

# ***A network-as-practice analysis of dynamics in the UK pharmaceutical distribution system***

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## **Abstract**

In order to capture different aspects of change within different actor groups of a distribution network, a *network-as-practice perspective* (NPP) is used in this study, which looks at performative aspects of an exchange system. This approach, based on the ‘practice-turn’, is framing the development of an analytical framework, which uses vector descriptions to describe practices and translations within the business network. The NPP is suggested as an alternative to traditional business marketing perspective, e.g. those of the Industrial Network Approach (INA) related to the IMP Group. Based on a case-study approach, we analyse the UK pharmaceutical distribution network between 2007 and 2011. Of particular interest are the network dynamics, i.e. changes between the past and today, especially those relating to the introduction of single-wholesaler distribution schemes by manufacturers. This has caused a strong and recognised instability in the network, which lead to considerable tension between the main actors of the UK pharmaceutical network. There exists also a high level of uncertainty regarding what each actor can or ‘should’ do. By analysing the UK pharmaceutical network as a case and by exploring the processes of interactions in this unstable network, our paper contributes to the growing body of literature on network dynamics and reinforces using a practice perspective within the INA.

## **Keywords**

Network dynamics, Performativity; UK Pharmaceutical network; distribution system

# *A network-as-practice analysis of dynamics in the UK pharmaceutical distribution system*

## **Introduction**

Business relationships and business networks have been studied using many different perspectives to form a theoretical grounding of research. For example, theories around the resource-based view of the firm, or transaction cost economics, have been used to inform such research (Palmatier et al., 2006). The Industrial Network Approach (INA), which is associated with the Industrial Marketing and Purchasing (IMP) Group, is mainly grounded in social exchange theory, and the interaction approach. This led to conceptual developments in the field such as the actor/activity/resource model (AAR) (Håkansson & Snehota, 1995). However, a slightly neglected aspect of the INA relates to the fact that it favours studies of *structural phenomena* (e.g. configuration of networks, characteristics of relationships) over more *process-oriented* research. Nevertheless, networks have also been understood as ‘markets-as-practice’, using theoretical grounding in practice or performativity constructs (Latour, 1986). Based on such literature, this study will use a ‘network-as-practice’ perspective (NPP). Associated with the ‘practice-turn’ in social sciences and management studies, market-as-practice has been applied to business relationships and business networks before as part of the IMP Group, notably through the studies by Araujo (2004), Mattsson (2005a and b), Kjellberg and Helgesson (2006 and 2007a/b), Hagberg and Kjellberg (2010), and Azimont (2009). However, this approach has not yet been widely used to understand particular aspects of interest to the study of business relationships and their embeddedness in network structures; a shortcoming already mentioned by Kjellberg and Helgesson (2006), and Araujo and colleagues (2008). The specific aspect our study will use to exemplify the explanatory power of a network-as-practice perspective relates to network dynamics, i.e. a situation where changes affect not just individual firms, or the relationship between them, but whole systems. By doing this, we proffer in our study not just a theoretical discussion of the NPP but also translate it into a research design (an analytical framework) for case study analysis, and apply it to the empirical plane.

The network-as-practice perspective as used in our study is characterized by three central components and the (six) translation processes between these components (Kjellberg and Helgesson, 2007a and b). As such, NPP is a short-range theory within the mid-range framework of practice and performativity theories, and represents a theoretical model within the wider interaction approach as followed by INA. It therefore sits on a similar level as the Actor/Activity/Resource Model within a Social Exchange Theory framework (Håkansson and Snehota, 1995). Its history relates to sociological (Callon, 1998; Callon et al., 2002) but issues around practice and performativity have been applied in many different disciplines, including management studies as part of the ‘practice turn’ (Whittington, 2011).

NPP is applied in our case example because it covers aspects of structure as well as process, and is therefore well suited to understand network changes and dynamics, i.e. aspects which are at the core of the current developments of the UK pharmaceutical distribution network. Issues around change and stability in networks have been covered in the wider business marketing literature, especially the notion of stability and change as coexisting characteristics of business networks (Lundgren, 1992; Håkansson and Snehota, 1995). However, this is mostly done either from a morphology perspective (i.e. by looking at structural changes over time) (Abrahamsen et al., 2012 in press), or through a process perspective (i.e. uncovering the micro-

mechanisms underlying changes). The NPP integrates both aspects by specifically looking at practices, i.e. the activities of actors (or actants) within network interactions.

By applying an analytical framework based on the NPP to a case study of changes in the UK pharmaceutical distribution network, our study makes a twofold contribution: First, it provides a systematic application of a somewhat neglected theoretical perspective within the realm of the IMP Group, and thereby shows the explanatory power of an alternative analytical framework which can be applied to case study research. As such, this enhances the theoretical broadness of the INA, and the IMP Group in particular, but we also discuss in general the different research agenda a NPP implies. Secondly, our research exemplifies how changes in business relationships and networks evolve over time, in particular how a network which was seemingly in an equilibrium situation had to adapt its practices to react to a particular distribution decision by one focal actor within the network which had far-reaching implications for most, if not all other network actors. We therefore contribute to the increased interest in studies on network change and dynamics.

In the following, the central tenets of the NPP are introduced, and the analytical framework for our case analysis is derived. We then introduce the case setting, i.e. the UK pharmaceutical distribution network, and the analysis design. This is followed by a discussion of the analysis and the findings. We conclude by summarising our results, and discuss theoretical as well as managerial implications. We put particular stress on a discussion on how NPP relates to new theoretical research angles and paves a theory-led agenda, its contributions to INA, the interaction approach and research in the tradition of the IMP Group in particular, as well as for business marketing research in general.

