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THE CHANGING ROLE OF WHOLESALERS AND LOGISTICS SERVICE PROVIDERS IN PHARMACEUTICAL SUPPLY CHAINS: WILL IT LEAD TO GREATER SUSTAINABILITY?

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Introduction

For many years, drug distribution management in the UK and in the USA has been characterised by business and adversarial relationships (Whewell, 2010). The introduction of sustainable business processes in the pharmaceutical supply chain is very recent. Logistics strategies developed by wholesalers and those applied by logistics service providers in response to or in collaboration with manufacturers have been identified (Corbin, 2009). The features of these operators that are now competing to establish collaborative relationships with manufacturers and retailers have been evaluated to try to determine whether the concepts can help a more sustainable supply chain to evolve.

Research areas

Many types of collaborative logistics strategies have been studied in other sectors of activity; however due to the traditional culture of privacy of the pharmaceutical supply chain, some may not have been explored yet (Savage et al, 2006). This paper presents a preliminary attempt to highlight, from a comparative perspective, the business processes in the domain of the strategic logistics management of drug supply.

Methodology

Supply chain management has been defined by Handfield and Nichols (2002, p. 8) as “the integration and the management of supply chain organizations and activities through cooperative organizational relationships, effective business processes, and high level of information sharing to create high performance value systems that provide member organisations a sustainable competitive advantage”. The aim is to explore a selected field of study within supply chain management, namely the sustainable management of supply chains for pharmaceutical products. Previous research led to the adoption of a flexible “exploratory” method of data collection. Unlike the methods and confirmatory tests used by the researcher to challenge an existing theory, exploratory research methods allow one to reveal or develop a theory from a field (Rispał Hlady, 2002). The use of qualitative methods within qualitative research provides valuable results as their effectiveness in the context of exploratory research is high (Charreire and Durieux, 2003). The approach was to look at pharmaceutical supply chains from the context of sustainable logistics relationships, i.e. the examining the emergence of strategic alliances within such relationships.

Within this context, the research has been carried out in both the U.S.A. and the U.K. studying relationships between wholesale distributors and logistics providers with their customers on one hand and manufacturers on the other. The project seeks to examine the statements of companies that manage logistics operations to evaluate elements of supply chain management practices that, according to literature, are likely to encourage sustainable supply chains to develop. The latter is characterized by logistics relationships that are longer lasting and therefore are quite different from the typical transactional “arm's length” relationships that are common and well established in supply chains for pharmaceutical products in both countries under study (Whewell, 2010). Interviews were conducted with two wholesale distributors and two logistics service providers in these two countries.

Further data was obtained based on the study of a document base (current documents, reports, corporate, meeting reports, case studies and websites of companies that have been studied) in which the logistics relationships between wholesale distributors and manufacturers are amply demonstrated. Analysis of data collected was then structured around the content analysis technique, using NVivo 8 software, proposed by Rispal-Hlady (2002) for carrying out this type of research. This software, allows data hidden in the transcripts of semi-structured interviews to be decoded by analysing descriptive words, phrases, and etc.

Fundamental elements of buyer-supplier relationships in a supply chain management perspective	Descriptive words
Confidence	Trust, confidence, autonomy, initiative, proactive action, sharing, strategic management, loyalty, commitment, transparency,
Engagement with other links in the global supply chain	Dedication, engagement, sharing, mutual planning, common projects, improvement, shared goals,
Investments dedicated to integrated management of the global supply chain	Interface, information systems, transversal, logistics capability, logistics infrastructure,
Information exchange between links of the global supply chain	Communication, integration of information systems,
Cooperation between links of the global supply chain	Cooperation, collaboration, integration, alliance, partnership, long term relationship, collaborative efforts, process, integrated management, partnering,
Sharing of risks and benefits among actors of the global supply chain	Risks sharing, benefit, payoff, reward

Figure 1 : Descriptive words used in NVivo for finding occurrences of fundamental elements of SCM relationships

The classification for the analysis was based on that described by Lambert et al. (1996) to identify the level of development of logistics partnerships (logistics alliances Type I, Type II or Type III (see figure 2) in the drug supply chain. The analysis was conducted in a phased manner in order to reveal the stages in which supply chain management practice has developed between wholesale distributors, logistics providers, and manufacturers of medicines in the pharmaceutical supply chain.

