Abstract
The main purpose of this study is to analyze the variables that relate Customer Relationship Management (CRM), New Product Development (NPD) and Marketing Knowledge (MK), in the electronic industry of Guadalajara, Jalisco, Mexico. Discover the impact that these factors have in new product development as well as the use of external and internal information on further creations. The analysis was carried out by researching 25 firms of the industry; a MK survey was focused on the CEO’s of the companies. Furthermore, the repercussions of this study in practice are the knowledge about MK structure, product development decisions with a CRM focus, as well as organizational conditions that take part in the process.

Keywords: Customer relationship management, marketing knowledge, innovation, product development

Resumen
El propósito de este artículo es analizar cómo se relacionan las variables de la administración de la relación con los clientes, el desarrollo de nuevos productos y el conocimiento de mercadotecnia, en la industria electrónica en la ciudad de Guadalajara, Jalisco, México. También descubrir el impacto que estos factores tienen en la creación de nuevos productos, así como la implementación de información externa e interna en creaciones futuras. El análisis se llevó a cabo por medio de una investigación hecha a 25 empresas de la industria; la encuesta se realizó entre sus directivos. Además, las repercusiones de este estudio son los conocimientos en la práctica sobre la estructura de MK, las decisiones de desarrollo de productos con un enfoque de CRM, así como las condiciones organizacionales que participan en el proceso.

Keywords: Administración de las relaciones con el cliente, conocimiento de la mercadotecnia, innovación, creación de productos

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Literature Review

Organizations are realizing that competing with cheaper, better or different products is not sufficient, and competitive advantage cannot be achieved by purely differentiating products alone, but through enhanced customer relationships (Puschmann, 2001). Customer’s expectations have risen in recent years, making CRM a necessity in today’s customer-driven business environment (Pan, 2003). Academic literature has long argued that companies should actively engage in customer relationship management (Morgan, 1994; Slater, 1995).

As the market becomes variable or less predictable, the need for market information should increase, especially in its frequency (Wright, 1996). Therefore, we can say that marketing knowledge should be helpful to businesses in understanding their customers and business environments, allowing business firms to make wise decisions, take successful actions and thus keep their competitive edge (Kjell, 2002).

The management of customer relationships has become a top priority for many companies. In many competitive markets, businesses invest substantially in customer relationship management (CRM) implementation (Bohling, 2006). Therefore, we can say that companies that pursue a CRM approach focus on customer retention rather than on single sales (Webster, 1992).

Parvatiyar and Sheth (2001) attributed the development of CRM to the changes of business circumstances with IT, especially innovation of firms’ interfaces with customers and total quality philosophy associated with cost reduction efforts. They explain that the overall purpose of CRM is to improve marketing productivity and to enhance mutual value for the parties involved in the relationship.

Business can become customer-oriented, only thorough knowledge-based management, and by understanding what marketing knowledge is (Brännback, 1997). As a definition, marketing knowledge is the know-how required when marketing activities are executed, and includes marketing research, channel operation, promotion, product design, and marketing information systems, and so on. In many of the MNC’s which become market leaders are those which develop excellent marketing capabilities (Tseng 2006). According to Zeleny (1989), customers are the possessors of knowledge, and therefore become those able to coordinate action.
Not only organizations should focus on marketing knowledge by itself, but also performance measurement should help the organization learn how to improve its “theory in use” of what works in the marketplace (Argrys, 1978).

The primary theory for examining knowledge in real-world domains has been the categorical model of memory. A cognitive category structures our knowledge about a domain by organizing similar items into a cohesive grouping (Rosch et al., 1976). Perkins (1993) comments that in academic area it is expected that as marketing experience and education increase, the number of cognitive categories used to structure marketing knowledge will increase and in addition the functional content of those categories will increase. It is important to mention that expert-level knowledge may require learning by doing rather than simply textbook education (Anzai, 1979).

Baker and Sinkula (1999) comment that the information processing may be separated into four components: information, interpretation, organizational and dissemination, and placing information in context allow the manager to develop a framework to help understand the future (Morgan, 2004).

Li and Calantone (1998) distinguish between market knowledge and market knowledge competence in the following way. Market knowledge is defined as “organized and structured information about the market as the result of systematic processing”, whereas market knowledge competence is defined as “the processes that generate and integrate market knowledge”.