### **Market and Networks-as-Practice Perspective**

NPP relates to a general interest regarding the phenomenon of ‘markets’ which is present in many different disciplines. Based on idea emanating in the social sciences, particularly sociology (Callon, 1998; Callon et al., 2002), recently issues of ‘performativity’ have come to the fore, i.e. how market practices, e.g. ideas about markets, or tools used in markets, take part in shaping such markets (Callon, 1998; Fourcade, 2007)). Thus, the practice perspective takes emphasis away from managerial activities (i.e. what actors in markets and networks decide to do), as well as social embeddedness issues (Granovetter, 1985), and puts emphasis on routines and representations to explain socio-economic situations (Callon, 1998; Kjellberg and Helgesson, 2007b; Araujo et al., 2010). Issues around such a practice perspective have been widely employed in economic sociology but have not yet been employed to their full potential in (business) marketing studies. As such, NPP is part of the ‘practice turn’ (Whittington, 2011), which created such approaches as ‘communities-of-practice’ (Brown and Duguid, 2001), ‘technologies-in-practice’ (Orlikowski, 2000) or ‘strategy-as-practice’ in other sub-areas of management studies.

In this article, we specifically focus on networks, i.e. we do not employ the more limiting setting of ‘market’ but allow the more open and organic construct of ‘network’ to shape our theoretical perspective. Thus, while informed by studies that are usually related to the ‘market-as-practice’ literature, we refocus the emphasis more on constructs which are pivotal for the IMP research tradition, i.e. networks or business relationships.

### **Aspects of the Network-as-Practice Perspective**

NPP provides two conceptual lenses as part of a mid-range theory setting (Fourcade, 2007): first, it shows structural aspects of business networks, and how these networks are shaped

by (as well as in turn shaping) *practices*; secondly, it provides insights into structural aspects, i.e. how practices, i.e. shaping activities, work through *translation processes* (Kjellberg and Helgesson, 2007a). As such, NPP is epistemologically rooted in seeing reality as an emerging phenomenon based on circular interactions between structure and process within the network. The *explanans* of NPP relates to activities within markets/networks (particularly those that in some way underpin the constitution of such markets/networks) (Kjellberg and Helgesson, 2007a and b).

### 2.1.1. Practices

The structural aspects of network shaping activities, i.e. its practices, can be distinguished into three areas (in the following, we adapt the conceptual model by Kjellberg and Helgesson, 2007a). *Exchange practices* relates to concrete activities that are directly or indirectly linking economic actors to enable ultimately economic exchange (Andersson et al, 2008; Araujo et al., 2010). In line with social exchange theory, we include in these practices interactions which are only very generally linked to the exchange of goods or services between companies, and therefore also cover social contacts, information exchanges, and other interactions embedded in (and embedding) the economic exchange *per se*. The second practice relates to *representations*, i.e. activities to depict actors, relationships, or markets as they are, or how they function. This is not just a passive activity, i.e. the mere description of a given market aspect such as how a distributor sets prices based on previous sales and current cost figures. The representation of an activity itself shapes this activity (as well as other activities related to it). *Normalizing practices* are the third structural element of activities in markets and networks. These are norms, i.e. yardsticks or objectives, which actors, or groups of actors set with regard to how a networks ought to look like and work.

While these three structural elements are conceptually distinct elements of NPP, specific activities can relate to more than one (in fact potentially all three practices). Furthermore, activities can also be contextual in the sense that a specific situation may decide whether an activity is concerned with practices in the exchange, the representational, or the normalizing sphere (Andersson et al., 2008; Kjellberg and Helgesson, 2007a).

### 2.1.2. Translation Processes

Translation processes are posited within NPP as linkages between different practices. Translations themselves are dynamics, i.e. they relate to issues of temporality (e.g. are practices continued), and space (e.g. are practices expanding or contracting) (Kjellberg and Helgesson, 2006). Starting with translation processes affecting exchange practices, Kjellberg and Helgesson (2007a) outline that normalizing practices set the *rules as well as tools* which provide the standards to which exchange activities adhere. Furthermore, representational practices provide an *understanding of the results* (another translation process), which affects exchanges. Representational practices themselves are resulting from *measurements*, a translation from actual exchange practices. However, *what is measured, and how it is measured*, i.e. by which method, are translation processes emanating from normalizing practices. Finally, such normalizing practices are affected by the *description processes* of representational practices, as well as by the *interests* (e.g. political or economic) of exchange activities.

A NPP perceives the interplay between the three structural elements and the six translation processes as constant and recursive. Kjellberg and Helgesson (2006) relate these components as well as the recursive elements to a stance of practical constructivism (i.e. combining a relativistic ontology with a realistic epistemology) and therefore clearly delineate the practice perspective from social constructionist perspectives. While practice research usually relates this model to a 'market' as the *explanandum*, it can be easily attributed to business

networks as well (Araujo et al., 2010). In fact, Kjellberg and Helgesson (2007a) themselves speak of markets as the different forms (i.e. configurations) of actor involvement in practices or translation processes, intensity of activities, or the specific links between these practices, and as such relate it to phenomena often identified as networks (Ford et al., 2003). However, in a footnote in Kjellberg and Helgesson (2006) it seems to be implied that while a network perspective (in the INA sense) looks at webs of companies as actors, the practice perspective sees these actors themselves as networks of heterogeneous entities. We believe that these positions are not contradictory, as the INA is cognizant of the fact that companies themselves are made up of interacting actors, a fact clearly underlined by the recent interest in research on the level of individual managers or groups of managers regarding their perceptions (and consequently actions) regarding networks (Kragh and Andersen, 2009; Henneberg et al., 2010) (also note the discussion on ‘*agential variation*’ in Hagberg and Kjellberg, 2010). It is further noteworthy to point towards some similarities between the NPP model and the ‘managing in network-model’ (Ford et al., 2003), which represents an influential model within the INA. However, both models operate on different levels (Meindl et al., 1994), therefore, they do not fully overlap.

