Developing Web-Based Partner Relationship Management: An Exploratory Study of the Application of Web-Based Solutions by ICT Companies in Malaysia, Ireland and the United Kingdom

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ABSTRACT

Web technologies have a significant impact on how companies manage their relationships with their stakeholders. Technologies, especially web portals have been widely adopted as platforms for integrating partner or reseller activities. Inefficient traditional methods which require high transaction costs and poor communication processes are being replaced with web-based relationship management solutions. This study explores the adoption of web-based technologies, specifically web portals in partner relationship management (PRM) and their contributions towards enhancing and sustaining relationships with channel members. This study is based on prior research and interview data gathered from a sample of ten companies in the Information Communication Technology (ICT) industry from Malaysia, Ireland and the United Kingdom. The findings revealed that companies which adopt web-based solutions become effective and efficient in three main areas: sales and marketing, training, and technical support to their partners. Overall, web-based PRM adds more value to the business processes of these countries.

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INTRODUCTION

Companies cautiously think about information sharing and trust in relationships to avoid information-based misunderstanding. Applying PRM systems can help offer solutions to problems that arise from miscommunication (Abdullah & Musa, 2014; de Vries, Schepers, van Weele, & van der Valk, 2014; Chang, Chen & Huang, 2015; Lai, Wong & Lam, 2015). Managing partner relationships between companies and its risk were researched to understand how to minimise the risks of PRM (Szczepański & Światowiec-Szczepańska, 2012; Ding, Dekker, & Groot, 2013). Previous literature explored ways of improving PRM such as enhancing channel partner relationships through the use of an index (Agarwal & Singh, 2014), standardisation of strategies and their impact on partners' relationships in complex products and systems (Benmeziane & Mione, 2014), and the influence of institutional forces on international joint ventures, foreign parents' opportunism, and relationship extendedness (Chang, Bai & Li, 2015), sustainability adoption through buyer-supplier relationship across the supply chain (Kumar & Rahman 2015), PRM improvement model using SOM2, CART and AHP (Lee & Lim, 2015), the impact of partnering scale and scope (Mishra, Chandrasekaran, & MacCormack, 2015), patterns of supply chain management systems used for competitive advantage (Peng, Lou & Chen, 2013), a two-way approach for supply chain partner selection (Rezaei, 2015), and integrated logistics-supported outsourcing partners in a more volatile environment (Yang and Zhao, 2015). Web-based partner relationships are becoming increasingly important as innovation in this technology surprises all levels of the industry due to its impressive facilitative features for an improved PRM.

The explosion of web-based innovations and technologies has brought several changes to the management of partner relationships. These technologies, also known as PRM technologies, facilitate the management of inter-organisational activities among channel players and generate efficiency and effectiveness through cost reduction and superior end customer service, which ultimately promote the performance of the entire channel (Bello et al., 2002; Zalab, Johnston & Danny, 2005). Exchange of information among supply chain members is imperative to maintain collaboration and corporation. Traditionally, this has been done through inefficient methods such as telephone, fax, and face-to-face meetings. However, with the evolution of web technologies, especially web portals, information flow and the communication process have become more efficient. Laukkanen et al. (2007) defined web portals as, "an inter-organisational website interface that offers an access to resources and services". Many companies make use of these portals, particularly in supply chain management to support activities such as procurement, inventory management, transportation, order processing, customer service, production scheduling, and supplier relations management (Lancioni et al., 2003; Laukkanen et al., 2007). Baglieri et al. (2007) summarised the impacts of adopting web-based solutions in supply management into three categories; "first, impact on efficiency within the buyer-supplier transactions and related processes; second, impact on logistics performance; and third, impact on the buyer-supplier relationship". Although the potential benefits gained from these tools are significant, there are factors that inhibit their adoption in business activities.

The previous literature presented solutions employed by PRM for giant multi-national companies, such as IBM, Dell, and Cisco. The companies were able to solve challenging situations pertaining to partner relationships by applying this ICT solution. These companies, which represent three different countries, experienced difficulties in tackling such problems, similar to many other giant companies. PRM issues are becoming increasingly complex in the

postmodern industrial era due to state-of-the-art internet technology which has transformed into a productive system with varied inputs. Most manufacturers pay sufficient attention to develop partner relationships by managing information (Murtaza & Shah, 2004). These companies have to manage all their interactions in an inter-organisational relationship (Ritter, Wilkinson & Johnston, 2004). Managing a partnership between Western European Countries (WECs) and Russian companies is not a trivial undertaking. However, the management difficulties can be reduced by defining and maintaining partner-related criteria in the selection of partners (Arino et al., 1997). The more distant the cultures of the partner firms in the international strategic alliances, the more difficult the partner relationship is due to difficulties caused by communication (Ireland, Hitt, & Vaidyanath, 2002). One key change in managing the supply chain is the stress of incorporating activities including the supply chain partner relationship, and supply chain environmental, economic, and political issues (Tang & Musa, 2011). One of the main objectives of a firm is to manage its information resources, and the eight pointers as shown in the following table can be helpful for achieving a productive partner relationship (Lee, Huynh, Kwok, & Pi, 2003).

