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BUILDING AN INTEGRATED MODEL OF KNOWLEDGE-BASED MARKETING: A CASE STUDY OF E-KNOWLEDGE NETWORKS IN HIGH-TECH SMES

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ABSTRACT

This paper takes a marketing perspective of knowledge management and introduces the concepts of marketing knowledge and knowledge-based marketing based on a review and evaluation of the extant literature. An integrated model of knowledge-based marketing is developed and the essential processes of knowledge-based marketing in a case study of e-knowledge networks in high-tech SMEs is analysed. Traditional marketing approaches have focused overly on explicit knowledge and neglected the important role of tacit knowledge, specifically in international (cross-cultural) settings. This paper aims to adjust this imbalance in the extant literature, and makes a call for a new knowledge-based marketing paradigm. The integrated model of knowledge-based marketing can be an easy-to-follow innovation model for high-tech SMEs to address when adopting e-knowledge network. This helps to ensure that the essential determinants and approaches for knowledge-based marketing processes are covered during from research, development, design, manufacturing, marketing/distribution to form the EKN for implementation/commercialisation. For industries, this provides a practical and complete business model for them to use as a reference and study the innovation approaches (the advantage and disadvantage), which are crucial for the success of knowledge-based marketing in high-tech SMEs.

Keywords: knowledge-based, marketing, KM, Knowledge management, e-knowledge network.

INTRODUCTION

Most organizations are now more customer-focused and use knowledge-based strategies to reach out to their customers. This is particularly so in knowledge-intensive industries such as the global firm. Knowledge management's overall goal is to build an organization that can 'see' the customer (customer-focused), for it is the customer that drives any business. Peter Drucker [19], the well known marketing guru, views marketing as a philosophy or way of doing business and in its importance in focusing on the customer.

Scholars and practitioners around the globe have identified the capability of MNCs to create and efficiently transfer and combine knowledge from different locations worldwide as an increasingly important determinant of competitive advantage, corporate success and survival [3] [5] [14] [17] [24] [68]. However, even though "marketing functions lend themselves particularly well to an investigation of knowledge transfer within MNCs", "there is a dearth of research on knowledge transfer in the field of marketing" [66]. Yet, in an increasingly global business environment, the creation and transfer of marketing knowledge and intra-firm collaboration through knowledge-based approaches to marketing will become more and more crucial as determinants for corporate competitive advantage and survival of firms [40].

Based on a review and evaluation of the extant literature on knowledge management (KM) and marketing, this paper applies the concepts of KM and knowledge creation, capturing, sharing, transferring and application to marketing. An integrated model of knowledge-based marketing is developed and the essential processes of knowledge-based marketing with the global firms – customers, suppliers, competitors, business partners – are analysed. Traditional marketing approaches have focused overly on explicit knowledge and neglected the important role of tacit knowledge, specifically in international (cross-cultural) settings. This paper aims to adjust this imbalance in the extant literature, and – drawing on real-life examples of knowledge-based firms – makes a call for a new knowledge-based marketing paradigm, with knowledge creation, capturing, sharing, transferring and application being the key to sustainable competitive advantage in the global knowledge economy. As a result, this paper contributes both to the field of KM as well as to the field of (international) marketing. While opening up a new area of application for KM concepts and tools it also helps to close the disconcerting gap in the marketing literature pointed out by [66] mentioned above. Besides, it provides marketing scholars and practitioners with an integrated model for preparing marketing for the challenges of the knowledge economy of the 21st century and for analysing and deploying knowledge creation, capturing, sharing, transferring and application through marketing activities.

This paper is organised as follows. First, the study will give a brief review and evaluation of the extant literature on the processes of marketing knowledge creation, capturing, sharing, transferring and application, knowledge cultures and community, knowledge-based marketing, knowledge-based approaches to marketing, e-knowledge network and introduces and defines important key concepts. Different streams of research have contributed to the field, but all in all it may not be outlandish to conclude that research on knowledge-based approaches to marketing is still rather in its infancy. Therefore, this paper aims to develop an integrated model of knowledge-based marketing.

THEORETICAL BACKGROUND

Knowledge creation

Ikujiro Nonaka's publications [59] [60] have drawn the attention to Japanese firms as knowledge-creating companies, and the difference, it was argued, between Japanese and Western firms, lies in the focus on tacit knowledge of the former and explicit

knowledge of the latter [26] [75]. Additionally, the practices of the Japanese 'knowledge-creating companies' are also interesting from a marketing perspective, "because they demonstrate how companies mobilise all employees to learn more about markets and how to captivate customers" [35].

As a matter of interest, since its beginning, the theory of organisational knowledge creation has been closely related to the field of marketing due to its focus on new product development projects [58] [74]. The same is also true for [46] work on knowledge assets. Therefore, [40] are surely correct when they note that marketing's first detailed glimpse of Japanese firms' knowledge-creating capabilities came with the publication in 1995 of Nonaka and Takeuchi's book 'The knowledge-creating company'.

Knowledge capturing and transferring

It is important to capture the knowledge embedded in organizations. This is because employees not staying long enough in organizations results in a loss of 'knowledge creating employees' [60], the terminology used by Nonaka and Takenchi. When the 'knowledge creating employees' leave, they take with them what is called 'tacit knowledge', which is knowledge inside the head of an individual. Ninety per cent of the knowledge in an organization is tacit knowledge according to the website Libsuite KM [47]. What is important is to capture this tacit knowledge by transferring it to 'explicit knowledge', which is organizational knowledge in systems within the organization which can be rapidly communicated to people and processes that are connected to the Internet.

Nonaka and Takeuchi have described a good example of capturing tacit knowledge and successfully transferring this (knowledge transfer) to explicit knowledge and as a consequence leveraging it to make profits for an organization. This can be best demonstrated in Matsushita's marketing of the home bread-making machine [60]. The Matsushita Electric Company is one of the largest corporations in the world and is well known for brand names such as Panasonic, National and Technics. According to Lord John Browne (former chairman of British Petroleum) in an interview with Harvard Business Review [7], "the wonderful thing about knowledge is that it is relatively inexpensive to replicate if you can capture it. Most activities or tasks are not one time events. Knowledge should be replicated throughout the company so that each unit is not learning in isolation and re-inventing the wheel again and again. Our challenge has been getting people to systematically capture the information the company needs, to be able to use both explicit and implicit knowledge repeatedly".