While customer relationship management (CRM) has been defined in numerous ways (Gronroos, 1995; Morgan y Hunt, 2002), elements common to all definitions include leveraging technology to engage individual customers in a meaningful dialogue so that firms can customize their products and services to attract, develop, and retain customers. Modern CRM software packages include front office applications that access customer and product data as well as backend systems including financials, inventory, and enterprise resource planning (ERP).

Other academic researchers, such as Srivastava et al. (1999), propose that CRM is a business process that “addresses all aspects of identifying customers, creating customer knowledge, building customer relationships and shaping their perceptions of the organisation and its products”.

CRM has been used as a synonym for relationship marketing–Hobby (1999), for example, defining it as “a management approach that enables organizations to identify, attract and increase retention of profitable customers by managing relationships with them.”
It can also be said that customer relationship management is the management process that uses individual customer data to enable a tailored and mutually valuable proposition. In all but the smallest of organizations, customer relationship management is defined as “using information technology (IT) in implementing relationship marketing strategies” (Ryals, 2001).

At its core, CRM is about acquiring customers, knowing them well, providing services and anticipating their needs (Goodhue, 2002). It is also the underlying infrastructure with the necessary applications for understanding and interacting with customers efficiently (Goodhue, 2002; Pan, 2003; Rigby, 2002).

Boulding et al. (2005) concluded that CRM is the outcome of the continuing evolution and integration of marketing ideas and newly available data, technologies, and organisational forms.

The underlying premise of CRM is that firms create customer knowledge in order to (1) effectively segment customers, (2) develop and maintain long-term relationships with profitable customers, (3) determine how to handle unprofitable customers, and (4) customise market offerings and promotional efforts (Sirivastava, 1999).

Lately companies have become increasingly displeased with CRM implementations, as the majority of them are falling short of the expectations that precede them (Rigby, 2002; Zablah, 2004; CSO Insights, 2006) and are therefore considered failures (Gartner Group, 2003).

First of all, it is important to point out that there is a lack of consensus on the definition of CRM (Payne, 2005). Therefore since CRM means different things to different people (Winer, 2001), organizations approach CRM differently.

According to IDC (International Data Corporation) and Gartner Group, the rate of successful CRM implementations is below 30% (Rigby, 2002), hardly justifying the cost of implementation (Lindgreen et al., 2006). This means that about 70 per cent of CRM projects resulted in either losses or not bottom-line improvement in organisation performance (Reinhartz, 2004). Another recent research done by the Gartner Research Group in North America found that 55% of all CRM projects fail to produce results (Rigby et al., 2002).

A study done by Ernst y Young (2001) of managers who had implemented CRM found that the two biggest challenges in implementing CRM strategies were internal organizational issues (53% of respondents), followed by the ability to access all relevant information (40% of respondents).
In an international survey of 1,337 companies who have implemented CRM systems to support their sales force, CSO Insights has estimated that only 25 per cent reported significant improvements in performance (Raman, 2006).

Day (2000) suggests that main reason for CRM project failure is the lack of strategic planning prior to the implementation of CRM. On the other hand, Maselli (2001) found that the reasons for failure of many CRM initiatives ranged from technological implementation problems to a lack of organizational integration and customer orientation.

However, according to Kale (2004), the seven deadly sins for unsatisfactory CRM outcome are: (1) viewing the CRM initiative as a technology initiative; (2) lack of customer-centric vision; (3) insufficient appreciation of customer life-time value; (4) inadequate support from top management; (5) underestimating the importance of change management; (6) failing to re-engineer business processes; and (7) underestimating the difficulties involved in data mining and data integration.

To successfully implement a CRM program, it is important to understand where is it coming from and where it is headed to. A customer information process refers to the set of behavioral activities that generate customer knowledge pertaining to customers’ current and potential needs for products and services (Li, 1998). An organization’s knowledge management (KM) capabilities are the most significant critical success factor affecting CRM impact (Croteau, 2003).

It has been emphasized the need to integrate CRM programs into the overall corporate business model (the strategy), to assess organizational capabilities (the systems), and then adopt an incremental and iterative approach for the CRM implementation (Kendrick, 2002; Payne, 2001).

Brewton and Schiemann (2003) stressed the importance of linkage between a firm’s corporate business strategy and its CRM strategy by suggesting a hierarchical structure of the strategic business map. The top management and employees have to be ready for changes in job roles, business processes and organizational culture to maximize the benefits of CRM (Wilson, 2002).