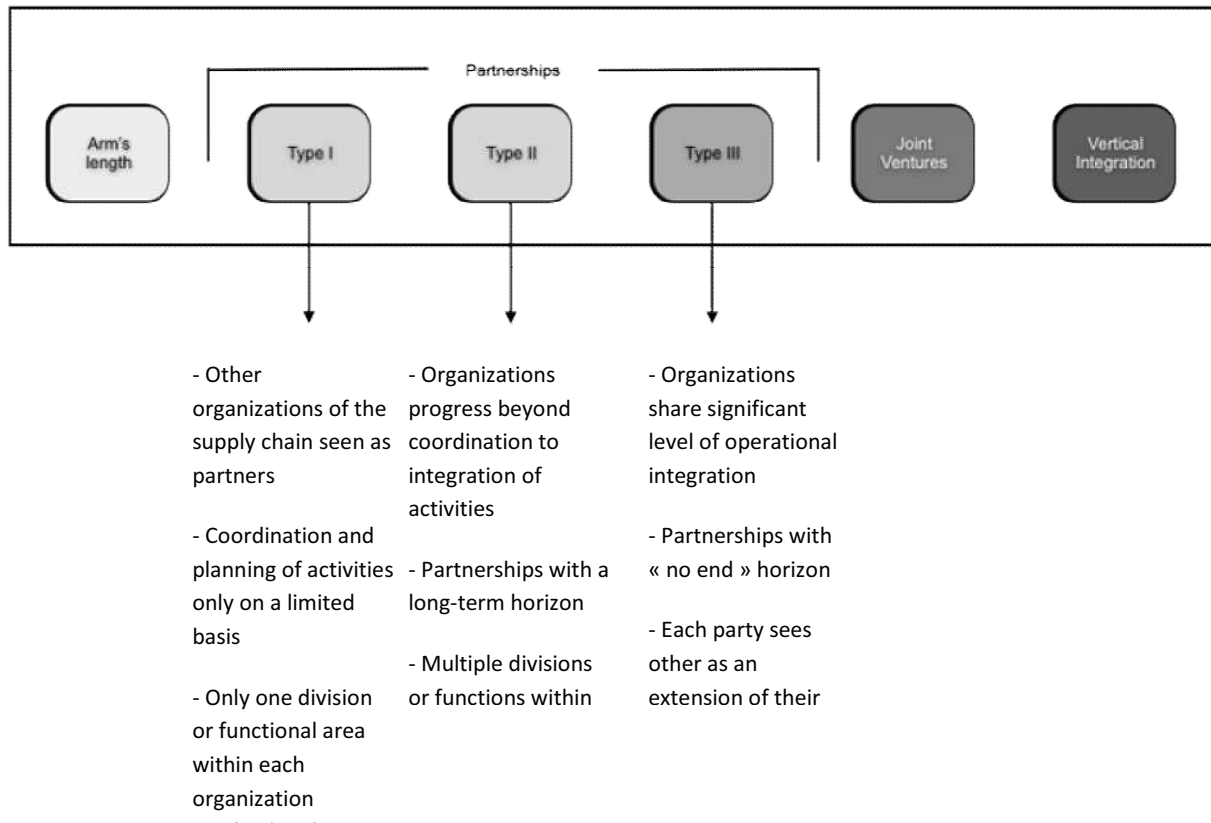


Figure 2: Types of relationships
Source: Lambert & al. (1996, p. 2)

Results and discussion: The nature of alliances that develop logistics wholesale distributors and logistics service providers in the UK and the USA.

In the United Kingdom.

- The wholesale distributors.

Wholesale Distributor C.

The alliances that wholesale distributor C (WDC) develops with other members of the pharmaceutical supply chain are generally type II. In this type of alliance, wholesale distributor and its customers are committed for a medium or long period of time. The source of confidence is the competence of the wholesaler; clients who entrust the management of their physical flow of goods to WDC do so because they know that the company has the skills necessary to manage and control logistics flows and that it accepts responsibility for doing so. Confidence in the wholesaler's competence stems from their reputation and is enhanced by satisfactory experience, as well as by the certification (e.g. BSI, ISO) that they have been awarded. The wholesale distributor gives assessing the status of the relationship and integration of logistics information systems as a medium priority, which is sufficient to encourage their further development. Cooperation also appears to have only limited importance in the relationship between this wholesale distributor and its customers. Remuneration is fixed and usually specified in a contract.