Pointer	Description
Understand each other's business	Strive toward a shared understanding of important goals and policies
Set short- and long-term goals	Prioritise to accomplish intermediate goals without losing the long-term focus
Define realistic expectations clearly	Set reasonable expectations and anticipate a learning curve because no partnership is perfect on the first day
Share benefits and risks	Establish explicit articulation and agreement upon the benefits and risks. Good performance should be rewarded, while a bad situation should be addressed together
Develop performance standards	Define, agree, and communicate clear and measurable standards of performance
Expect changes and revisions	Improvement and growth come from revision and refinement
Prepare for the unexpected	Try to identify potential problems by playing out what-if scenarios and discussing options
Nurture the relationship	Like any relationship, a successful partnership requires continual maintenance to increase its value

A company should consider a number of forces that can influence the partner relationship to the long-term relationship because the exchange of information and knowledge needs to remain supportive to avoid failures in sales lead management, after-sales services and training support. Therefore, web-based PRM can add significant value to these activities in view of the latest robust web-based technology available in managing business partners. This paper discusses the contribution of the web-based PRM tools on the performance of channel activities by reviewing prior research and analysing the findings of in-depth personal interviews with ten companies in the ICT industry in Malaysia, Ireland and the United Kingdom. It also highlights traditional methods in managing partner relationships, challenges faced in adopting web-based tools, their features and functions, and the employment of such tools in the ICT industry.

LITERATURE REVIEW

Features of Web-Based PRM Solutions

There are various main features of web-based PRM solutions, specifically web portals with which one should be familiar. For example, they provide real-time access to personalised information vital for channel partners when making decisions in order to maintain and strengthen their relationships with external entities such as the suppliers, resellers, customers and partners. Some of the features of B2B portals noted by Clarke III and Flaherty (2003) include business intelligence, transaction integration and processing, taxonomy creation, collaboration, cross-repository searching, document management, links to websites, subscription services, and syndicated data. Likewise, according to a number of researchers (Benbya et al., 2004; Detlor, 2000; Surgency, 2001), there are six features of web portals which consist of personalisation, integration, searching, publishing, collaboration, and taxonomy (Chang & Wang, 2011). Benbya et al. (2004) further stressed on the business process automation feature of portals which facilitates the knowledge application process (Chang & Wang, 2011).

In exploring the features of portals, Benbya et al. (2004) classified these features into three categories: core capabilities, supportive capabilities, and web services. Core capabilities support the knowledge development phase which includes taxonomy, publishing, personalisation, integration, and collaboration. Support capabilities include security, profiling, and scalability. These features are more connected to the smooth running of the portal. Web services differ from one business to another. For instance, services applications by General Motors and Cisco, e-learning applications by British Telecommunications, and group calendar by STMicroelectronics are distinct from one another. The portals provide the necessary information about the business through a single personalised web browser anywhere and anytime which aims to offer timely information to each member of the internal personnel, to increase the working efficiency of groups, and to raise the capacities of their personnel (Dias, 2001; Chang & Wang, 2011).

Functions of Web-based PRM Solution

There are at least three functions of web-based PRM solutions. Firstly, efficient coordination and business process automation. Web-based PRM solutions coordinate and automate several tasks between suppliers and resellers. Some of these tasks include reseller profiling and recruitment, certification status management, order management, service management, and training. Such automated processes help monitor and evaluate the activities and value of resellers (Weber, 2001). Reseller profiling, which is also a component of customer relationship management, will automatically generate, analyse, and report reseller information like corporate demographics, geography, specialties, clients, points of contact, certification status, reseller service preferences, territorial coverage, customer base, and the lines carried (ours and those of the competitors). It also automates reseller order management (order placing, tracking orders, and returns) and reseller report generation (sales, service, and marketing performance reports). Overall, this function provides smooth and effective management of resellers as it enables a more precise evaluation of resellers' performances (Mirani, Moore & Weber, 2001).

Secondly, in timely exchange of key information, this functionality allows consistent flow of relevant and customised information to channel partners through extranets or partner portals. This is particularly important for resellers who depend on tightly focused and up-to-date web-based information to get through a complex sales process (Weber, 2001). Finally, in the function of lead management, providing more precise lead generation and assignment solutions, PRM software creates a pathway towards initial and repeat sales by strengthening lead tracking and accountability (Weber, 2001). Lead management, one of the most popular PRM solutions, uses web-based tools to increase lead conversion rates of the resellers and track and follow up the opportunities for lead generation. This function is one of the principal reasons for businesses to adopt PRM solutions. Other functions of lead management consist of lead capturing, recording, tracking, routing, rerouting, and accountability (Mirani, Moore & Weber, 2001). Furthermore, a number of researchers (Yang, Yang & Wu, 2005; Chang & Wang, 2011) summarised that the functions of an enterprise information portal give leverage to the existing information systems, data stores, networks, workstations, servers, applications, and other knowledge bases to provide the parties with an invaluable set of corporate data anytime, anywhere. Table 1 exhibits the common PRM functions taken from dedicated PRM vendors and PRM application suite (Mirani, Moore & Weber, 2001).