### **NPP and the interaction approach**

As mentioned by Kjellberg and Helgesson (2007a), researchers working within the INA and interaction approach have repeatedly argued for more ‘practice research’ to be incorporated in studies on business networks (e.g. Axelsson and Easton, 1992, or Hakansson, 1982). Furthermore, NPP is about network or markets “*in the making*” (Kjellberg and Helgesson, 2007, p. 141), and therefore lends itself to understanding dynamic phenomena such a network change. In this study, we use a NPP in a complementary way to the interaction approach underlying INA. The interaction approach (a wide interpretation of an exchange perspective and therefore related to Social Exchange Theory) (Blau, 1964; Emerson, 1981), similarly to the practice perspective, focuses on the actual interactions between actor (groups) on different levels: managers within companies, managers between companies, inter-organisational relationships, as well as networks (Ford and Håkansson, 2006; Ford et al., 2008).

### **Business Networks: Change and Dynamics**

The main aspect with regard to business networks which our study is analysing using a NPP relates to network dynamics, i.e. changes within the business network over time. Change (as well as stability) represents an area of research already covered by a stock of literature, especially in using the INA (Freitag and Ritter, 2005). The notion of stability has been seen to coexist with change in business networks (Lundgren, 1992; Hakansson and Snehota 1995; Sutton-Brady, 2008). The duration of the relationships underlying a network are not the only determinants of stability, other change-related concepts are actors’ positions, the value of relationships, ambiguity regarding each actor’s role, or technology and accessibility to alternative suppliers (Gadde and Mattson, 1987; Holmen and Pedersen, 2002). Business networks are therefore recognised as inherently dynamic structures (Anderson et al., 1994; Easton and Araujo, 1994; Halinen and Tornross, 2010).

Within the INA, companies are seen to interact based on their perceptions of the relevant network and their subjective sensemaking of the logic and exchange mechanisms (Ford et al., 2003; Henneberg et al., 2006). Interdependent business relationships are based on such interactions over time, and network changes are thus seen as *manifested in* as well as *transmitted through* such relationships (Ford et al., 2003). The resulting dynamics can occur on different levels within the network. Halinen et al. (1999) introduce the term *confined change* to

characterise change remaining mainly within a dyad. However, change in one relationship often spreads to others, i.e. *connected change* occurs which can affect the whole network (Halinen et al., 1999). Change may be seen as an evolutionary process, i.e. incremental (Easton, 1992) and similar to a continuous process (Halinen et al., 1999). Radical change on the other hand fundamentally affects important aspects of the overall network morphology. Halinen et al. (1999) uses the punctuated-equilibrium model to characterize the interplay between evolutionary and radical change dynamics in business network. However, the INA-related research follows broadly a social constructionist approach in this area, for example Halinen et al. (1999, p. 786) conclude that “*the mental process of enactment can be regarded as a key explanation for stability and change in networks*”.

However, network dynamics have usually not been covered from a structural as well as a procedural perspective within the INA. Therefore, using a NPP provides a theoretical way of integrating these two aspects by looking at practices as well as translation processes. This will be done in the following in the context of a specific distribution network which is characterized by ongoing changes.

## **Research Design and Model**

### **Case Description: the UK Pharmaceutical Network**

The empirical research to exemplify network dynamics using a NPP is done through a longitudinal single network case study, i.e. the UK pharmaceutical drug distribution network. Since the inception of the National Health Service (NHS) in 1948 the pharmaceutical system of healthcare has been a complex market for medicine distribution. The market encompasses a wide range of authorities, professional bodies and trusts who strive to deliver and impact upon healthcare provision. The main actors characterizing the network are the following:

*Primary Care Trusts* (PCTs) are responsible for delivering health care and health improvements within a designated local area. They accomplish this role by developing NHS strategies for said local area and provide a link to other PCTs and the Department of Health. PCTs are allocated their own budgets. From the 1st April 2010 any remaining centrally held budget for pharmacy funding (known as the Global Sum) was devolved from the Department of Health to PCTs.

*NICE* is an independent organization that was established to produce national guidance on good health, prevention of illness and specific health technologies. This organization provides guidance to the NHS on the cost effectiveness of treatments for patients.

The *Department of Health* (DoH) plays a primary role in the network as the price setter for drugs. On a yearly bases fees, allowances and generic drug reimbursement prices are adjusted in October to ensure that total funding is distributed as accurately as possible by the year end in March. The reimbursement prices adjusted are those for drugs in ‘Category M’ are set by the Department of Health with reference to information provided by manufacturers under an arrangement known as ‘Scheme M’. As a recipient of quarterly sales and price data on generics from manufacturers (from categories M) the DoH uses Category M prices to regulate the purchase margin available to pharmacy contractors. They adjust the prices on a quarterly basis in January, April, July and October. Of the few direct drug pricing controls in this market the reimbursement mechanism does differ to other European countries. The Pharmaceutical Price Regulation Scheme (PPRS) sets the price for branded drugs, which are then reimbursed by the NHS according to the list price of the manufacturer. The amount of monies spent by the Government on drugs is also affected by patient co-payment (in prescription charges), a claw

back system operated by the government for community pharmacies and discounting to hospital pharmacies.