Wholesale Distributor D.

The wholesale distributor D (WDD) is more involved in type III logistics relationships. Here the collaborative practices are clearly present in the logistics relationships that exist between the wholesale distributor and its customers. The confidence level is very high, inspired by WDD's character it has evolved and been built through the skills they have developed. The volume of information flow between the wholesale distributor and its customer is significant and important. WDD places great emphasis on its ability to ensure confidentiality of data transmitted to it by its various customers. Participation in new product development is a major strategic focus of WDD who is actively involved in the process of creating new products for their customers and is therefore an important strategic partner for the manufacturers.

There are procedures for assessing the state of the relationship between logistics and wholesale customers. Informal meetings and the establishment of steering committees and other control mechanisms instituted by the wholesaler form a good measure of the evolution of the logistics alliance. This wholesaler is seeking to develop integrated information systems and share business information. Cooperation plays a very important part in the vocabulary of the company's business managers. Commitment to investment is very important for WDD.

- The providers of logistics services.

The logistics service provider C.

Content analysis revealed that the logistics relationships that develop between the logistics service provider C (LSPC) and drug manufacturers are type III. Logistical alliances set up by LSPC are very advanced. Further, cooperation between actors in the pharmaceutical supply chain and the provider of logistics services is accomplished demonstrating that a high level of trust and social exchange exists among them. LSPC has made investments dedicated to the efficient management of pharmaceutical supply chain flows. This includes building and operating a warehouse of 315,000 sq ft (around 45,000 pallets) dedicated to the logistics management of Janssen-Cilag, Roche and Boehringer Ingelgheim products. This warehouse, located in Cherwell Banbury, can be described as a true "logistics centre".

The logistics service provider D.

The content analysis reveals that the relationships between the logistics service provider D (LSPD) and its customers are mainly type I, while still featuring some characteristics of type II. In this type of relationship, the role of trust is very limited. LSPD does not use a periodic assessment of the state of logistics relationships with its customers. The sharing of strategic information is not an important part of the collaboration established between the logistics provider and the manufacturers. The introduction of shared computer-integration is not part of the policy that LSPD deploys to improve the integration of activities and traffic flows in logistics interfaces. However, the content analysis reveals that the company makes significant investments in traceability to improve the tracing and tracking of the physical goods flow. The level of cooperation within the pharmaceutical products supply chain remains low, but some of the content analysis indicates a type II alliance suggesting that significant efforts are being made in the management of those supply chains.

In the USA.

- The wholesale distributors

Wholesale Distributor A.

The alliance between the supply wholesale distributor A (WDA) and the pharmaceutical companies studied is type I. All the building blocks of the association show that logistics relationships are seen as being of little importance. The role of trust is limited. The factors that characterize most developing logistics alliances between WDA and drug manufacturers show a lack of information exchange and communication between the parties. The establishment of integrated computer technology or dedicating resources to management interfaces is not considered an important element in the alliance. The level of cooperation between WDA and laboratories is low. No course of collaborative management of logistic activities has been initiated between the actors. Finally, sharing risk and reward between WDA and pharmaceutical companies is not the subject of any agreement between the two parties.

WDA believes that drug manufacturers are completely independent from it, so the relationships developed with the pharmaceutical companies are very formal. The manager interviewed in WDA said that their company executives have no advanced knowledge of a new product or the timing of its release by the manufacturers other than what they learn through the press. They are unaware of their balance sheet. They do not know what compounds are being developed by laboratories. The logic of sharing risk and reward between WDA and other players in the supply chain is restricted by the desire for independence from the wholesale distributor fully engaged in type I relations. Moreover, officials of WDA consider information relating to the management and the destination of their flows to remain strictly confidential, especially since it is impossible to know the stock status of pharmaceutical manufacturers.

Wholesale distributor B.

The logistics alliances developed between wholesale distributor B (WDB) and drug manufacturers seem to be of type III. Four of the fundamental elements of the relationship that typify a logistics partnership (namely the commitment, investment, cooperation and sharing of risks and gains) feature at a high level. Cooperation between WDB and laboratories is also very thorough. Steps towards collaborative management of logistics activities have been implemented. Finally, sharing risk and reward between WDB and pharmaceutical companies has been the subject of agreements between both parties.