Platform Technologies

Since most businesses deal with suppliers and resellers in different geographical locations, nearly all of the PRM solutions are developed using browser-based applications. This technology enables the parties to work from remote locations meaning that specialised software or direct connections to a server is no longer needed. Some of the common standard website development technologies used are Internet Information Server (IIS), Active Server Pages (ASPs), Transaction Server (MTS), and COM technology and XML (Extensible Mark-up Language) (Mirani, Moore & Weber, 2001).

Table – 2: Overall Functions of PRM Solutions.

Common functions of PRM solutions (Mirani, Moore and Weber, 2001)	
Fund Management	Coop, MDF, rebates, promotions, etc.
Lead Management	Lead capture, distribution, tracking, rerouting, accountability, etc.
Training	Online product, sales, and technical training
Order Management	Configuration, pricing, order placement and tracking, product returns and problems, etc.
Partner Profiling	Partner information such as geography, specialties, client history, performance, transaction and interaction data, etc.
Report Generation	Ad hoc reporting such as marketing, sales, and service performance reports, etc.
Content Management	Product, company, and industry information, partner specific web pages, etc.

Web-Based PRM Solutions in the ICT Industry

Many companies are taking advantage of the success of web-based PRM solutions to create and manage effective relationships with indirect channel partners. Leading companies in the ICT industry such as Cisco, Microsoft, and Intel have transformed their business models by adopting web-based solutions to enhance their supplier-reseller relationships. These solutions contribute positively to the PRM in the form of consistent communication, information exchange, and streamlined processes which result in new market offer development, improved market offer quality, and increased commitment, efficiency, and productivity among the parties (Weber, 2001). Information sharing on web-based tools leverages the business systems in the supply chains (Chengalur-Smith, Duchessi, & Gil-Garcia, 2012). The intelligent agents and data mining in the electronic partnership management support expert systems (Warkentinl, Sugumaran, & Sainsbury, 2012). Key antecedents of web-enabled supply chain management enhance business performance (Ranganathan, Teo, & Dhaliwal, 2011).

Well-known companies in the ICT industry such as Cisco, IBM, and Hewlett-Packard (HP) have adopted such solutions and acknowledged that those solutions help businesses improve their overall performances. Cisco, the worldwide leader in networking, offers a wide variety of tools to its channel partners through Cisco's Selling Value programme. One of the web-based tools available to its resellers is the "value readiness tool" which the resellers use to identify their "value readiness" and develop their business models to conform to the opportunities that may arise in the internet economy. The tool not only assists the resellers in evolving their business models, but also provides them with necessary information to carry out changes if required. Resellers are also granted authorisation to access Cisco's web-based e-learning tool, "Value Compass" which covers topics such as strategies for success, business and marketing tactics, and finance options. Cisco also conducts web-based training classes on topics such as "Network 101", and product specific classes and sales training classes which focus on selling value and the use of consultative approach (Mitchell, 2001). Moreover, Cisco provides Network Designer to its resellers which keeps every device on the customers' network on track. It eliminates the need for Cisco or the resellers to conduct site visits and regular check-ups. Moreover, to facilitate the reseller ordering process, Cisco offers "Networking Products Marketplace for Resellers", an online model used to choose, configure, and purchase network products online from Cisco or its direct distributors. Apart from that, the Web-based Partner Locator programme of Cisco allows users to find resellers within their reach and select them based on their technical capability (Mitchell, 2001). Through the Supplier Connection Application, Cisco's suppliers also have access to its enterprise resource planning (ERP) order fulfilment systems and inventory databases which provide them with the updated information on the inventory and customer demands (Kraemer & Dedrick, 2002; Ranganathan, Teo & Dhaliwal, 2011).

IBM uses Siebel's-e-business and CRM application system to manage its 55,000 internal users and 30,000 business partners and millions of customers directly over the web. Seibel System is one of the top vendors of e-business and customer relationship management applications in the world. Employing this solution, IBM aims for an effective management of its customers and channel partners by creating a competitive advantage through it (Mirani, Moore, & Weber, 2001). HP adopts Trilogy's technology to strengthen its relationship with resellers and improve reseller performance. Trilogy has developed PRM modules called "Channel Chain" specially targeted to suppliers that rely heavily on indirect sales through resellers. HP has a

very dynamic product line and the sales team and resellers find it very hard to be continuously informed of the new product's configuration, performance specifications, and price quotations. To overcome the loss due to the lack of new product information, HP redefined its sales process by deploying the Selling Chain suite of applications (Sales BUILDER, Configurator, Price and Quoter) designed by Trilogy. These applications allow the resellers to access HP's database to retrieve information about the configuration, pricing, product updates, availability, and order status. They can also place orders and provide timely feedback through these applications which will lead to increased order accuracy, more consistent pricing, shorter sales cycles, increased sales for HP, and improved satisfaction and loyalty among HP resellers and customers (Mirani, Moore, & Weber, 2001). Many top companies like Dell, Nokia, Wal-Mart, and Rockwell Automation make use of web-based technologies to carry out activities in the supply chain which in turn reduce the distribution cost, improve supplier relationships, and promote the performance of the business. Witnessing this success, a number of companies attempt to imitate it by adopting web-based solutions to manage the supply chain more effectively. This fact is supported by the market research done by Supply Chain Advisor in 2003, which showed that investment in web-enabled supply chain management has been growing in US companies (Ranganathan, Teo & Dhaliwal, 2011).