Funding for community pharmacies in England is negotiated annually by the Department of Health and the *Pharmaceutical Services Negotiating Committee* (PSNC). Changes following representations from the PSNC on underfunding to the DoH provided an extra £150m in 2008/09 to community pharmacies (the global sum). This was added to baseline funding but was subject to the agreement to undertake a full cost of service inquiry. The final report of this inquiry was published in July 2011 and it will form the evidence base for negotiations for future funding. Levels of buying margins are assessed for adequacy by PSNC and DoH using an ongoing survey of independent contractors' actual purchase prices – the margins survey. PSNC and DoH work together on the margins survey to establish the level of buying margin earned in practice by independent pharmacy contractors. The survey uses invoices and statements to determine the actual purchase prices paid by a national sample of these contractors and these results are then grossed up as if the market were all independent contractors.

*Pharmaceutical manufacturers* are undergoing significant changes. Where most big Pharma companies have traditionally done everything from research and development (R&D) through to commercialisation themselves, this model is now changing (PWC 2007; DoH 2008). Pharma are in a position where they will need to improve their R&D productivity, reduce their costs, tap the potential of the emerging economies and switch from selling medicines to managing outcomes. The introduction of direct-to-pharmacy (DTP) distribution arrangements in 2007 (initiated by Pfizer) has since had widespread adoption amongst pharmaceuticals choosing to sell its prescription drugs through just one medical wholesaler. Although claimed to be a preventative design to reduce risk and tackle the rise in counterfeit medicines, this change in the network has increased concerns regarding its impact to limit access to vital drugs and increase pharmaceutical control in the distribution network.

Traditionally pharmaceutical *wholesalers* operated a model where the manufacturer would supply wholesale at 12.5% discount margins and the wholesaler would take title of goods. A transactional buyer/seller relationship between manufacturers and wholesalers existed. Wholesalers would set the selling price to pharmacy and have more control over the product. With manufacturers introducing direct-to-pharmacy schemes (DTP), they ensured via contract that single sourced wholesalers would now maintain high service levels to pharmacies. This has led to market consolidation whereby Unichem Alliance as the sole wholesaler (or full line wholesaler) for Pfizer is one of the big three players in the market alongside Phoenix and AAH. The British Association of Pharmaceutical Wholesalers (BAPW) represents full line pharmaceutical distributors who between them provide 90% of the nation's medicines, covering all of the UK's population.

*Community pharmacists* were known in the past as chemists, and like GPs they are part of the NHS family. There are just over 13000 pharmacies in the UK, these are divided into two distinct groups: The *multiplés* make up around half the total number of outlets dominated by Alliance Boots, Lloyds, the Co-op, Superdrug and the supermarket chains. The *independents* comprise single outlets and small chains of chemists, also making up around half the total number of outlets. Each contractor (or owners of Community pharmacy) requires inclusion on a list held by their PCT in order to dispense NHS prescriptions. Contractors have seen their mix of business change over the years as NHS dispensing continues to increase, representing now over 90% of turnover for a typical independent pharmacy. As NHS funding is largely prescription volume based, profitability for chemists depends on securing prescription volume. The other major determinant is the composition of items dispensed, i.e. generic or branded. Margins on generic

drugs are significantly higher than on branded medicines. The contractor's mix of generic versus branded drugs and thus the buying margins applied is determined by the prescribing practices of their local GPs. The timing of income is largely driven by the NHS Prescription Services timetable, although some cash-flow is generated by the prescription charges (levies) collected from non-exempt patients. Contractors bundle up their prescriptions at the end of the month and submit them to NHS Prescription Services by the 5th of the following month. NHS Prescription Services then make an advance payment at the start of the next month. This is calculated as 80% of the contractor's expected payment based on submitted script numbers and their average item value (average value of each prescription item dispensed) from the previous month. The final payment is made a month later.

Figure 1 provides an overview of the UK pharmaceutical network before single-wholesaler agreements (DTPs) by manufacturers, while figure 2 shows how these agreements have altered the set-up of the distribution system.

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Insert Figures 1 and 2 about here  
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### **Research Design**

The empirical phase is made up of repeated face-to-face interviews with key respondents of different organizations representing different actor groups within the business network (covering multiple interviews at full-line wholesalers Alliance, Phoenix, AAH, Cohens; short-line wholesaler Medihealth; multiples pharmacies Cohens and Lloyds, and independent pharmacy Numark Longton; pharmaceutical manufacturer GSK; professional bodies Association of Independent Multiple Pharmacies, National Pharmacy Association, Company Chemists Association, and the PSNC; Primary Care Trust and DoH). We used semi-structured interviews about current as well as past and possible future developments in the pharmaceutical distribution network. The time period covered started usually around 2007, i.e. the initial year of a direct-to-pharmacy distribution arrangement. We analysed the data by initially transcribing the interviews, following from that, content analysis was employed. We used an abductive approach, thus our initial conceptual frame of the NPP was detailed stepwise in juxtaposition with the data and the themes which were derived (Dubois and Gadde, 2002). Each data analysis round consequently resulted in a more specific analytical framework, which then in turn allowed for a further data reduction analysis, etc. For these steps we used reflexive contrast and comparison techniques as well as multi-rater assessments (Altheide and Johnson 1994; Hodder 1994; Huberman and Miles 1994) to finally overlay our empirical themes with our analytical framework components (Huberman and Miles 1994; Krippendorff 2004; Manning and Cullum-Swan 1994). The qualitative assessment of the content analysis was done independently by the two researchers, and differences were consolidated. Specifically, we examined whether our findings were directly or otherwise clearly linked to the cognitive belief systems of respondents (Thomas and McDaniel 1990; Lyles and Schwenk 1992), were presenting an expression of different components of the analytical framework, and were mentioned by more than one researcher as being present in the case study material.