Two indicators, however, do not reveal a type III logistics alliance. Rather, they reflect, according to the recommendations of Lambert et al. (1996), a logistics partnership of type II. Thus, the level of trust between the wholesaler and manufacturers is moderate. As for the exchange of information and communication between the parties, they display an average level. However, the participation of WDB in the design and development of new products and services developed by pharmaceutical companies is very high. The logistics partnership between the parties is based on its consistent commitment. Thus, WDB ensures that the material and human resources for the interface operations match the needs of pharmaceutical companies. It helps to improve the flow of production and better visibility of traffic on the entire supply chain. It makes up such information relating to claims and expectations of pharmacists on behalf of pharmaceutical. WDB can also react to ward off possible shortages and do so very quickly. Two variables, trust and information sharing, achieve only a moderate score, which is unusual, as when the logistics alliances are type III, these variables are normally high. This may be explained because pharmaceutical companies are very reluctant to pass strategic information to WDB.

- The logistics service providers.

Logistics service provider A

Logistics service providers are increasingly inclined to enter the pharmaceutical supply chain in the United States. Among them, the logistics service provider A (LSPA) is certainly one that has deployed

the most aggressive strategies and achieved the greatest success in penetration (OTNs, 2006). The first phase of this strategy for integrating the drug supply chain by implementing rapid flow management was to provide drug manufacturers advice on organizing and controlling their flow. Today, the operations carried out by LSPA are much more extensive. Since 2004, LSPA has been responsible for managing the physical flow of drugs for more than half of pharmaceutical manufacturers in the United States (Gillis, 2004). To meet the new opportunities open to them, LSPA has set up its global network of distribution centres dedicated entirely to managing the flow of pharmaceuticals through North America. Thus one can find centres in Canada and Puerto Rico as well as in the USA. The entire control of the drug distribution supply chain for some manufacturers is outsourced by LSPA. The logistics service provider supports the flow velocity in the pharmaceutical supply chain dedicated to such goods and the level of trust between manufacturers and LSPA is very high. The latter has great autonomy in decision-making and implementation of operations downstream in the supply chain.

The nature of information exchanged is of three categories: operational, tactical and strategic. The collaborative management approaches with manufacturers are numerous. Thus, LSPA provides manufacturers with staff. Collaboration is so extensive in some cases that LSPA employees are assigned within the organization of its client. "Two LSPA freight employees work on-site at our client's facilities and serve as first point of contact for questions and needs such as tracing shipments, filing claims, tracking invoices, thus giving the client immediate resolution to queries". A case study posted online by LSPA contains the following statement made by the President of the sales and marketing divisions of the company: "We've developed a collaborative delivery system that truly brings out the best in us all ... □ □ together our client and our Freight division are delivering results for customers".

Significant investments are made in modern information systems designed to make possible the systematic exchange of information with partners down the overall supply chain. The exchange of information between the provider and its manufacturing clients are supported. There is also a high tolerance for financial losses in the short term. In developing supply chain management practices within the pharmaceutical supply chain, LSPA aims to spread a sense of shared risk and reward between itself and the manufacturers. It also, when necessary, makes acquisitions entirely dedicated to managing the flow of drugs. Thus, "in 2000, LSPA acquired an important pharmaceutical wholesale distributor and expanded services for healthcare companies to include receiving, warehousing, order selection, distribution and a range of special services." LSPA is committed to more sustainable management of the medicines supply chain. It attempts to engage with partners in collaborative relationships instead of transactional relationships that have long been the only practices in the USA's pharmaceutical supply chains. The LSP considers logistics as a factor in reducing overall costs, but also as a vehicle for innovation and an alliance engine between themselves and the manufacturers. LSPA is therefore engaged in a type III logistics relationship.

Logistics service provider B.