Socialization and story-telling are effective informal processes in organizations which help in capturing and sharing knowledge. Here the socialization and story telling can take place at lunch, or in the corridors in offices or even by the office water cooler. Sales representatives usually meet up with other sales representatives while travelling and usually engage in socializing during meal times. Oftentimes solutions to problems in this informal setting among colleagues can be very quickly resolved.

Many have reported the benefits of informal socializing and story telling including Nonaka, Takeuchi [6] [60]. Thus capturing knowledge requires organizations to do a number of things. There should be Knowledge Management Systems with databases, processes, technology and most importantly a culture that encourages employees to use the opportunity to informally socialize and exchange stories (tacit knowledge) of how they solved difficult problems.

Knowledge application

Knowledge management market consists of three consecutive processes of knowledge development, knowledge distribution and knowledge application. But we should note that the flow of knowledge and through this process, it may appear with the grading and varying coefficients. The sequence and timing of market knowledge may be a more rapid development, distribution and applied. But other market-related knowledge may be developed and distributed for a long time but could not be utilized. In addition, dissemination of market knowledge will further assume that the company has developed market knowledge [55]. Gabriel Troilo whole process of knowledge management in marketing from a unique perspective to explore. He emphasizes the fact that in the current market, competitive advantage for companies that are market oriented and are based on solid science. Marketing's role in knowledge-based companies has also emphasized the goal of marketing knowledge creation, sharing with other sectors and promotes the use of this knowledge [77]. Marketing knowledge management implies with process of organizational marketing is associated with the specific goal of knowledge. Marketing process, including the types of activities that can be graded goals and responsibilities. For example, some of the marketing activities for the organization to develop and manage integrated marketing and other activities designed to develop, taking advantage of the marketing information, has been set. However, more complex activities, the implementation philosophy, marketing and other marketing methods, are designed for the entire organization. Such a variety of marketing activities requires the use of knowledge management assets affiliate marketing and can achieve organizational goals, strengthen. Marketing will be accurate and they are effective in achieving organizational goals [2].

Knowledge cultures

[9] indicated knowledge cultures is the hardest to achieve. You can have the knowledge infrastructure in place, but you may not have the right culture in place. Building the right culture in an organization is quite difficult especially so when employees are still unsure of the nature of the new knowledge asset and what leveraging that means to them. Others such as Carla O'Dell

from the American Productivity & Quality Centre [63] have also confirmed that “Fewer than 10% have succeeded in making it (knowledge management) part of their culture”. It appears that capturing knowledge is the hardest to achieve in any organization. McDermott and O’Dell suggested the following strategies can contribute to creating knowledge sharing cultures [51: Make a visible link between sharing knowledge and business objectives; provide a reward and recognition system; provide adequate resources to encourage human networks of knowledge sharing; link knowledge sharing with widely and deeply held core values; encourage ‘boundary-spanning’ individuals who can translate knowledge and experiences from one group to another, and support a committed project champion.

Knowledge communities

Knowledge communities help to build a knowledge culture within an organization. A knowledge community is one in which a group of people come together to share knowledge of interest to them. They could be office colleagues, people with similar interests who have formed an informal group and could be boundary less spanning the globe. Many organizations encourage employees to become members of a knowledge community sharing knowledge among them. Even part of World Bank’s knowledge strategy is to build knowledge communities [9].

Knowledge-based marketing

What is knowledge-based marketing? It is marketing which makes use of the macro- and micro-environmental knowledge that is available to the marketing functional unit in an organization. It is not a case of “knowing what you know” but “what you need to know” in a changing micro-and macro-environment. When marketing theory such as the importance of continuously scanning the environment and looking for trends is not put into practice it can result in product failures.

Many organizations, large or small are practicing knowledge-based marketing. Kotler and Keller have described the practices in a knowledge-based organization. Procter and Gamble (P&G), one of the largest global consumer organizations has a marketing research unit called Consumer and Market Knowledge (CMK) [43]. Its goals are to gain knowledge of consumers, sustain long-term brand equity, to use local market expertise and establish retail partnership. It also has a Corporate CMK group whose functions are to manage a proprietary research methods department, to use expert application of and acquire cross-business learning from core research competencies, share services and infrastructure, leveraging traditional research basics e.g. brand tracking; experiential consumer contacts; proprietary modeling methods; and scenario planning or knowledge synthesis events.

A key issue in the literature on organisational learning and KM is how successfully firms learn when they are exploiting current knowledge and skills versus exploring new knowledge and skills and a long tradition of research suggests that these are competing strategies [44] [52] [57]. While knowledge exploitation “means enhancing the intellectual capital of a company with existing knowledge”, knowledge exploration “is a strategy for a company to increase its intellectual capital by creating its unique private knowledge within its organizational boundary” and, therefore, “means enrichment of the intellectual capital that a company achieves by itself” [29]. According to [29], both knowledge exploitation and knowledge exploration are indispensable for a company to increase its competitive advantage and [44] found that – despite the common assumption that these are competing strategies – “market-oriented firms can gain important bottom-line benefits from pursuing high levels of both strategies in product development” and they, therefore, suggest that a firm’s market orientation can systematically promote synergies between exploratory and exploitative marketing strategy activities because “a firm’s market orientation reduces the tensions between exploration and exploitation strategies and creates the opportunity for cross-fertilisation and complementary learning between the two strategies” [44].

Knowledge-based approaches to marketing

Despite the growing recognition of the need for knowledge-based approaches marketing, there are only a few pioneer firms that are already taking, or trying to take, such an approach [39] [40] [42]. However, there are already some firms that face the challenge of an increasingly global business environment with fierce competition and take up and master the challenge with the help of knowledge-based marketing.

The study reviewed an outstanding example: Toyota. [30] [31] [48] [71] and [72] indicated Toyota has often been found to be very strong at organisational learning and knowledge creation and sharing. One aspect that has particularly been under the scrutiny of researchers is knowledge sharing and learning within its supplier network and the way Toyota leverages this co-created knowledge for both itself and its suppliers [20-21] [23] [49]. Furthermore, Toyota also learns from its competitors and co-creates new knowledge with them. Especially, the joint venture between Toyota and GM – New United Motor Manufacturing, NUMMI – has already become legendary and has repeatedly been discussed from a knowledge-based perspective [4] [24] [33] [48].