Traditional Method of Managing Partner Relationships

Traditionally, inter-organisational activities either with suppliers, resellers, or partners were coordinated through inefficient, labour intensive communication processes. The traditional means of communication include phone calls, faxes, emails, snail mails, post-it notes, slide presentations, and face-to-face meetings. This fragmented and inefficient process comprised un-integrated assortments of contact management systems, sales force automation (SFA) applications, and outsourced services which made the monitoring and relationship management a lot more difficult (Mirani, Moore & Weber, 2001). This has been replaced with efficient and effective supplier-reseller communications with the development of web-related infrastructure and common internet protocols and standards (Weber, 2001). E-business tools are often developed and implemented by manufactures and resellers or suppliers and these parties do not incur any costs. Therefore, the question of switching cost would never arise among resellers as they do not invest in any of those tools. The only contribution required from the resellers is a small amount of time and effort in adapting to the tools since they are usually designed in a very user-friendly manner (Osmonbekov, 2010).

Benefits of Web-Based PRM Solutions

The need for integrated information systems arises due to the diverse spread of suppliers all over the world. This requires a well-unified system to share information on various value-adding activities (Gunasekaran & Ngai, 2004). Integrating IT in the supply chain management cuts down communication and information processing costs, makes complicated product descriptions much easier, and reduces asset specific investments in a supply chain relationship. Since the cost reduction element in investing in web-enabled supply chain management activities is obvious, many companies are making the move to enhance their supply chain activities (Ranganathan, Teo & Dhaliwal, 2011). One of the most significant costs that businesses have to face is the transportation cost. To overcome this problem, many businesses are now using

internet applications to monitor the pickups and inform the relevant parties of the delivery or any delay that may have occurred. Having real-time information can help companies make better decisions and reduce a significant amount of unnecessary costs. Internet applications are also widely used in order processing. The use of such applications not only reduces paperwork but also speeds up the process of communication with vendors including queries and replies as well as the processing of return and damaged goods (Rahman, 2003). Furthermore, companies like SAP, Seibel Systems, and Oracle have successfully developed dedicated software and portals that provide extensive information about the products, prices, sales, order fulfilment, inventory, registration and contract renewal, real-time information, and work process management to resellers all over the world (Lee, Gilliland, Bello & Osmonbekov, 2011).

Renault, a French automaker used Oracle's Siebel, a web-based PRM solution to connect with more than 14,000 dealers in Europe. The use of this software resulted in effective communication with dealerships, improved dealer sales lead conversion rates by 30% for new cars and by 25% for used cars, improved interaction with customers through emails to dealers within the same geographical location as customers, automated self-service 24/7 technical support for dealers

Table – 3: Benefits of web-based PRM solutions.

Descriptions of the Benefits of web-based PRM solutions
Diverse spread of suppliers all over the world increased the need for integrated information system.
This IT system cuts down information and processing costs.
It reduces the most significant transportation costs for the businesses.
These software provide extensive real-time information about the work process management.
Web-based solution diminishes the cost and streamline inter-organisational activities.
Companies are able to coordinate and carry out the tasks smoothly between the channel partners.
The benefits of the portal are not limited to cost reduction as they also include the potential to integrate business process electronically with other supply chain members.
Web portals give flexible access to customised and up-to-date enterprise data.
It helps to gain considerable footholds in the global competition.
These web portals with the deployment of internet technologies in the supply chain ensure the efficiency of information transfer, the timeliness of information availability, and the transparency of business information.

and standardised business processes across its dealer network (Osmonbekov, 2010). A number of researchers (Eng, 2004; Mirani, Moore, & Weber, 2001; Osmonbekov, 2001) stated that web-based solutions diminish the cost and streamline inter-firm activities such as ordering, inventory tracking, coop advertising and others. Companies are able to coordinate and carry out the tasks smoothly between the channel partners. For instance, in corporative advertising, resellers can benefit only if they are given updated information about the current promotions, intended materials, and corporate funds at the right time. Having a mechanism that gives the right flow of information between the manufacturer and the resellers gives mutual benefits by allowing resellers to get involved in complimentary activities. Moreover, web-based tools can help monitor reseller activities by detailing the timing, amount, and content of marketing spending and support for a brand (Bello et al., 2002; Osmonbekov, 2009). Also, while monitoring promotional and marketing activities, sales personnel training and other customer related activities, manufacturers can gain insights into relevant information pertaining to user accounts (Bello et al., 2002; Mirani et al., 2001; Osmonbekov, 2009). The web provides a single point of excess to information and coordination among the partners throughout the supply chain. For instance, research laboratories, pharmaceutical distributors, and end users can trade information via a single web browser (Graham & Hardaker, 2000). Developed using web technology, web portals provide the business clients with aggregated information, timely updates, direct links to wide-ranging reports and knowledge experts thereby helping them to make better-informed decisions. They are also used to boost personal sales activities handling reorders, servicing accounts, or providing informational services (Clarke III & Flaherty, 2003).