The logistics service provider B (LSPB) is also very active in the pharmaceutical supply chain. LSPB's relationships are classified as type II, although some of the relationship attributes are still of type I. Like LSPA, the logistics provider is seeking to develop a relationship type strategic logistics alliance. The level of confidence in the relationship between LSPB and the manufacturers is very high. Thus a case study developed by the company included the following assertion: "The key to the company's drug distribution strategy was the high-trust partnership established with LSPB". Participation in the development of new services with pharmaceutical companies is supported. Moreover, investments made by LSPB in logistics information systems are important. LSPB develops and implements integrated logistics information systems with a number of its pharmaceutical customers. An expert group of the provider says in a case study: "LSPB systems are integrated with one of the worldwide top ten pharmaceutical manufacturer's R / 2 SAP enterprise resource planning (ERP) system, allowing for seamless information sharing and maximum efficiencies." However, unlike LSPA, LSPB does not reserve a substantial amount of investment dedicated to managing and optimizing the supply chain of its pharmaceutical customers. The logistics platforms in which the drug flows are optimized are typically "multi-client" sites. At this stage of the exploratory research, it was possible to identify only a single site dedicated to LSPB logistics of pharmaceuticals - a distribution centre logistics with an area of 135,000 square foot located in Texas.

Summary

The above notes illustrate some of the collaborative practices used by wholesalers and LSPs in the pharmaceutical supply chain as identified during the project. As in all supply chains, collaboration, or indeed lack of it, can extend in both directions - up or down the chain. Further, it is apparent that different service providers have differing approaches one from another and even in the types of relationships that they form with their various suppliers / manufactures and customers.

Although the sample size of this project is relatively small, the findings did reveal some of the complexity of relationships within the industry. To summarize the results for analysis, those findings, in terms of the alliances and relationships formed by the companies, are summarised in figure 3. It should be noted that, for convenience of review, this table uses a somewhat simplified view of the relationships.

The possible significance of the findings in terms of supply chain sustainability is discussed in the conclusions below.

	PSL in USA		PSL in UK		Wholesalers in USA		Wholesalers in UK	
	LSPA	LSPD	LSPC	LSPD	WDA	WDB	WDC	WDD
Type of logistics alliance	Type III	Type I / II	Type III	Type I / II	Type I / II	Type III	Type II	Type III

Figure 3: Types of alliances developed logistics by PSL and wholesale distributors studied in the United States and United Kingdom within the pharmaceutical supply chain

Conclusions.

Government authorities of the United States and the UK are trying to reduce health care costs. The introduction of supply chain management practices in the pharmaceutical supply chain is a relatively recent innovation. Further, their use as a solution to reduce the cost of provision of drugs to patients has mainly been introduced following proposals from wholesale distributors and logistics service providers (Ouegnimaoua and Savage, 2006). This exploratory study aimed to examine the indications of this new trend, which is still emerging and evolving in the pharmaceutical supply chain. The various types of logistics alliances identified reflect the complexity that can exist within partnerships in the drug logistics chain. Interestingly, within the limited sample analysed, the overall "alliance profile / split" between wholesalers and LSPs was remarkably similar on both sides of the Atlantic. Content analysis, interviews, etc. revealed that the majority of the relationships appear to be (or to be moving towards) predominantly type II and III [as classified by Lambert et al. (1996)], or at least to have some type II features.

One must be careful not to ascribe any altruistic motives to the service providers; they are essentially driven by the "profit imperative". Nevertheless, any change which develops relationships and therefore the robustness and / or resilience of a supply chain can only improve its chances of long-term success. This, combined with the rhetoric of wholesale distributors and logistics service providers, clearly shows a possible route to ensure more sustainable management of pharmaceutical supply chains. The results suggest that logistics practitioners should abandon any "arm's length" transactional

type relationships where the actors are currently accustomed to war in favour of more collaborative ones that provide and share information relating to logistics flows. Such “enhanced” supply chains would be more sustainable than the type I versions (examples of which were also still found during the study) and would reduce costs thus fulfilling the aims of governments and supply chain players alike. Nevertheless, one must appreciate that the short term profit requirements of companies must be respected, especially in today’s straightened times and that some players will always take a “minimalist approach” in order to gain a short-term benefit. Therefore, any research that attempts to change mindsets must be thorough, persuasive and aware that there is no “one size fits all solution”.

This research is provisional in nature and has limitations in methodology as well as data acquisition, so it should be extended by carrying out further studies on a much larger sample than that conducted to date. The complex relationships between wholesalers / 3PLs, wholesalers / manufacturers and 3PLs / manufactures should be further investigated, better understood, clarified and documented. In addition, future research methods should attempt to combine qualitative and quantitative case studies with a view to proposing a realistic way forward towards managed pharmaceutical supply chain sustainability for mainstream service providers on both sides of the Atlantic.

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