[39] reports Swiss based Schindler Elevator’s knowledge-based marketing strategy for the market introduction of a new escalator product into Asian markets [42]. This case, for example, showed that even for a large MNC with its vast network of subsidiaries that are well connected by e-mail, intranet, databases, telephone and video conferences, the sharing of tacit knowledge on a personal level is still a very reasonable or even indispensable approach. In fact, a combination of both a

codification and a personalisation strategy for marketing KM in order to leverage both tacit and explicit knowledge proved highly successful. Similarly, Hewlett Packard (HP) Consulting and Integration leverages both tacit and explicit marketing, sales and application knowledge from its field people – consultants and system engineers – through communities of practice [41].

[55] and [78] indicated through co-creation of common contexts and knowledge with its customers it was able to combine its products with its process knowledge to offer an integrated service including consulting. However, they do not simply offer pre-defined process and manufacturing models, but actively co-create the solutions with their customers, an achievement that helped them to escape the red oceans of cutthroat competition and create new market space (blue ocean), yet ‘untainted by competition’ [36-37]. Indeed, as [64] state, the future of competition “lies in an altogether new approach to value creation, based on an individual-centered co-creation of value between consumers and companies”.

The Research Model of E-Knowledge Network

Under knowledge economy, the trend of global enterprises and organizations all has created their EKN. Such as Microsoft Knowledge Network Team Blog, this blog is about Microsoft Knowledge Network, a valuable add-on to Office SharePoint Server 2007 that enhances enterprise search for people by automating the discovery of the business relationships and subject matter expertise of everyone in the network. Knowledge Network provides vital business insights that enable users to make better decisions more quickly [56].

Another example is the London Knowledge Network Proposition; its value proposition is: *Creating collaborative advantage for London in the knowledge economies.*

The London Knowledge Network is a diverse and impartial community of knowledge-focused practitioners, a unique collaborative group focused on what is commonly known as “knowledge management” and its effective implementation within organisations. This not-for-profit members’ network, initiated by the University of Greenwich Business School, offers organisations that are considering or already deploying knowledge-focused strategies the opportunity to collaborate with like inded organisations seeking to find solutions to their own knowledge management issues. At December 2005, it had 14 members, 6 private sector, 7 public sector and 1 London Universities. The Network is steered by the members (via a Steering Group) for the benefit of members and offers a unique mix of collaborative and peer-to-peer processes including knowledge-focused events, visits and activities designed to stimulate understanding and application of the role of knowledge in 21st century organisations.

According to [50], member organisations gain the following benefits:

1. They join an elite group of organisations and knowledge-focused practitioners from diverse sectors and backgrounds who are all committed to finding, sharing and applying effective knowledge-based solutions to real organisational issues through active participation and collaboration.
2. They can have up to 7 key staff participate in a varied, high-quality annual programme of at least fifteen events, workshops, visits and activities including: opportunities to hear from and work with leading knowledge-focused thinkers such as Karl Erik Sveiby, Tom Stewart, Victor Newman, Verna Allee and David Snowden.
3. Visits to exemplar organisations deploying knowledge-focused strategies - such as IBM, Air Products, Unipart and Participation in a collaborative action-research programme covering key knowledge-focused areas developed to meet members’ needs and designed to add real value to members’ knowledge-focused implementation programmes in the short, medium and longer terms.
4. An annual facilitated bespoke knowledge-focused workshop developed to your own organisational agenda.
5. The opportunity to shape and develop the Network and its programmes for 2004 and beyond.

[54] proposed some perspectives for an e-knowledge network model as follows: E-knowledge networks combine the positive benefits of knowledge management (KM) systems with those of inter-organisational systems (IOS). They also address some of the pitfalls of each, creating a powerful driver for advancing organisational objectives.

Figure 1 highlights some of the characteristics of e-knowledge networks. When firms engage in e-knowledge networks, they are able to share valuable knowledge, often created with emerging automated technologies such as data-mining and intelligent agents, with their strategic partners, thereby enabling improved organisational effectiveness. Furthermore, entirely new business models are facilitated with the development and adoption of certain newer e-knowledge networks. Many of these emerging networks are characterised by automated exchange of rich customer knowledge by unattended computer systems, programmed to capture and evaluate knowledge with data-mining algorithms, share it with strategic allies, and direct the operation of key interactive processes.

The keys to success in this evolving new economy are situational awareness and flexibility. These goals can be achieved by implementing electronic systems that generate immediate (real-time) knowledge about internal functions and processes, about

customers and markets, about strategic partners, and about supply-chain partners – suppliers, vendors, dealers and distributors. Such systems allow firms to be dynamic and flexible, thereby allowing rapid changes in their strategies and activities. Firms can use this knowledge to create new internal and external structures and relationships, leading to further improvements in knowledge, which leads to continuous strategy improvements. As shown in Figure 1, [54] anticipate that the trend towards creating strategic e-knowledge networks will result in many long-term alliances that were hitherto considered infeasible or unlikely. They propose four such long-term alliances: 1. Supply-chain management networks 2. Adserver networks 3. Content syndication networks 4. B2B exchange networks.