Referring to the suggestion of Wilson (1995), Žvirelienė (2006) on the model of relationship marketing research and its application on the level of applied researches, it is possible to state that it might be applied for CRM conception as well. While data about customers are readily available through existing CRM database software packages, data alone do not lead to customer knowledge (Campbell, 2003).
Most existing research considers the relationship between sales performance and either SFA (Sales Force Automation) use (Robinson, 2005) or CRM is tool use at a customer-facing level (Mithas, 2005).

CRM “requires a cross-functional integration of processes, people, operations, and marketing capabilities that is enabled through information, technology, and applications” (Payne, 2005).

Wilson et al. (2002) CRM success factors of ‘Involve users interactively in system design’, ‘Address culture change in project scope’ and the need to ‘Prototype new processes, not just IT. CRM could be implemented successfully by linking a knowledge management process creating customer intelligence (internal process) Zablal et al. (2004).

Since CRM involves repetitive practices for transferring customer data into the actual customer relationships (Swift, 2001), it requires practical technologies for transferring information. Beyond that statement, Goodhue et al. (2002) argued that an integrated information system that supports CRM initiatives is not sufficient.

Payne and Frow (2006) argue that successful implementation of CRM program depends upon four critical factors: (1) CRM readiness assessment, (2) CRM change management, (3) CRM project management, and (4) employee engagement.

CRM has to be seen more than just a way of getting and using customer information. A CRM system is an essential part of a global CRM strategy which emphasizes creation of shareholder value through the development of appropriate relationship with key customers and customer segments (Buttle, 2001). CRM, as well, reflects an IS tool that makes up the SFA (Sales Force Automation) tool (Jayachandran et al. 2005) or a series of processes.

Dick Lee (2000) state that CRM is perceived as “chain reaction”, which is caused by new strategic initiatives of communication with a customer when high level of information technologies’ development and constant customer’s need to get better quality of service are achieved.

Mithas et al. (2005) found that CRM applications are likely to affect customer knowledge. They attributed the effect of CRM applications on customer satisfaction to the following three reasons. First, customers are satisfied because CRM helps firms customize their offerings for each customer. Second, CRM applications enable firms to improve the reliability of consumption experiences by better management of customer accounts. Third, CRM applications help firms manage customer relationships effectively across the stages of relationships.
Reinartz, Krafft, and Hoyer (2004) decompose CRM processes into several steps, ranging from relationship initiation through relationship maintenance to relationship termination. Second, three different levels of CRM exist—functional, customer-facing, or company-wide.

Schultz (2000) identified two forms of CRM, one related to service marketing, which focuses on the organization’s capabilities to foster relationship with the customer. The other concerns using technology such as data marts and data consolidation to deal with sales force automation.

As suggested by Raman et al. (2006), CRM system applications can be categorized into operational or analytical. Operational CRM aims to reduce operating costs while enabling these functional areas to provide a higher level of value to customers. Analytical CRM concerns the technologies that aggregate customer information and provide analysis of the customer data to improve managerial decision making and actions.

Two CRM perspectives can be found: the business perspective and the customer perspective. The business perspective of CRM also encompasses the transformation required in the business processes, organization structure and culture of the organization (Lewington, 1996; Wilson, 2002). It also recognizes CRM as an organizational strategy (Peppers, 1993) relating to customer demographics, understanding and predicting consumer behavior (Nykamp, 2001), segmenting customers into customer groups (Galbreath, 1998), one-to-one marketing (Peppers, 1999), analyzing purchasing patterns of customers (Hayes, 2003), and basically knowing who the customers are, where they are and what they need (Ryals, 2001). Kotler (1997) defined that a customer orientation backed by integrated marketing aimed at generating customer satisfaction as the key to satisfying organizational goals. CRM from the customer perspective focuses on the interaction points of the customer with the organization (Anderson, 2002; Jutla, 2001).

**Methodology**

The methodology about MK in organizations taken for this study is of Sanchez (2008), adapted from Day’s (1994) KM and organizational learning, and Moorman and Miner’s (1998) new products and organizational capabilities.