### **NPP Vector Framework for Case Analysis**

The final analytical framework, which was used to organize and present the data, is depicted in table 1. Based on the abductive juxtaposition of data, analysis, and framework development, a vector framework of translations was finally used to understand the practices affecting (and being affected by) the changing business network. The vector model focuses on different domains of translations (e.g. measurement translations by which exchange practices

impact on representational practices). Practices themselves are identified in the different boxes, while the boxes themselves describe the translation activities (indicated as vectors using the ‘→’ sign). The left hand side of the table (row) indicates the vector emanator (i.e. the practice which provides the translation momentum) while the top of the table (column) indicates the vector designator (i.e. the practices which is impacted upon by the translation). As a main focus of our analysis is on dynamic aspects of networks, the time dimension was included by focusing on past, present, and future translations. A similar distinction along the time line was used in template analyses of network dynamics in a study by Abrahamsen et al. (2012 in press). To enable the analysis, actor groups were analyzed together, i.e. the findings section will use the vector framework first for the five main actor groups of pharmacies, wholesalers, manufacturers, professional bodies, and PCTs separately, before the findings are brought together into an overview of the NPP on network dynamics in the UK pharmaceutical distribution network.

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Insert Table 1 about here  
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### **Analysis and Findings**

The five different groups which make up in general the UK pharmaceutical distribution network point to very different aspects when analyzed using the NPP vector framework. All of them represent manifold and changing practices and translation mechanisms over time, and therefore provide a kaleidoscopic picture on the dynamics in this particular network, particularly from 2007 onwards. Tables 2-6 provide detailed analyses for each of the five groups of network actors. In the following, the analyses are introduced separately by actor group.

#### **Practices and Translations according to Pharmacies**

Before and immediately after 2007, pharmacies pointed to certain exchange practices in order to justify their representations of the UK pharmaceutical network, and in particular the role that they played themselves in it (see table 2). They saw themselves as mainly in exchanges with wholesalers and did not see contacts with manufacturers as important for them, due to the multiple-wholesaler distribution system by manufacturer which was prevalent before 2007. Thus, in their representations, they shared the central and powerful position in the system with the wholesalers (while they pointed to certain exchange activities which made them believe that they were partially wholesalers themselves). However, pharmacies also pointed to the normalizing practices based on interests by the pharmaceutical companies which resulted de facto in a capping of pharmacies profit margins.

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Insert Table 2 about here  
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Pharmacies see the current situation as much more complex and bewildering. They point to the increase in export practices (especially by independent pharmacies and wholesalers, resulting especially from a weak pound sterling) which in their view is responsible for certain shortages in medicine, and a shift towards manufacturer power. As underlying reasons for these issues pharmacies point to the changes in exchange practices, specifically the introduction of a single-wholesaler policy by Pfizer, a practice which was then adopted by most other big manufacturers. Pharmacies now represent the market as consisting of less powerful wholesalers and pharmacies (who now do not share interests with wholesalers anymore), with a shift towards more control over distribution by manufacturers, e.g. through a quota system, discount policies.

However, a certain dependency on a single wholesaler by manufacturers is also mentioned. Pharmacies now see their interests more aligned with (but also determined by) manufacturers, a translation mechanism which has direct effect on their stock management systems, or their stock shortage management routines (tradition between pharmacies).

Overall, manufacturers are seen as wanting to control the distribution network, also because their business model based on branded drugs is likely to be unsuccessful in the future; therefore pharmacies perceive manufacturers as ‘milking’ the system before it breaks. In this situation, pharmacies see themselves (via the practices of collective voice through trade associations) as the advocates of the patients, therefore representing themselves as the ethical anchor point of the distribution system. They also point to the normative practices established, i.e. some codes of conduct which do not allow the manufacturers to only work in their own interest. However, they acknowledge that although this code does not allow exports by pharmacies and wholesalers, these exchange practices exist. Overall, pharmacies feel at the mercy of a system which they believe is controlled by manufacturers, with the DoH not doing enough to counterbalance this.

For the future, the pharmacies see several possible exchange practices which could translate to a further shake-up of the system: first, dis-intermediarization, i.e. with Home Care distribution systems, drugs are delivered directly to patients, passing by pharmacies. Secondly, pharmacies could enter the GP market and establish their own consultation room to counter-act the dis-intermediarization. Furthermore, an increase in biological drugs and generics sales will also change the manufacturer model, and therefore potentially make the single-wholesaler by manufacturer model obsolete. Overall, pharmacies see a bleak future: they are unsure about their specific role (and that of others); the potentially perceived role overlap between players will create further conflict in exchange practices.