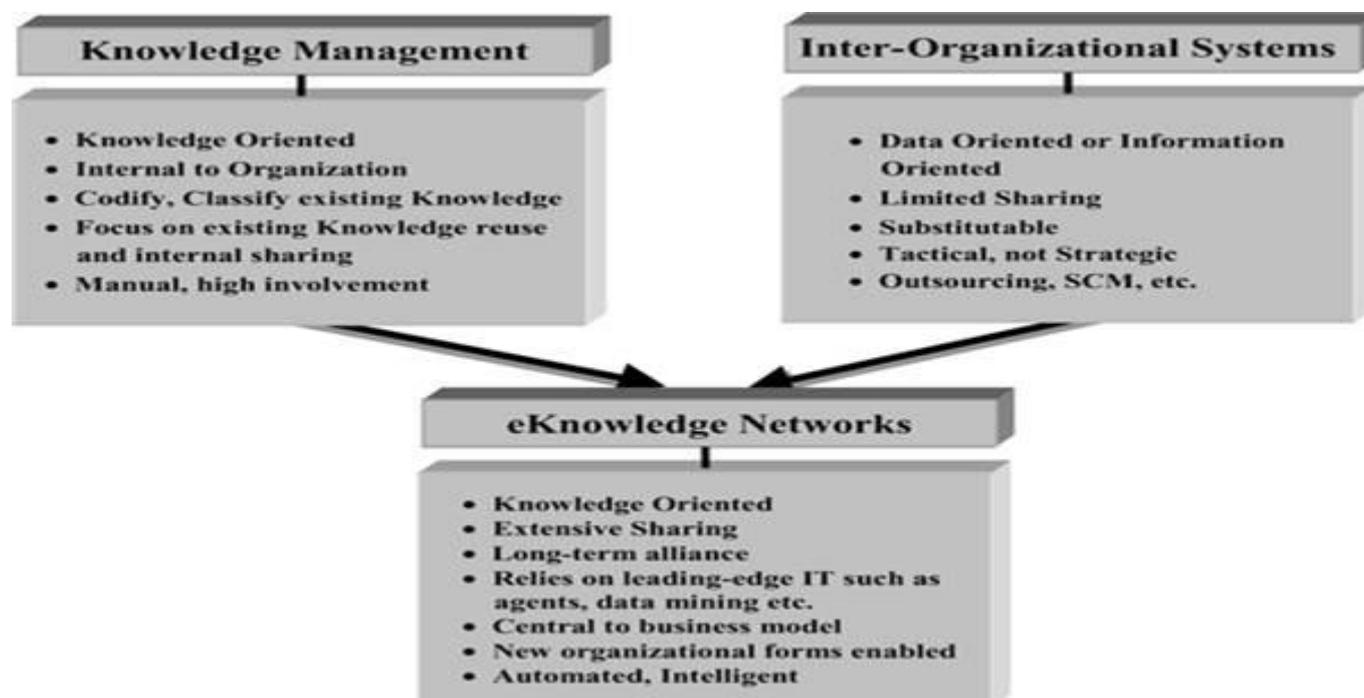


Figure 1: Aspects of e-knowledge network
Source: [54]

Figure 1 and the above discussion highlight the exchange of information and knowledge between e-knowledge network partners that are altering the implementation of B2B supply chain practices. These partners, in many cases, are altering their procurement practices to leverage the benefits of rich knowledge exchange for long-term success. The four industrial alliances described in the study suggest that e-knowledge networks are established as central elements of several emerging inter-organisational market spaces. The analysis suggests that as the Internet expands its reach, along with its ubiquitous and often automated information-sharing capabilities, the ability to create knowledge-based networks of partners will be critical to maintaining competitive advantage. Firms will learn to rely on strategic partners for both core and peripheral functions, and will outsource significant processes to organisations that specialise in such functions and activities[54].

BUILDING AN INTEGRATED MODEL OF KNOWLEDGE-BASED MARKETING

In an increasingly global business environment, the creation and transfer of marketing knowledge and intra-firm collaboration through knowledge-based approaches to marketing will become more and more crucial as determinants for corporate competitive advantage and the survival of firms [40]. Actually, as marketing affairs are among the most knowledge-intensive parts of a company, applying KM concepts and practices to the field of marketing and marketing functions will prove especially efficient and effective. However, as the above literature review has shown, marketing lacks a knowledge-based framework in order to analyse and explain marketing-related knowledge processes in firms. The next sections are an attempt to engage in the first steps of building such a framework.

Knowledge-based marketing

According to [10], “in a world where other firms are seeking to expand their market share, successful firms often can only stay ahead of the competition by exploiting new knowledge to offer improved products or processes that deliver new forms of added value to their customers.”. If we interpret Chastons’s expression ‘exploiting new knowledge’ to be a mix of exploiting old knowledge and exploring new knowledge, we might well conclude that his statement is consistent with the above. [79] follow [44] and define market knowledge exploitation strategies as “those that imply a leverage on existing knowledge to refine marketing strategies, without exiting the existent path”. On the other hand, they define market exploration strategies as “those that enact new approaches in the relationship with the market, by challenging existent convictions and routines of the organisation” [79].

[65] contend that resilient companies “go beyond conventional knowledge management by simultaneously exploiting existing knowledge and searching for new knowledge”. Based on the above, [40] proposed the following definition of ‘knowledge-based marketing’: “Knowledge-based marketing is a knowledge management approach to marketing that focuses both on the exploitation (sharing and application) and exploration (creation) as well as the co-creation of marketing knowledge from contexts, relations and interactions in order to gain and sustain competitive advantage” [40].

Note that – even though the term is not mentioned in the definition – the (co-) creation of value is an essential prerequisite for gaining and sustaining competitive advantage. Often, the (co-) creation of knowledge goes hand in hand with the (co-) creation of value, but sometimes it can also be an antecedent. Finally, given the early status of theory-building in knowledge-based marketing, [38] emphasised that the above is still a preliminary working definition. Significantly, I attach equal weight to the role of explicit and tacit marketing knowledge, which are, in fact, inseparable in marketing practice. Besides, following the definition of marketing knowledge above, I also stress that knowledge-based marketing involves stakeholders such as customers, competitors, suppliers, partners etc., and is influenced by certain factors, such as national and corporate culture, tacitness of knowledge and the level of trust.

Scholars studies on market orientation and market knowledge are considered “to address the issue of how companies learn about customers, competitors and channel members in order to continuously sense and act on events and trends in present and prospective markets” [79]. As has become clear from the definition of marketing knowledge and the model of knowledge-based marketing, at least the following key players and actors are involved in the exploration and exploitation (co-creation and sharing) of (marketing) knowledge: different units or subsidiaries of the firm, customers, suppliers, business partners and competitors. Intra-firm knowledge creation and transfer [3] [5] [14] [16-17] [24] [60] [66] [68] as well as inter-organisational knowledge creation and sharing [10-11] [14-15] [32] [34] [70] have frequently been researched and discussed. But nowadays companies can hardly be viewed as single, independent and isolated beings any more, and business networks have become ubiquitous in our economy [27].

[27] indicated “during the last decades of the 20th century significant changes in our legal, managerial, and technological capabilities made it much easier for companies to collaborate and distribute operations over many organisations” and this development “pushed many of our industries toward a fully networked structure, in which even the simplest product or service is now the result of collaboration among many different organisations.” Consequently, “large, distributed business networks became the established way of doing business in the modern economy” [27] and these – more or less – “loose networks – of suppliers, distributors, outsourcing firms, makers of related products or services, technology providers, and a host of other organisations – affect, and are affected by, the creation and delivery of a company’s own offerings” [28].