The benefits of a portal include cost reduction and service improvement opportunities, among others. Along with being able to provide worldwide customer service, the opportunities include the potential to integrate business process electronically with other supply chain members. Moreover, businesses will be able to reduce service costs and response time while having control of tracking the system status of third-party service providers (Chang & Wang, 2011). Corporate portals make customised information available to channel partners in a more organised and easier way which supposedly reduce cost and increase productivity and the company's ability to compete at the same time (Dias, 2001; Chang & Wang, 2011). Furthermore, Enterprise Information Portals have a positive effect on the performance of collaborative commerce. According to Graham & Hardaker (2000), web portals give flexible access to customised and up-to-date enterprise data. By providing guidance and relevant information, portals facilitate the communication process, promotion, customised service to users in the form of virtual communities or specialist information sources. This is how DHL transformed its new supply chain over the internet.

E-business tools are also used to complement supply chain activities. Improvement in the communication process and flow of information decrease the chance for disputes and promote the ultimate goal of all the parties involved. From the research, it can be concluded that e-business infusion has a positive impact on the relationship between the business and its channel partners (Bello et al., 2002; Osmonbekov, 2009). Currently, small and medium businesses also employ web-based connections with their suppliers, distributors, and customers to gain a foothold in the competition globally (Graham & Hardaker, 2000). Internet is now used as a platform for vendor negotiation, including the bargaining, renegotiation, and price and term agreements

(Rahman, 2003). Some of the benefits gained through the deployment of internet technologies in the supply chain include efficiency of information transfer, the timeliness of information availability, and the openness and transparency of relevant business information (Cagliano, Caniato & Spina, 2005).

Challenges to Establish and Maintain Web-Based PRM Solutions

There are at least four challenges to establish and maintain web-based solutions: access to technological innovations, transforming the organisation into full network organisation, outsourcing functions of the organisation, and high initial cost of the web-based portals. To effectively redefine business relationships through web-based technological innovations, resellers, suppliers, or partners must have access to technologies such as the internet, complementary online networks, and electronic capabilities using fibre-optics, high-speed digital switches, satellite downlinks and compatible electronic data interchange. This is required not only for the smooth flow of information but also to ensure a secure connection (Graham & Hardaker, 2000). Along with the technological requirements, shifting towards an e-business also demands drastic changes in the organisation. The organisation has to depend highly on networks technology and transform its structure either to a network organisation or a cluster organisation. In addition, the business must have the ability to outsource some of its functions to suppliers, depending on teamwork in many significant projects, maintaining long-term relationships, and a small workforce (Eljabiri et al., 2002). The amount of control and autonomy between the business and its partners is unique for each relationship. Establishing a web-based integrated process throughout the supply chain calls for a compromise between these two very important factors. However, in an ideal relationship, this challenge is overcome by maintaining control and independence (Graham & Hardaker, 2000; Shrivastava & Souder, 1987).

At the start, many companies were reluctant to adopt web-based portals due to the high initial cost. The costs of a portal include hardware costs, software licence costs, software development costs, design costs, system integration costs, and maintenance. According to Benbya et al. (2004), an enterprise portal costs between $1 million and $3 million. However, as new technologies emerge, companies have the choice to build their own portals with low-cost software. This, together with the increased internal capabilities, revolutionised the management of business to business relationships. Also, since the perceived benefits from such portals can outweigh the initial cost, many companies find it worth going for portals (Clarke III & Flaherty, 2003). Mirani et al. (2001) cited two factors that boosted the development of PRM solutions. First, as customer relationship management encompasses considerably matured solutions, the tendency for businesses to focus their attention on managing partner relationship or indirect channel relationship has increased. Second, the emergence of internet infrastructures and standards opened doors for businesses to grab the opportunities for better and stronger relationships with resellers and partners.

METHODOLOGY

Consistent with Eisenhardt's (1989) paradigm, the researchers approached the organisations with a well-defined focus of research. An extensive review of the relevant literature led to

the identification of a broad research problem that was explicated into a series of specific research questions. Multiple case studies were employed by the researchers to study the web-based PRM solutions used by the channel partners. This methodology is appropriate for the examination of contemporary issues that are embedded in contexts where boundaries are uncertain (Yin, 1994). Qualitative case studies are the most appropriate approach to address the specific research questions of this study, which are:

Q1) What are the most common uses of adapting web-based technology?

Q2) How does integrating web-based technology improve business processes?

Q3) How do the partner relationships improve with the adoption of PRM solutions?

Q4) What are the main benefits of utilising PRM solutions?

A theoretical or purposeful sampling technique (Eisenhardt, 1989; Stake, Denzin, and Lincoln, 1994) designed to provide exemplars of polar types was used to draw our cases from a population of leading ICT suppliers that employed web-based solutions and developed the application of PRM solutions. Theoretical sampling is based on the emerging theory and insights of the researcher, which provide reasons for selecting certain groups and themes (topics) for detailed analysis. Ten leading suppliers in the ICT industry were identified with the help of www.hoovers.com. This is consistent with the suggested range of four to ten cases necessary to conduct a case study (Eisenhardt, 1989) if the study subject is generalisable. Ten managers of the supply firms, partner firms, and consultant firms were chosen as sample units, three were from Ireland, another three from United Kingdom and the remaining four were from Malaysia. The sampled organisations also varied in terms of their overall management philosophy, size, and the nature of activities undertaken and therefore satisfy Patton (1990) criterion of maximum variation.