#### **Practices and Translations according to Wholesalers**

Wholesalers perceive that in the past they had to revert a lot to imports from continental Europe. They also saw very frequent interactions with their customers (pharmacies) as presenting a close working model (twice daily supply deliveries) (see table 3). However, they acknowledge that already in the past, the full-line wholesaler was made slowly impossible by Pfizer’s single-wholesaler policy, in effect introducing unprecedented network dynamics in terms of magnitude of the changes, and the speed of the changes. Thus, wholesaler represented these changes as increasingly threatening smaller wholesalers. On the other hand, the new distribution model now means less transactional relationships between wholesaler and manufacturer, with wholesalers now becoming logistics providers with end-to-end service offerings.

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Insert Table 3 about here

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Wholesaler single out information flows towards them (e.g. about availability, demand, stocks) as the most important practices which allowed them to fulfill their new role in the network; wholesalers are seeing themselves as a ‘clearing house’ in a ‘tangled web of relationships’ between all actors in the network. New activities have emerged, e.g. the re-wholesale and parallel export to continental Europe, as well as short-line generics businesses. Furthermore, a new structure of wholesalers has emerged: several big main line wholesalers who have single sourcing agreements with a manufacturer, and short line wholesaler, specializing on generics or niche drugs. As a result, the main line wholesalers now have to have accounts with every single pharmacy in the country. However, they acknowledge that exchange practices as well as normalizing practices provide manufacturers with lots of power to control margins and

quotas, as well as service levels (this is also driven by the Category M tariffs). Most of these current representations of the distribution network are directly linked to exchange practices which came into existence as a reaction to the single-wholesaler policy of Pfizer (which has been adopted to some extent by other manufacturers, e.g. GSK uses a dual-wholesaler policy). The practices often translate into shared interests, e.g. when risk management is done by wholesalers for their pharmacy customers.

However, wholesalers do not see the current situation as stable, they perceive themselves currently as a ‘mere route to market’ and hope for further dynamics in the network. Interestingly, they are unable to articulate how these dynamics may look like. They expect manufacturers to disinvest R&I spend from blockbuster branded drugs, with more generics coming into the network. Similar to the pharmacies, the wholesalers also fear dis-intermediarization, with direct-to-pharmacy distribution by manufacturers. However, they do not provide indications about what practices they intend to change in the future to deal with their current position in the UK pharmaceutical network.

### **Practices and Translations according to Manufacturers**

Manufacturers faced in the past a situation where R&D costs were increasing while overall sales remained static, leaving them in a perceived role of vulnerability in the network. Consequently, pressures to lower costs were dominant in the industry (see table 4). Pfizer offered a new distribution alternative by negotiating a single wholesaler policy (also sometimes called Direct to Pharmacy, DTP model) which made distribution more streamlined and easier to control

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Insert Table 4 about here  
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Pressures on costs currently still exist, with many manufacturers currently outsourcing to cheaper production facilities around the world, e.g. in India. Overall the players do not perceive the quality of the drugs to decrease due to these activities as manufacturers have convinced the relevant actors that they have improved safeguards to ensure superior quality deliveries. Manufacturers are also currently more open to considering entering generics market as their production improvement system can now have effects quicker than previously, i.e. when branded drugs come out of their protected period, the production system can be quickly change to become relevant for the production of the same drug as a generic one. For the future, manufacturers are exploring totally different business and exchange models (e.g. by switching to biologically-based drugs for which no generics exist); however, they are in the short-term locked into their single wholesaler distribution models and intend to exploit this situation until the network forces them to change it.

### **Practices and Translations according to Professional Bodies**

Professional bodies provide a wider and aggregated picture of the network as they often incorporate actors with different network roles in one organization. In the past, these professional bodies perceived capital access to be easier for some actors in the distribution network, particularly for pharmacies, as pre-Category M agreement cash-flows and risks were easier to predict (see table 5). Furthermore, the professional bodies saw better interactions between players, e.g. pharmacies and wholesalers, as constant negotiations strengthened relationships. Pharmacies were also free to make more extensive profits (e.g. £980m in 2006) before the 500m cap was introduced in the market. From the professional bodies perspective, the period before the single wholesaler policy by manufacturers was represented by a quasi-cartel, which allowed better influence on discount negotiations and therefore margins. With single wholesaler policies in place, the professional bodies do not see the promised results and new practices but find

manufacturers increasing their control, resulting in overall funding problems in the overall distribution system.

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Insert Table 5 about here  
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In terms of current practices the professional bodies see alternative distribution mechanisms for generics as problematic, as NHS claw-back practices affects the branded drug business of the pharmacies. However, this has created NCSO situations ('no cheap stock available to order') where branded drugs are used instead with HoD approval. However, overall the pharmacies pricing and discount freedom has diminished. Wholesalers are now using their existing stock in a 'competitive game', also to get to large batch orders from their manufacturer, which brings them margin. On the other hand, these developments mean that pharmacies are focusing more and more on price issues to the detriment of patients' services.

Overall, according to the professional bodies, there now exists a lack of trust embedded in the exchange and representational practices of the key actors, especially vis-à-vis the NHS and the HoD. A strong belief exists that manufacturers are able to siphon off parts of the £500m cap for generics, therefore diminishing the Global Sum available to pharmacies. Furthermore, planning is perceived to have become more complex and risky, with the Category M approach holding the system back. While some aspects have improved, e.g. better algorithms are used for quota setting, other issues such as returning adequate stock back into the system has not been improved. The Global Sum and Category M system are not seen as being sustainable (being described as 'mad economics' by one respondent).