[10] puts it: “in the 21st century, it can confidently be predicted that knowledge networks of various forms will become an increasingly dominant operational structure through which to ensure the effective management of entrepreneurial activities in both private and public sector organisations.” Given this situation, a company’s success depends on the success of its partners [27]. In fact, “neither value nor innovation can any longer be successfully and sustainably generated through a company-centric, product-and-service-focused prism.” [63] According to [1], the creation of marketing know-how is the most important function of marketing in the global knowledge-based economy. Indeed, “in marketing, a wide array of knowledge needs to be created” and “knowledge on customers and their preferences must be located or solutions for a particular kind of customer problem need to be identified.” [67]

In fact, interactions and knowledge co-creation might become more and more crucial. Therefore, knowledge and value co-creation with customers – and also with suppliers and other business partners – has also received significant attention recently [17-18] [47] [62] [64-65] [76] [80]. Indeed, according to [62], the market has become “a forum in which consumers play an active role in creating and competing for value”, with the distinguishing feature of this new marketplace being “that consumers become a new source of competence for the corporation” (cf. also [63-64]). According to [80], anyone who can help the business – customers, trading partners, suppliers, consumers, interest groups – should be involved in creating the knowledge that the company needs. Indeed, the “array of relationships in the set has been expanded from the dyad of seller and customer to include partners up and down the value chain (suppliers, the customers of customers, channel intermediaries).” [13]. The study illustrates these relationships and the knowledge-based marketing processes along the value chain.

From the above, it should have become clear that a knowledge-based approach to marketing asks for the co-creation of knowledge – and subsequently the co-creation of value – with a variety of key players and actors in the business ecosystem. Zack puts it like this: “Knowledge creation and sharing in today’s economy are not bound by the traditional physical and legal limits of the corporation. Companies are increasingly realising that knowledge is often produced and shared as a byproduct of daily interactions with customers, vendors, alliance partners and even competitors. The knowledge-based organisation, then, is a collection of people and supporting resources that create and apply knowledge via continued interaction” [80].

Conceptualisation of knowledge marketing

[12] proposed remaining in the same “knowledge marketing” terminology via approaching the concept and integrating the client into the knowledge creation model, according to his proposition, the customers are involved in this process of organizational Learning. They are no longer outside the corporate entity, but are an integral part of the “organisation”, and of the organisational knowledge creation process, as Figure 2 shows. It shows that knowledge marketing consists in developing corporate collaborators’ Competence and that of customers involved in the organisational knowledge creation process.

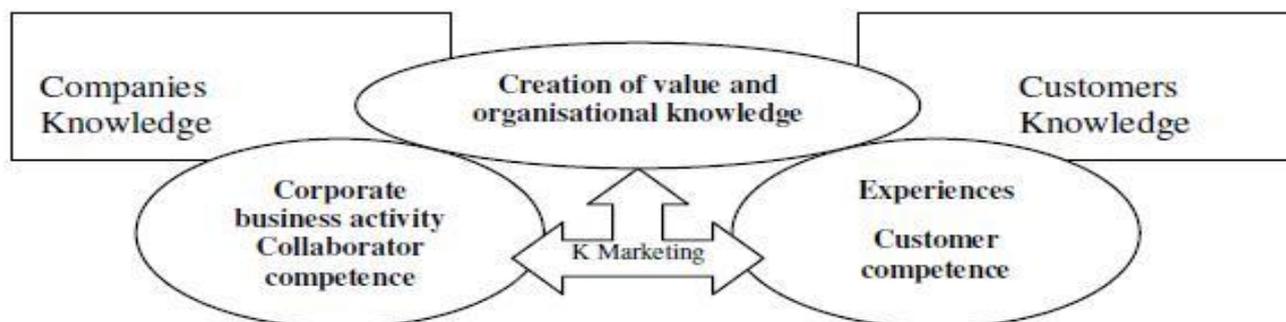


Figure 2. the integration of the customer through knowledge marketing

Source : [12]

[12] proposed keeping the term “knowledge” and generating a new term “knowledge based Marketing” or “knowledge marketing”. This term will be more fittingly interpreted than its translation “marketing of knowledge”. The term “knowledge” may be associated with that of acquired knowledge. The experiential Marketing concept will allow us to generate the term “experiential acquisition” as “knowledge Acquired through experience”. [12] shall define the different usages of this term and present “experiential acquisition marketing” as being what corresponds best to a cross between “knowledge marketing” and “experiential marketing”. In order to analyse the term, [12] shall present an interpretation of the terms “acquired” and “acquisition”.

Hence, proposition of [12] for “knowledge marketing” (the organisational field), concerning “knowledge/competence” development in the context of the customer’s integration in the “experience” involved in design, production, and consumption, meets its transversal match in “experiential acquisition marketing”. [12] suggest that one may better apprehend experiential phenomena via the notion of Competence which develops simultaneously through an organised knowledge creation system. By integrating the characteristics and properties attributed above to the notion of marketing, [12] gave the following definition: Knowledge marketing is an organised system of customer-corporate entity knowledge and competence resulting from value-creating experiences for the comprehension of, And action on, the market.

The ways for MNCs to compete successfully by exploiting scale and scope economies or by taking advantage of imperfections in the world’s goods, labour and capital markets are no longer profitable as they once were, and as a result, “the new economies of scope are based on the ability of business units, subsidiaries and functional departments within the company to collaborate successfully by sharing knowledge and jointly developing new products and services.” [25]. This statement strongly supports for knowledge-based marketing.

E-Knowledge Network

The E-Knowledge Network (EKN) as a methodology used to efficiently integrate suppliers and research-intensive organisation to ensure materials and information are made accessible and distributed at the right qualities, to the right locations, at the right time, in order to speed the process of innovation, reduce costs and improve quality. The EKN provides a framework for a seamless and streamlined approach to planning, sourcing and delivering products. As in manufacturing, optimising the EKN is critical to maximising throughput and enabling flexibility. EKN introduces intellectual capital, information management and regulatory compliance into the traditional supply chain approach[69].

The EKN involves full co-operation between marketers, designers, manufacturers and distributors in practice. Although EKN can deal with production, sales, design, finance and other functions, enterprises have no such internal organisation to cater for these functions. That is to say, the enterprise will not relinquish its key functions. Concerning the rest of the company’s functions, due to limited resources and insufficient competitiveness, the enterprise must become a virtual company. It must use every means to borrow strength from outside to increase its competitive edge. The target of this borrowed strength might be the upstream suppliers or the competition or the customer[73].