The selected respondents were IT companies that adopted web-based solutions for their businesses. Apart from that, this study also included consultants who developed the application of PRM solutions. Suppliers were chosen from Ireland, Malaysia, and the United Kingdom, and their representatives were contacted through email. Out of all ICT managers, marketing managers and partners' who responded and willing to participate in the study, ten were selected and interviewed for this study; seven practitioners were from the supplier organisations, three practitioners from the partner organisations, and one practitioner from a consulting organisation. These organisations were Noroch Consulting Ltd (UK), Avaya's partner- Nera Infocom (Malaysia), Top layer's partner - Allbumi Network (Malaysia), Oracle's partner - Encoral Digital Solutions (Malaysia), Microsoft (Malaysia), Cisco (Malaysia), IBM (Ireland), IBM (UK), Microsoft (Ireland), and Lucent Technologies (Ireland).

In-depth interviews were conducted with the key decision-makers of these organisations. They were those who possessed the most comprehensive knowledge of the characteristics of the organisation, its strategy and performance, and familiar with all aspects of the company's operations. In-depth interviews enabled the researchers to identify the main issues related to partner support programmes and activities in inter-organisational relationships. In addition, it utilised more specific information and allowed the researchers to focus on the key issues identified in the initial stage, thereby helping the researchers to better understand the concepts

underlying the issues. Most of the in-depth interviews were conducted face-to-face and each interview lasted approximately 40 minutes. However, some interviews took up to 90 minutes due to the increased number of probe questions. The interviews were recorded, transcribed verbatim, and coded for thematic analysis. On top of the in-depth interviews, relevant documents, archival data, and published newspaper articles pertaining to the organisation were collected to provide multiple sources of data and triangulation of reference materials for thematic analysis and for post-research inquiry (Creswell, 2003; Patton, 1990).

Analysing Case Studies, Reliability and Validity Issues

Data analysis in this study involved the recombining of evidence to draw empirically based conclusions (Yin, 2009). Data were reduced and analysed by both direct interpretation and aggregation of instances in the form of codes (Stake, 1995). To achieve reliability, the researchers developed a case study protocol that outlined the philosophies, procedures, and guiding questions for interview (Eisenhardt, 1989). The interviews conducted were based on a guide written in a standard format. The protocol comprised a series of prompts and appropriate probes that served as a way of eliciting relevant information from respondents prior to probing respondents to better understand the emergent themes and relationship among those themes. The transcript and documentary from each organisation were organised into groups of primary documents to form the basis of the coding frame. Codes were then used to develop themes and sub-themes pertaining to the research questions that were examined. In addition, a cross-case analysis was undertaken to reach a deeper understanding of the issues and to increase generalisability (Eisenhardt, 1989; Miles & Huberman, 1984). As an additional measure in achieving reliability, matrices were employed as an analytical tool to analyse and report data. The matrix technique promotes pattern matching and the effective categorisation of data (Miles & Huberman, 1984). Finally, revisiting the literature, the emergent themes and the research questions were compared with the literature with the purpose of seeking both conflicting and similar frameworks (Pandit, 1996). This process of tying emergent theory to extant literature enhances the internal validity, generalisability, and theoretical level (Eisenhardt, 1989).

FINDINGS FROM THE INTERVIEWS

In putting together the information, the research identified three main areas where web-based PRM solutions play an important role. They are sales and marketing, training, and technical support which will be discussed in detail. The analysis aims to ascertain whether all of the companies are aware of web-based PRM solutions and whether they have been using both traditional and web-based approaches to maintain strong relationships with their channel players. Since this paper is based only on web-based technologies and their adoption, our focus is on the use of web-based PRM solutions employed by these companies.

Below are the details of how the companies use web-based PRM solutions and how they contribute to the relationship between the companies and their partners. As mentioned above, the three areas will be discussed from the perspective of three groups of people interviewed (suppliers, partners, consultant).

Sales and Marketing

Suppliers

The business development manager of Microsoft, Malaysia, pointed out that the company has heavily invested in web-based technology to support its suppliers. Web-based features are mainly used in intensive training, appropriate lead management, communication, and after sales service. To facilitate lead management, Microsoft Malaysia also has partner locator featured on their website so that the customers can easily find their partner's information and specialisation for further enquiries. Web communication between Microsoft and its partners is often conducted via emails, net meetings, and video conferencing. This cost-effective and efficient method has helped the company build a close relationship with its partners. Moreover, partners are also provided with information on the web for business planning and strategy.

Cisco Malaysia also provides information to its partners and customers in the form of web alerts, advertisement, and hotlink. The company has also made it mandatory for the partners to share information with it. Small web-based applications such as net meeting and booking for suppliers' facilities (laboratory, equipment and technology) are also made available to the partners.

On their website, IBM, Ireland provides extensive information for partners. Some of the features that are provided on the web include revenues, accreditation, lead management and network. The most common method used for communication is email. In the web sales lead management, the complete sales cycle is available for partners to see which lead has closed, use forecasting tools, and tracked lead status. Events are also coordinated through the web where partners are automatically alerted about them.