Similarly to the manufacturers, the professional bodies do not have clear thoughts on future developments in the pharmaceutical distribution market. They acknowledge that the remuneration and reimbursement contracts are evolving and need constant monitoring in terms of normative practices. At the same time the overall system needs to benefit the NHS (i.e. bring overall drug costs down) which contradicts the current quota system (i.e. stock controls which drive prices up). Especially the pharmacies need to regain a voice in this (exemplified by their creation of an amalgamated professional body PharmacyVoice) to regain some impact on the system.

#### **Practices and Translations according to PCTs**

PCTs perceive that in the past, pharmacies faced a lot of competition, thereby they became rather self-interested. Furthermore, in the past PCTs also faced increasingly bad relationships with GPs due to especially the Category M scheme (see table 6).

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Insert Table 6 about here  
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Currently, PCTs and the HoD operate a model which is more about cost effectiveness and less about drug quality, mainly because NICE (National Institute for Health and Clinical Excellence) is playing a more dominant role in affecting the UK pharmaceutical distribution system. Overall, this exposes the patients to system failures. GPs are seen as playing a corrective role in this. However, bearing these caveats in mind, the PCT overall believes that the distribution network works well according to the cost effectiveness priorities. Within this belief, PCTs also aim at influencing GPs and their drug prescribing behavior. Manufacturers do not play a powerful part in the PCTs representational practices. However, due to a shortage of generics in the system, PCTs believe that norming the prescription use of cheaper generics is not necessarily increasing the overall cost efficiency.

Future developments are not prominent in the PCTs considerations. It is expected that new norms will be introduced which provide different financial incentive schemes to the players compared to the current situation. Especially the GPs are affected, according to the PCTs. Furthermore, the PCT envisage a normalization of drug prescription, i.e. more directive exchange practices about which drug is used for what price/discount.

### **Findings, Conclusion and Implications**

Using a NPP analytical framework to understand dynamics in the UK pharmaceutical distribution network provides two overall findings which cut across the different analyses provided for the five main actor groups. These dynamics represent the network in its development since 2007 towards single-wholesaler manufacturer distribution (Direct-to-Pharmacy DTP model) (see figures 1 and 2). First, the introduction of the DTP model (and associated dual-wholesaler distribution arrangements by manufacturers) can cause some *role ambiguity* in the network for most actors, particularly pharmacies and wholesalers. While the network positions are still defined today similarly to what they were before the DTP model introduction (i.e. the distribution network structure as such has not changed dramatically) (Easton, 1992; Johanson and Mattsson, 1992; Mattsson, 2002; Turnbull et al., 1996), actors are unclear about how these positions are represented by others, and what kind of practices (potential practices as well as actual practices) are associated with them. In other words, actors are aware that there exist different interpretations of their position (Gadde et al., 2003) but they do not possess representational practices to make sense of them in an unambiguous manner. As such, they are unsure about their role within the new network configuration (i.e. post-DTP). The distinction between the position and role concept can be derived from Anderson et al. (1998). They argue that network positions generally are concerned with expected activities that come with a network position, thereby guiding actors' expectations regarding norms. Anderson et al. (1998) call this *taken-on-activities*. The *made-up-activities* on the other hand relate to the roles actors choose to perform, because role behaviour reflects actor interpretations. These role expectations are similar to Huemer et al.'s (2004) concept of *network identity*. This network identity seems to have been lost somehow after the introduction of new distribution models, thereby contributing to the network dynamics visible in the UK pharmaceutical distribution system.

Secondly, the NPP analysis shows that practices (and translation processes) based on, or emanating from, external norms have an important impact on the overall network. While the initial 'change stimulus' was generated within the system (i.e. by Pfizer's decision to introduce a single-wholesaler policy), the consequences of this action relate to a large extent to the representation, exchange, and normalizing practices of norm-providing bodies (such as the HoD and NICE). Practices such as Global Sum arrangements, and Category M system provide anchor-points for other actors in terms of setting (perceived) parameter for exchange options in the distribution system. As such, the externally-given practices resemble *actants* in their right (Latour, 1986).

As such, our study shows that an analysis of network dynamics based on a NPP, and therefore informed by practice and performativity conceptualizations, can be used to understand different actor groups and their understanding of shifts in a distribution network. As such, NPP, and the analysis of practices and translations, can be seen as an alternative to more traditional AAR approaches within the INA. Therefore, a NPP can be argued to be commensurable with interaction approaches and the social exchange theory associated with INA. Interpretations of the results of such an analysis nevertheless need to be related to other existing concept, such as network position and network role, in order to crystalize explanations out of practices. With

regard to the case example at hand, the importance of role ambiguity in network dynamics became clear: the system and its actor groups were not able to absorb the 'shock' of a distribution model change (a 'connected change') in the sense of a punctuated equilibrium model as proposed by Halinen et al. (1999). Rather, due to the externally-derived normalizing practices perceived to be shaping the network, the new distribution model has not yet brought about clarity about new and shared role expectations for the existing network participants.