In summary, EKN emphasises the firm’s need to build a direct knowledge of its consumers and to differentiate the service, product and brand from those of competitors. It asserts that small, distinct service experiences will combine to create a strong overriding impression of quality and value, and this mechanism is the foundation of achieving a strong brand. However, to be

achieved in practice, these service targets need to be understood and communicated clearly up and down the EKN. This involves full co-operation between marketers, designers, manufacturers and distributors. In brief, an EKN meets the needs of value creation.

The EKN is a methodology used to efficiently integrate suppliers and research-intensive organisations to ensure materials and information are made accessible and distributed in the right quantities, to the right locations, at the right time, in order to speed up the process of innovation, reduce costs and improve quality. Suppliers and collaborating partners can assist the innovation process through access to technologies, skills or information, and providing complementary expertise to improve the speed to market of new product developments. In brief, an EKN meets the needs of continued innovation.

Finally, an EKN is able to speed up the process of innovation and distribute products and services in the right quantities, to the right locations, at the right time, and reduce costs and improve quality for product and process innovation.

The EKN is constructed by research, development, industrial/commercial design, manufacturing and marketing/distribution. It feeds back continued innovation and value creation to the core innovation system to form a cycle of continued innovation and value creation. Therefore, the integrated EKN model can help high-tech SMEs to achieve SCA, due to the cyclic effect of continued innovation and value creation between the core innovation system and the EKN.

An integrated model of knowledge-based marketing

According to above discussions and review, the study builds an integrated model of knowledge-based marketing as figure 3.

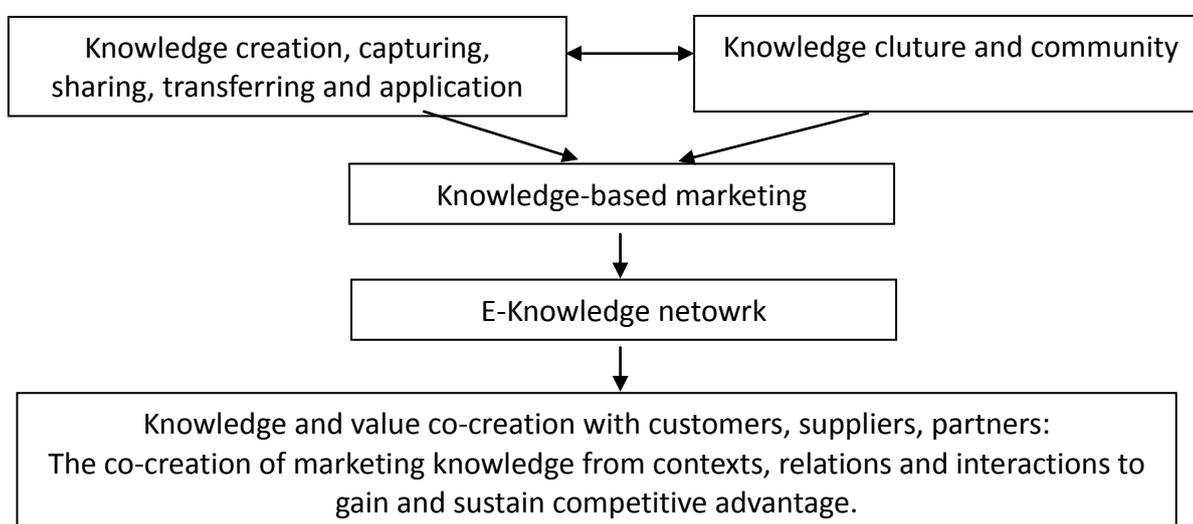


Figure 3. An integrated model of knowledge-based marketing

METHODOLOGY

The Study Design

This study involves a two-phased design, and each phase with its distinct methodology. First, an initial questionnaire guide to the interview was sent to 50 high-tech SMEs in Taiwan, in order to select four companies as case studies for this research. Two small high-tech companies (4–20 employees) and two large high-tech companies (70–200 employees) were selected. This diversity amongst the organisations should help to map the basic innovation phases, activities and routines carried out by high-tech organisations in practice. Second, in-depth interviews with senior managers from four selected high-tech companies were used to collect data.

Interviews are one of the most intensively used methods of data collection [8]. The individual in-depth interviews that the study conducted were face-to-face and of a semi-structured nature, which is one of the most common approaches to interviewing in qualitative research [8]. This type of interview involves the implementation of a number of predetermined questions and/or special topics. That allows the respondents to determine the direction and content of the interview within a broader framework provided by the interviewer. After each company's interviews, the results were assembled, transcribed and e-mailed to the respondents for their review and approval, eliminating any misinterpretation. This was expected to provide a richer and more holistic appreciation of the problems regarding the knowledge-based marketing model.

This research adopts the case study method to assess actual knowledge-based marketing and determinants of EKN and how they can be leveraged to create value to implement an knowledge-based marketing in the context of the high-tech SMEs. The

completed questionnaire, company reports/industry-specific newsletters and an in-depth interview created an established chain of evidence for each company.

The Method of Data Analysis

All interviews undertaken were recorded and transcribed. The transcripts were then coded with concepts and transformed and simplified in order to facilitate display, analysis and comparison. The coding was revised and developed as the research progressed. Displays were developed for the different concepts, summarising the response of each respondent and allowing for cross-case analysis.

The cases will be referred to as case A through to case D in order to facilitate discussion and satisfy ethical considerations. Two different techniques were used in the processes of cross-case analysis, namely: 1) putting information in different arrays to make a matrix of categories and 2) tabulating the content of different constructions and putting information in the order of elements.

THE ANALYSIS OF CASE STUDY

The analysis of case study shows the comparison of background information for the four case studies in the research. From the comparison we can see that only B Corp is the start-up firm, the other firms were established ten or more than ten years ago. A Corp is the supplier for IC design industries such as C and D Corp, B Corp is the web and blog Design Company; it can provide any industry with innovative products, processes and services via web and blog technology. Only B Corp is based in Taiwan, the other firms are all multinational corporations. A and B Corp smaller high-tech SMEs, regularly employing under 22 workers, while C and D Corp each employ 80 to 100 workers. The current investment capitals for A and B are 10–60 million, for C and D they are about 300 million. The main products for A Corp are EDA tools and IP, for B they are web and blog products, for C and D they are IC design products.