The quantitative method was chosen, carrying out a survey in a sample of 25 firms within the electronic sector in Guadalajara, Jalisco. When selecting the sample, we take into account the size and business activity of the companies.
Then a questionnaire was applied to their managers, attempting to determine the importance of factors such as innovation, creation and development of new products, information costs, implementation and use of MK, the relevance of CRM, communication flows in the organizational structure, organizational factors and other relevant aspects of MK. The results were tested by using the Pearson chi-square, which gives a 95% confidence in the comparison of different variable.

**Results**

<table>
<thead>
<tr>
<th></th>
<th>Chi-square</th>
<th>gl</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The company has launched products with high customer value</td>
<td>28.750</td>
<td>16</td>
<td>.026(*)</td>
</tr>
<tr>
<td>Project members think that the acquiring information process made during product development is competent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All project members agree with the role that the gained information would perform in developing new products.</td>
<td>16.548</td>
<td>16</td>
<td>.415(a,b)</td>
</tr>
<tr>
<td>Project members share a high degree of consensus on the importance of information gained to develop new products</td>
<td>19.621</td>
<td>16</td>
<td>.238(a,b)</td>
</tr>
<tr>
<td>There is a great discussion between project members about the purpose of the information acquired for developing projects.</td>
<td>30.644</td>
<td>16</td>
<td>.015(*)</td>
</tr>
</tbody>
</table>

Companies have launched products with high customer value helped by a competent process of acquiring information while discussing the information obtained in the team.
Table 2
Pearson

<table>
<thead>
<tr>
<th>The acquired information for the most recent Project was inventive</th>
<th>Chi-square</th>
<th>GL</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The importance of acquiring external information about foreign, political and social affairs.</td>
<td>26.048</td>
<td>12</td>
<td>.011(*)</td>
</tr>
<tr>
<td>The importance within the company of the CRM process (e.g. identifying a potential new client)</td>
<td>22.589</td>
<td>6</td>
<td>.001(*)</td>
</tr>
</tbody>
</table>

The acquired information for product development whether unimaginative or inventive is closely related to gathering information on international political, and social affairs; and especially on the CRM process.

Table 3
Pearson

<table>
<thead>
<tr>
<th>Marketing information and rules decisions are stored in the database</th>
<th>Chi-square</th>
<th>GL</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The organisation has a great amount of information about products category.</td>
<td>40.444</td>
<td>16</td>
<td>.001(*)</td>
</tr>
<tr>
<td>The industry has a great amount of information about the product category.</td>
<td>31.556</td>
<td>16</td>
<td>.011(*)</td>
</tr>
<tr>
<td>The organisation has a great comprehension about its product category</td>
<td>32.296</td>
<td>16</td>
<td>.009(*)</td>
</tr>
<tr>
<td>The industry has an insight about the product category</td>
<td>38.904</td>
<td>16</td>
<td>.001(*)</td>
</tr>
<tr>
<td>The organisation has a great experience about its type of products</td>
<td>26.400</td>
<td>16</td>
<td>.049(*)</td>
</tr>
</tbody>
</table>

Marketing information and the decisions of the rules that are stored in the database provide great amount of knowledge and information, a high understanding, experience and insights about this product category.
Table 4
Pearson

<table>
<thead>
<tr>
<th>The acquired information for the most recent project was new</th>
<th>Chi-square</th>
<th>Gl</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The importance of acquiring external information about foreign, political and social affairs.</td>
<td>23.737</td>
<td>12</td>
<td>.022 (*,a,b)</td>
</tr>
<tr>
<td>The importance of acquiring external information about opportunities for mergers, acquisitions or diversification</td>
<td>22.469</td>
<td>12</td>
<td>.033 (*,a,b)</td>
</tr>
<tr>
<td>The importance of acquiring external information on industry data, including procedures or strategies used by other organisations</td>
<td>22.721</td>
<td>12</td>
<td>.030 (*,a,b)</td>
</tr>
<tr>
<td>The importance within the company of the development of new products process (e.g. solutions of a tentative design of a new product)</td>
<td>19.675</td>
<td>12</td>
<td>.073 (a,b)</td>
</tr>
<tr>
<td>The importance within the company of the supply chain administration (e.g. establishing and managing logistics, by establishing relationships with suppliers and retailers)</td>
<td>18.480</td>
<td>6</td>
<td>.005 (*,a,b)</td>
</tr>
<tr>
<td>The importance within the company of the customer relationship management process (e.g. identifying a potential new client)</td>
<td>16.372</td>
<td>6</td>
<td>.012 (*,a,b)</td>
</tr>
</tbody>
</table>