IBM, UK also provides all the necessary information on the web to its partners such as sales materials, technical information programmes, product information, and pricing. However, all the partners do not have access to all the information on the web, but are given certain privileges according to their needs. IBM communicates regularly with its partners through emails and telephone. Emails are preferred because the response time is very quick and customised and detailed messages can be sent. Web features are also used to fill in the partners with new updates, certification and training programmes. This is a very effective way to keep the partners informed since it is near instantaneous.

The web also provides a directory to customers to find contact information of the partner's sales, technical, and representative. Lead management in the web also facilitates partners and customers to find product specification and other information.

Microsoft, Ireland has countless information available in the web to the extent that the partners are more knowledgeable than the suppliers. Partners have formed an e-community to talk to peers about trouble shooting matters. The uniqueness of the web technology in supporting partners is that it adds value to the relationship. With the technology, Microsoft allows customers to find partner information, conducts customer's survey on the web, internal web survey as well as provides an integrated online technical support. For instance, partners can send expense information to the accounts department through the web. For security reasons, Microsoft uses the latest software to send the document that can neither be printed nor forwarded and will expire in two days. Microsoft gives privileges to the partners that are in the highest level of

partnership by making it easy to navigate through the web to find information using login ID, password, and routing certain information.

Microsoft also maintains a database that contains the details of all the partners and their interested areas. This makes it easy for the company to send only relevant information to the partners. The company also has a web portal that has the function to generate sales lead which is very useful for both the customers and partners in the pre-sales.

Lucent, Ireland provides dedicated team and web-based applications to meet the partner's needs as they are very particular about the response time and product delivery. In the web, the company provides product information, its advantages, and specification. The web also has facilities that help partners check the order status, standard guide and 24/7 management centre. Emails are the most used means of communication between the company and its partners.

Partners

According to the managing director of Encoral Digital Solutions, Oracle's partner in Malaysia has invested heavily on web-based PRM solutions to maintain an effective relationship with its partners. He highlighted lead management, technical support, web training, and web communication as the most important facilities provided to them by the supplier. The most common method the company uses to communicate with the supplier is by email. It also makes use of video conferencing, especially for sales presentation and technical presentation where the participants question and discuss product requirements, competitors' offerings, and technical features. These tools have so far proven to be very useful for marketing purposes. To facilitate lead management, the supplier presents information about partners, their specialisation, and location on the web so that the potential customers can locate and contact them easily.

Top layer's partner - Allbumi Network - does not have an office in Malaysia and therefore completely depends on web technology for communication, information sharing, advertising, and technical support in the post-sales. On the web portal, the supplier provides lead management such as product information, news, partner information, and the help desk. These features play an important role in marketing the supplier's products and introducing local partners.

The company also has access to the supplier's web portal and relies only on web communication. Email and video conferencing are very useful tools for them to communicate and resolve conflicts. Avaya's partner, Nera Infocom also utilises the web communication on a regular basis. It uses both email and video conferencing to save cost and share their views on certain issues.

Consultant

According to Olivier Choron, a consultant and founder of Noroch Consulting Ltd, the two main roles of PRM solutions are providing information and resources. The information includes product and marketing information while the resources include partner's contact information, lead management, marketing fund management, and product order. The PRM solution developed for the company by Click Commerce Inc., a solution provider, allows the company to provide customised and personalised information to its partners thereby giving only the relevant information. Providing easy access to real-time information and convenient

product order leads to higher partner satisfaction. A partner can also request special price in order to win the business deal which is especially relevant when the partner needs to order high volume of products or is in a competitive state. The solution also has an intelligent system to route the request to the supplier so that decisions can be made quickly. The solution also helps in managing the marketing fund more effectively through well-documented fund and budget allocation available for the partner. The important functions that benefit the partners include communication, training (e-learning courses), information sharing (personalised, readable) and catalogue (pricing, quoting, ordering and special pricing).

The solution adopted by the company also helps generate new leads for the partner. It provides management of the marketing fund for the partner to use as well as provides a platform for business planning such as how many people should attend the training programme every quarter, sales forecasting, requirement of marketing fund, and monthly progress of point of sales. This application helps the partner to understand the business process in working together with the supplier and increases the effectiveness of marketing campaign and lead management.

Training
Suppliers

The business development manager of Microsoft Malaysia mentioned that the main support activities that could be used to build efficient and productive relationships are training, marketing support, sharing information, and joint planning. Microsoft provides training using traditional and web-based methods. Both sales and technical training are part of the requirements to become certified partners. Web-based method is conducted interactively and the web itself contains course materials, case studies, online presentation, and testimonials for reference. However, in Malaysia, interactive training programme is not used until now because the broadband technology is not widely used in comparison to the US and some European countries. The Sales Director of Cisco, Malaysia, stated that the key features of web solutions the company uses are sales training, technical training, lead management, web communication, and technical assistance. Sales training is provided via the web using case studies and intensive information by using multimedia and interactive methods.

Partners

To provide partners with training support, Oracle also provides web sales training using case studies testimonials and business proposals through interactive learning. Both Oracle and Avaya provide online training to their partners using different materials. Oracle uses case studies testimonials and business proposals through interactive learning whereas Avaya uses self-study, case studies and presentation slides. For online technical training, Avaya provides white paper, technical issues, product information, and business proposal as useful tools for partners.