The analysis of case study shows the comparison of knowledge-based marketing and e-knowledge networks. All of the four firms have established an e-knowledge network by their EIP, which provides technology information and knowledge of their products and services, technological support by on-line FAQ and inquiry by e-mail for suppliers, employees, partners and customers. Except for B Corp, the firms have all attended e-knowledge networks in the related fields of EDA tools and IP industries: Chip 123. Its content includes technology discussion, application demonstration, academic research, successful case studies, development tools, and solutions provided by national and international industries.

A Corp encouraged its design engineers to attend the “club of engineers”, this allows users to acquire the latest related technology documents and trial products, and allows real-time on-line discussion with other users for obtaining more novel ideas.

B Corp has established an e-knowledge network by its EIP and unique web technology, linking KM and inter-organisation networks such as academic networks, consultant networks, and global expert networks into its e-knowledge network. It has participated in and utilised a “network of technology exchange for free software”.

C Corp applied the ITIS industrial information service network to foster its knowledge management and link professional knowledge and inter-organisational systems such as ITIS and universities, and applied the TWTM (Taiwan Technology Marketplace) platform, which was designed for technology transferral. Employees from C Corp also attended the industrial forum of Industrial Technology Research Institute (ITRI).

D Corp has established an e-knowledge network through its design centres in San Jose, HsinChu, and ShenZhen City and its three R&D centres in NeiHoo Technology Park, Hsinchu Science-based Industrial Park (HSIP) and the Silicon-Valley, and established an e-knowledge network via the R&D centre at the “Innovation Incubation Centre of National Tsing Hua University”. The purpose of this is to facilitate co-operation with academic research to absorb updated innovation knowledge and information to enhance innovation capacity. This R&D centre helps D Corp to link with universities and start-ups to introduce new ideas. D Corp participated in “Digitimes”, which combines IT Forums, and participated in another important e-knowledge network, EETimes Forums, wherein engineers make their own connections.

According to the above comparative analysis, we can see that larger firms have many more resources for attending and establishing partnership with the members of e-knowledge networks, but the smaller firms can only participate in some free knowledge networks and utilise EIP to establish their own knowledge networks. This is due to limited resources, in both human and monetary terms, in smaller firms. For overcoming this problem, smaller firms should actively participate in R&D plan from academia, research institutes and government to extend their knowledge networks.

RESEARCH PROPOSITIONS OF THE STUDY

According to the integrated model of knowledge-based marketing and the findings of case studies and the above comparisons

between smaller and larger SMEs, the study now proposes four research propositions for future researchers and practitioners, as follows:

- RP1: High-tech SMEs, through the full cooperation between suppliers, customers, partners and employees to construct an integrated model of knowledge-based marketing, and to achieve value creation and then reach sustainable competitive advantage.
- RP2: High-tech SMEs, through the integrated model of knowledge-based marketing, can create four relationships assets for value creation, both internal and external.
- RP3: Having a good product or service at a competitive price is not enough. Outstanding employees, efficient suppliers and supply chains, and trusted partners are critical to creating competitive differentiation and long-term survival.
- RP4: Satisfying customers is the source of sustainable value creation. Strategy requires a clear articulation of targeted customer segments and value proposition required pleasing them. These assets are the most valuable, and goals should be established to leverage and manage them most effectively.

The propositions can act as a list of items for high-tech SMEs to address when adopting knowledge-based marketing. This helps to ensure that the essential issues and approaches are covered during ideas, concepts, implementation and commercialisation. For academics, it provides a common language for them to discuss and study the approaches, which are crucial for the success of knowledge-based marketing in high-tech SMEs for future research.

CONCLUSIONS

This paper presented an integrated model of knowledge-based marketing and highlighted essential processes of marketing knowledge co-creation with the main actors in the business ecosystem of – customers, suppliers, competitors, business partners.

Firms do not exist in isolation. Strategies are first created to identify attractive market segments to enter, customers to target and products or services that need to be developed and sold to generate revenue and profit. Suppliers are a necessary component of the value chain to build a product or service. Employees are needed to tackle a whole host of issues including: managing organisational efficiency; deploying and maintaining all types of information technology; providing research and development expertise; acting as marketing and selling agents; providing customer service and even providing general and administrative support. Partners are needed to distribute and sell, or are leveraged to outsource and manage components of a firm's business. And, of course, customers are needed to purchase (initially and repeatedly) the product or service – either directly or indirectly – that the firm offers. It easily becomes apparent that the firm's success is ultimately derived from relationships, both internal and external. To manage the turbulent waters effectively as we enter a new century on a note of uncertainty, we must understand that relationship assets are the most valuable store of any firm's capital.

As shown, traditional marketing approaches have focused overly on explicit knowledge and neglected the important role of tacit knowledge, specifically in international (cross-cultural) settings. This paper's aim was to adjust this imbalance in the extant literature, and makes a call for a new knowledge-based marketing paradigm, with knowledge and knowledge co-creation being the key to sustainable competitive advantage in a global knowledge economy. In fact, facing the current global business environment and fierce competition, knowledge-based marketing has already become crucial as a determinant for corporate competitive advantage. Especially, when introducing new products or when entering new markets, knowledge creation and transfer and intra- as well as inter-firm collaboration prove critical for the success of the projects. Therefore, applying KM concepts and practices to the knowledge-intensive field of marketing and to marketing functions bears out particularly efficient and effective. Besides, as large parts of marketing knowledge are tacit and hard to codify, face-to-face communication and the integration of local staff into marketing processes and decision making is an important factor for global marketing knowledge sharing that leads to successful marketing and sales achievements. Finally, Knowledge-based marketing leads to knowledge and value co-creation with customers, suppliers, partners via the integrated EKN and then achieves the co-creation of marketing knowledge from contexts, relations and interactions to gain and sustain competitive advantage.

The core issue of the integrated EKN is to create value for customers. It provides a language that executive teams can use to discuss the direction priorities of their enterprises. They can view their strategic value measures, not as performance indicators in four independent perspectives, but as a series of cause-and-effect linkages among objectives in the four balanced perspectives. The integrated EKN is based on four strategies to create value, as follows:

Value Creation Starts With Valuing Your Customers

Strategy is based on a differentiated customer value proposition: Satisfying customers is the source of sustainable value creation. Strategy requires a clear articulation of targeted customer segments and the value proposition required pleasing them. Clarity of this value proposition is the single most important dimension of strategy. This includes low total cost (offer products and services that are consistent, timely and low-cost), product leadership (products and services that expand existing performance boundaries into the highly desirable), complete customer solutions (provide the best total solution to customers) and system lock-in (high switching costs to end-use customers and add value to complementers).