The acquisition of information, whether old or new is related to international, political and social affairs, opportunities for mergers, acquisitions or diversification, industry data used by other organizations and to the supply and customers chain managing process.
Customer Relationship Management (CRM) linking with Marketing Knowledge (MK)

**Table 5**  
Pearson

<table>
<thead>
<tr>
<th>The acquired information for the most recent project was creative</th>
</tr>
</thead>
<tbody>
<tr>
<td>The importance of acquiring external information about foreign, political and social affairs.</td>
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<tr>
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<tr>
<td></td>
</tr>
<tr>
<td>The importance of acquiring external information about opportunities for mergers, acquisitions or diversification</td>
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<tr>
<td>The importance within the company of the development of new products process (e.g. solutions of a tentative design of a new product)</td>
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<tr>
<td></td>
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<tr>
<td></td>
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<tr>
<td>The importance within the company of the supply chain management (e.g. establishing and managing logistics, by establishing relationships with suppliers and retailers)</td>
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<tr>
<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td>The importance within the company of the CRM process (e.g. identifying a potential new client)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

The relationship with the acquired information in previous projects of product development whether creative or not can be linked to external information about opportunities for mergers, acquisitions or diversification of data from other organizations; as with the CRM.
Table 6
Pearson

<table>
<thead>
<tr>
<th></th>
<th>The organisation has a great amount of knowledge about the product category.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project members are able to acquire needed information to develop products by using less energy, time and resources</td>
<td>Chi-square 24.896</td>
</tr>
<tr>
<td></td>
<td>gl 16</td>
</tr>
<tr>
<td></td>
<td>Sig. .072(a,b)</td>
</tr>
<tr>
<td>Project members believe the products development team has been efficient in acquiring useful information.</td>
<td>Chi-square 34.785</td>
</tr>
<tr>
<td></td>
<td>gl 16</td>
</tr>
<tr>
<td></td>
<td>Sig. .004(*,a,b)</td>
</tr>
<tr>
<td>Project members show a high competition level when acquiring the needed information for the product development.</td>
<td>Chi-square 38.667</td>
</tr>
<tr>
<td></td>
<td>gl 16</td>
</tr>
<tr>
<td></td>
<td>Sig. .001(*,a,b)</td>
</tr>
<tr>
<td>Project members evaluate the process of acquiring information carried during the product development as to be productive</td>
<td>Chi-square 39.958</td>
</tr>
<tr>
<td></td>
<td>gl 16</td>
</tr>
<tr>
<td></td>
<td>Sig. .001(*,a,b)</td>
</tr>
<tr>
<td>The level of shared understanding between the members of the project regarding the meaning of the acquired information about the development of new products was high.</td>
<td>Chi-square 20.446</td>
</tr>
<tr>
<td></td>
<td>gl 16</td>
</tr>
<tr>
<td></td>
<td>Sig. .201(a,b)</td>
</tr>
<tr>
<td>Everybody had the same intention as to how they would use the acquired information to develop new products.</td>
<td>Chi-square 25.794</td>
</tr>
<tr>
<td></td>
<td>gl 16</td>
</tr>
<tr>
<td></td>
<td>Sig. .057(a,b)</td>
</tr>
</tbody>
</table>

These companies had a lot of information about their product category, unlike the others. This is closely related to useful information through an efficient work team, high competition level, and productivity in acquiring the needed information to develop new products.

Conclusions

This study allowed the analysis of the interaction between customer relationship management, new product development and marketing knowledge.

The information, obtained from 25 electronic industry companies, show, in general terms, that these companies have launched products with high customer value because of the correlation between the launched products and the open discussion of information amongst the members involved in the product develop-
opment project. It is clear that there is a strong relationship between the CRM process and the acquired information for the most recent project.

Furthermore, there is also a strong relation between the gathered database information and the methods used to generate, obtain and develop information about the new products.

In addition, the companies demonstrate strong interaction between CRM, supply chain management and the most recently acquired information.

It is convenient to apply this analysis in different industries in order to find the possible connections between CRM, supply chain management, NPD, marketing knowledge and its development.

References


Customer Relationship Management (CRM) linking with Marketing Knowledge (MK)


**Electronic references**