Technical Support
Suppliers

Technical support is a critical back-up facility for partners in the web. This facility helps reduce

response time and makes after sales service very efficient. Microsoft-Malaysia uses self-help, interactive web application, and email as the most common means for supporting partners in the post-sales. Also, partners can contact the technical engineers in Shanghai if the need arises. IBM-Ireland provides technical support through web and telephone. If there is an emergency, partners can send email to the first line of technical support or call centre which is available 24 hours 7 days. If the problem persists, it will be transferred to the second line of technical support. Severe problems will be transferred to the laboratory for further assistance. IBM in the UK has a comprehensive database from common to complex problems so that their partners can refer to them whenever they need. Microsoft-Ireland also provides information in the net that is useful for the partners in the post-sales and technical support.

Partners

To provide partners with technical support, Oracle provides their partners with self-help email, CD, and conducts interactive online support if immediate support is needed. Similarly, Avaya provides technical support to Nera Infocom through self-study, FAQ, email, and form fill in. This function is carried out effectively in Allbumi Network where the company writes the product ID, explains the problems online, and the suppliers provide solutions or give feedback for the problems.

Consultant

In terms of technical support, the solution adopted by Noroch Consulting Ltd has reduced partner dependency where the partners can conduct self-help in the after sales service as well as receive the right information. Partners not only manage warranty and product return more quickly, but also solve product problems online effectively by using the self-help and database facilities.

DISCUSSION

The analysis requires interpretation on whether all of the companies are aware of web-based PRM solutions and have been using both traditional and web-based approaches to maintain strong relationships with their suppliers, partners, and consultants. Since this paper is based only on web-based technologies and their adoption, our focus was on the use of web-based PRM solutions by these companies.

Findings from the interviews show that companies use both traditional approach and web-based technologies in integrating their partner activities. However, since the aim of this paper is to explore the adoption of web-based technologies, our focus is placed on the impact of web solutions. Based on the ten interviews conducted, three areas where web-based PRM solutions have significant impact were sales and marketing, training, and technical support. Since many participants in the ICT industry use online channel management tools, a section of this paper is dedicated to discuss the use of web-based technologies by some of the leading companies in the industry, such as HP, Cisco, Microsoft, and IBM. It shows that companies use PRM solutions to improve reseller performance, share information with partners and resellers, strengthen the relationship with partners, and create a competitive advantage through them.

The study concludes that the most common uses of adapting web-based technology are

lead management, information sharing and effective communication, web-based training, and online technical support. All the interviewees unanimously agreed that integrating web-based technology in managing partner relationships improves business processes and helps strengthen their bonds. According to them, providing information about the products and important events to partners has become easier and the communication process has improved with the introduction of such PRM solutions. The ability to provide online training and technical support has not only reduced the response time, but also reduced partner dependency, cost, and made after sales service more efficient. In addition, integrating lead management in the web has enabled the end users to locate partners easily and improve the performance of both the suppliers and partners. The study revealed that those companies from Malaysia, Ireland, and the United Kingdom are surprisingly familiar with web-based PRM. However, companies in the United Kingdom and Ireland are working with developed countries that more efficient than those in Malaysia due to level of internet facility that comes from its infrastructure. According to the previous literature on PRM in IBM, Dell, Cisco in the USA, the results of applications of PRM-ICT solution in Ireland and UK were consistent, and that in Malaysia, the results were also consistent, but efficiency was a bit lower (Mitchell, 2001; Kraemer & Dedrick, 2002; Ranganathan, Teo & Dhaliwal, 2011; Mirani, Moore, & Weber, 2001; Mirani, Moore, & Weber, 2001; Gunasekaran & Ngai, 2004; Ranganathan, Teo & Dhaliwal, 2011; Rahman, 2003; Lee, Gilliland, Bello, & Osmonbekov, 2011; Osmonbekov, 2010; Eng, 2004; Mirani, Moore, & Weber, 2001; Osmonbekov, 2001; Bello et al., 2002; Osmonbekov,2009; Osmonbekov, 2009; Dias, 2001; Chang & Wang, 2011).

CONCLUSION

This study focuses on the importance of web-based PRM solutions, specifically web portals and their contributions to the coordination of partner activities and sustainable relationships with supply chain players. Previous research showed that these solutions have various functions to play in managing partners, namely lead management, timely exchange of information, partner profiling, training, fund management, efficient coordination, and business process automation. Furthermore, integrating web technology in supply chain management not only reduces transaction costs, but also reduces asset specific investments in the supply chain, improves flow of information among the channel partners, establishes better communication process and improves the efficiency of the overall business relationships.

All the interviewees are of the same opinion that integrating web-based technology in managing partner relationships improves business processes and helps strengthen their bond. Similar to the findings from the literature review, all the companies adopt the solutions for the same purpose. Some are employed to exchange information, improve communication processes, facilitate lead management, and provide partner locator and managing the marketing fund. In terms of providing technical support, interactive web applications, emails, self-help email, CDs, or interactive online support are provided. This reduces response time and makes after sales service more efficient. It was also found that some companies use web technology to provide online training to their partners by using case studies and testimonials. However, online training is seldom used by Malaysian companies as it is not a popular method for delivering the training content to the target audience. Future research can be conducted to investigate PRM functions and their impact on developing quality working relationship with partners and business performance.

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