Treat Your Employees As Value-Creating Assets; Manage Them With This In Mind

The key asset to competitive advantage is outstanding people. Managing people in a modern way will be most important – stimulating and empowering them to act on their own. Given the multitude of assets necessary to drive a firm’s economic value, one key asset remains the same: people. A firm’s employees will continue to remain fundamental to economic growth. Employees do have a significant impact on a firm’s outcomes, especially the firm’s market value. How a business finds, develops and retains them is a fundamental management challenge for competing in an era in which intangible assets, such as employees, constitute the majority of a firm’s value. Firms must pay closer attention to the economic value of their employees within the context of their relationship assets:

- To capture new knowledge (measure and control data with guidance from a “select few” staff and supported possibly by information technology)
- To codify knowledge (promulgation of new product information, policy and procedures, etc.)
- To generate new knowledge (cross-functional project groups, creative approaches, innovation centres, quality improvement teams, etc.)
- To circulate knowledge (team-based learning programs, skills development workshops, feedback loops, etc.)

While the associated economic value of customers is becoming refined through newer economic models and analysis tools, employee value, outside that of pure sales professionals, is proving more elusive to measure.

Treat Your Suppliers As Critical Assets

In the extraction of value from relationship assets, suppliers do indeed play a dynamic role in creating corporate worth and growth and are a key determinant of a firm’s performance and ultimately market valuation. Careful attention and measurement must be given to this component of the value chain. A firm’s supply chain is a network of facilities that aims to have the right products/services in the right quantities at the right moment, all at minimal cost. Today, the Internet is acting as a great “aggregator” of supply chains. With the ability to create electronic supply-chain processes and real-time delivery of information, and the ability to review and contract with suppliers from anywhere in the world – all nearly instantaneously – many firms now find themselves on equal billing with the largely closed environment of the EDI-based supply chains of the past. Additionally, information-based supply chains – largely driven by the Internet – are chiefly responsible for mass customisation, real-time demand forecasting and decreased production and inventory costs, all aspects of the supply chain that a company such as the four case-study companies have enjoyed and exploited. Supply chains must be managed not just to create efficiency or to reduce costs, but to achieve growth and maximum market value.

Manage Your Partners As Valuable Assets

Forward-thinking firms recognise that the economic ecosystem “contract” is the tie that binds their success in the marketplace. As such, value from the various partner relationships must be evaluated with the same rigour as other relationship assets. Although many firms have a variety of partnerships, we believe they can fundamentally be divided into five distinct categories:

- (1) **Alliance Partners:** The ability to leverage alliance partners is no longer a “nice to have” proposition, but rather a strategic imperative today. Alliance partnerships are proving to be not only a good vehicle for achieving the growth goal, but also an extremely important corporate asset. Alliance partners typically constitute relationships between firms focused on filling single and multiple gap deficiencies, creating integrated products and/or services or forming a breakout offering. Joint partnerships might also leverage R&D capabilities as a means of sharing costs or creating proprietary technology or standards. In an era of increasing speed, creating alliance partnerships can also serve as a means of getting to market faster, ahead of competitors.
- (2) **Research institute partners:** Research institute partners constitute relationships between firms and research institutes, focused on co-creating advance products, services and processes to form a breakout offering. Joint partnerships might also leverage innovation R&D capabilities as a means of transferring technology or standards and as a means of getting to market faster, better and cheaper.
- (3) **Government partners:** Government partners constitute relationships between firms and various supporting program from government, focused on co-operative innovation programs to form an industrial upgrading and turnaround. Co-operative partnerships might also leverage innovation R&D capabilities as a means of promoting upgrading of technology or industries and as a means of maintaining sustainable competitive advantage.
- (4) **Academic partners:** Academic partners constitute relationships between firms and various universities, focused on co-operative innovation R&D program to form a win-win situation for industrial needs of talents and supply from universities. Co-operative partnerships might also leverage innovation R&D capabilities as a means of transferring the results of technology and research and as a means of assisting SMEs to establish innovation R&D centres.
- (5) **Distribution/indirect channel partners:** Many firms rely heavily on distribution and indirect channel partners. High-tech and drugs, sell as much as 60 to 70 per cent – even 100 per cent – of their product through indirect channels. Delivering the right product or service, at the right time, at the right place and at the right cost may require multiple sales channels, especially for firms competing in global markets.

Indeed, for firms to compete in such markets, both direct and indirect selling are necessary. Therefore, the channel partner, while in some respects under threat via the Internet, is still a viable and thriving component of a firm's relationship assets. Managing channel partners for market value creation is tricky at best. However, partnerships, whether they are in the form of alliance partners, channel partners or both, do significantly enhance a firm's ability to create value in the market and, thus, its financial performance. Careful partner selection, coupled with the ongoing management and the nurturing of trust throughout the life-cycle of the partnership, is critically important to ensure optimal performance. Firms seeking to generate positive value from partnerships would do well to carefully determine their full impact within the overall scope of their relationship assets, and then select, manage, measure and learn from their partnerships appropriately.

More and more businesses are chasing a finite number of customers. Where once customers had limited choice, now they have virtually unlimited choice – and access to comparative information – about the goods and services they care to purchase. This “knowledge” forces any business to create the most value-added capabilities possible and compels differentiation in order to capture, and to keep, customers. But having a good product or service at a competitive price is not enough. Outstanding employees, efficient suppliers and supply chains, and trusted partners are critical to creating competitive differentiation and long-term survival. These assets are the most valuable and goals should be established to leverage and manage them most effectively.

The integrated model of knowledge-based marketing can be an easy-to-follow innovation model for high-tech SMEs to address when adopting e-knowledge network. This helps to ensure that the essential determinants and approaches for knowledge-based marketing processes are covered during from research, development, design, manufacturing, marketing/distribution to form the EKN for implementation/commercialisation. For industries, this provides a practical and complete business model for them to use as a reference and study the innovation approaches (the advantage and disadvantage), which are crucial for the success of knowledge-based marketing in high-tech SMEs.

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