes (demand, production and logistics), as well as optimizing results through highly robust optimization programs (also known as solvers).

The Influencing Demand sub process is one of the focuses of any CRM solution, as the results of the work show. Every CRM system, including SAP CRM, aims to automate marketing management activities. The value of 54.17% presented is only not superior due to the fact that not all the activities of execution of a marketing campaign, for all channels of communication with the client, can be automated by a system. For example, if the marketing action taken by the company is to send a personalized e-mail message to a certain group of customers or the generation of scripts to approach customers in a sale via the call centre, these can be automated by computational tools. On the other hand, if the action taken is the editing of an advertisement

for television or radio media, this will not be possible.

However, it is worth mentioning that, although the system does not support the execution of all types of marketing action, it can be used to measure, through analytical tools, the impact of any action on the demand for the product, as well as to transform this data into information for future planning.

Finally, the other sub processes, Administer ATP and Enter Customer Order, are fully supported through the combined use of the functionalities of the ERP and CRM systems. It is worth mentioning, as a caveat, that both sub processes have operational (transactional) characteristics, rather than analytical characteristics. With respect to the sub-process Enter Customer Order, it is noted that the activities proposed by the model can be performed through various functionalities existing in both systems. This fact makes the possibility of configuring order entry processes broad and allows each company to adapt this process to its marketing needs.

At this point, it is important to highlight the functional overlaps found in both systems studied. Customer contact functions (e.g. order

entry, claims processing, etc.), previously available only in ERP systems, are now also being explored by CRM systems. From Figures 1 and 2, it is highlighted that the contribution that the CRM would add to the company would be in the attendance to the "influence demand" functionality. What is perceived, however, is that in CRM systems the functionalities that are common to ERPs are richer in configuration, a fact that indicates the possibility and the advantage of the substitution, in companies that have both systems implemented. Thus, more and more advances in systems such as CRM, APS and BI make ERP systems become the link between all these tools and therefore, many authors already call them the "backbone" of the architecture of enterprise systems.

In general, the results obtained in this work conclude that ERP and CRM systems can and should be used to support part of the activities of a Demand Management process and that, in the national market, this field still presents a vast path to be mainly due to the difficulty of the companies in structuring their processes and, based on this minimum structuring required, to optimize the use of existing systems.

REFERENCES

1. Arnold, J. R. Tony, Stephen N. Chapman, and Lloyd M. Clive. *Introduction to Materials Management*. 2014.
2. Blackstone, John H. *APICS Dictionary*. Chicago, IL.: APICS, 2013.
3. Curran, Thomas, Gerhard Keller, and Andrew Ladd. *SAP R/3 Business Blueprint: Understanding the Business Process Reference Model*. Upper Saddle River, NJ: Prentice Hall, 1998.
4. Jacobs, F. Robert, and Richard B. Chase. *Operations and Supply Chain Management*. United States: McGraw-Hill Education - Europe, 2010.
5. Knox, Simon. *Customer Relationship Management: Perspective from the Market Place*. Oxford: Butterworth Heinemann, 2003.
6. Porter, Michael E. *Competitive Advantage Creating and Sustaining Superior Performance : with a New Introduction*. New York: Free Press, 2008.
7. Proud, John F. *Master Scheduling: A Practical Guide to Competitive Manufacturing*. Hoboken, N.J.: Wiley, 2013.
8. Rigby, Darrell K., and Frederick F. Reichheld. "Avoid the Four Perils of CRM.". *Harvard Business Review*. 80, no. 2: 2002.
9. Shanks, Graeme, Peter B. Seddon, and Leslie P. Willcocks. *Second-Wave Enterprise Resource Planning Systems Implementing for Effectiveness*. Cambridge: Cambridge University Press, 2003.
10. SCN Education B. V., SCN Education. *Customer Relationship Management The Ultimate Guide to the Efficient Use of CRM*. Wiesbaden: Vieweg & Teubner, 2013.
11. Slack, Nigel. *Operations Management*. London: Pitman, 1995.
12. Stone, Merlin, Neil Woodcock, and Muriel Wilson. "Managing the Change from Marketing Planning to Customer Relationship Management". *Long Range Planning*. 29, no. 5: 1996.
13. T. H. Davenport, "Putting the Enterprise into the Enterprise System," *Harvard Business Review*, Vol. 76, No. 4, 1998.