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Table 1: NPP Vector Framework

|                       | TIME    | EXCHANGE PRACTICES   | REPRESENTATIONAL PRACTICES   | NORMALIZING PRACTICES  |
|-----------------------|---------|--|--|--|
| EXCHANGE PRACTICES    | PAST    |  | <b>E → R (MEASUREMENTS)</b><br><ul style="list-style-type: none"> <li>Practice (E) → (R).</li> </ul> | <b>E → N (INTERESTS)</b>   |
|                       | PRESENT |  | <ul style="list-style-type: none"> <li>Practice (E) → (R).</li> </ul>                                | <ul style="list-style-type: none"> <li>Practice (E) → (N)</li> </ul> |
|                       | FUTURE  |  | <ul style="list-style-type: none"> <li>Practice (E) → (R).</li> <li>Practice (E) → (R).</li> </ul>   |  |
| REPRESENT PRACTICES   | PAST    | <b>R → E (RESULTS)</b>   |  | <b>R → N (DESCRIPTIONS)</b>  |
|                       | PRESENT | <ul style="list-style-type: none"> <li>Practice (R) → (E)</li> </ul> |  |  |
|                       | FUTURE  |  |  | <ul style="list-style-type: none"> <li>Practice (E) → (N)</li> </ul> |
| NORMALIZING PRACTICES | PAST    | <b>N → E (RULES)</b>   | <b>N → R (MEASUREMENTS AND METHODS OF MEASUREMENT)</b>   |  |
|                       | PRESENT | <ul style="list-style-type: none"> <li>Practice (N) → (E)</li> </ul> | <ul style="list-style-type: none"> <li>Practice (N) → (R)</li> </ul>                                 |  |
|                       | FUTURE  | <ul style="list-style-type: none"> <li>Practice (N) → (E)</li> </ul> | <ul style="list-style-type: none"> <li>Practice (N) → (R)</li> </ul>                                 |  |

[E]: Exchange Practices  
[R]: Representational Practices  
[N]: Normalizing Practice

**Table 2: NPP Vector Framework for Pharmacies**

|                    | TIME    | EXCHANGE PRACTICES | REPRESENTATIONAL PRACTICES   | NORMALIZING PRACTICES   |
|--------------------|---------|--------------------|--|---|
| EXCHANGE PRACTICES | PAST    |                    | <p><b>E → R (MEASUREMENTS)</b></p> <ul style="list-style-type: none"> <li>• Pharmacies negotiated their discounts with wholesalers, and not with manufacturers (E).<br/>→ Wholesalers were considered, from the pharmacies perspective, more powerful (R).</li> <li>• Pharmacies used to play the role of wholesalers in the distribution system (E).<br/>→ pharmacies had considerable power over the distribution system (R).</li> <li>• Multiple-wholesaler distribution system by manufacturers (E).<br/>→ There was an equilibrium in the way things worked (the distribution / purchasing / selling of drugs was manageable) (R).</li> <li>• In some cases, branded medicines are prices below generics (E).<br/>→ Patients are convinced that the chemical product are the same used in both products (R).</li> </ul> | <p><b>E → N (INTERESTS)</b></p> <ul style="list-style-type: none"> <li>• Pharmaceutical companies capped pharmacies profit price (manufacturers are controlling the margins); “fee based global sum system” instead of an element of purchase profit (E).<br/>→ the way final pricing is defined has been changed (N).<br/>→ pharmacies may think about hiding purchase margins from government (N).</li> </ul>   |
|                    | PRESENT |                    | <ul style="list-style-type: none"> <li>• Increase of exports by some pharmacies (mostly independent) and wholesalers (some believe it is only independent pharmacies that are doing it) (E).<br/>→ shortage of medicines which leads to a perception of manufacturers’ increasing power (R).</li> <li>• With the “fee based global system” (cap on profit) (E).<br/>→ it becomes less attractive to be in the pharmacies business (R),</li> </ul>  | <ul style="list-style-type: none"> <li>• Increase of export practices, result of the GBP current devaluation (E).<br/>→ change in used to be the natural dynamics of exports of the pharmaceutical market (there used to be imports) (N).<br/>→ Parallel business taking place (N).</li> <li>• Pharmacies no longer play the role of wholesalers in the distribution system, consequence of the manufacturers’ single wholesaler policy and quota system (E).<br/>→ the composition of the distribution system has changed. Things changed at the macro level (N).</li> </ul> |

|  |  |  |   |   |
|--|--|--|---|---|
|  |  |  | <ul style="list-style-type: none"> <li>• <b>The single wholesaler policy established by manufacturer means that they have to distribute to the whole country (E).</b> <ul style="list-style-type: none"> <li>→ Change in the perceived role played the wholesalers; are now perceived as less powerful and as mere distributors to one specific pharmaceutical company. Difficult to say if they will be able to make money... (R).</li> <li>→ Pharmacies are also perceived as less powerful, not having access to the medication they require. They are also more vulnerable financially because they get less discounts (buy less from each wholesaler) (R).</li> <li>→ Whilst most respondents perceive that this leads to more power for manufacturers that now have more control over the distribution system, discounts and products, one of the respondents believes that manufacturers become more dependent on one single wholesaler, who are now the most important actor in the network (R).</li> <li>→ Pharmacies are perceived as interest driven, not having in mind the patients' interests... (R).</li> </ul> </li> <br/> <li>• <b>Quote systems imposed by manufacturers on pharmacies/wholesalers (E).</b> <ul style="list-style-type: none"> <li>→ patients and pharmacies become more vulnerable, as they may not get access to the medication they need (R).</li> <li>→ GPs are prescribing alternative medications, leading to less power on the manufacturers' side (R).</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• <b>Single wholesaler policy (E).</b> <ul style="list-style-type: none"> <li>→ manufacturers establish the rule of the game in terms of product, distribution, discounts and prices (N).</li> <li>→ Pharmacies have changed their internal mechanisms, spending many more resources (e.g. time on the phone), trying to get the medicines in shortage (N).</li> </ul> </li> <br/> <li>• <b>Quote systems imposed by manufacturers on pharmacies/wholesalers (E).</b> <ul style="list-style-type: none"> <li>→ some pharmacies are turning to the grey and black market as an alternative to manufacturers (N).</li> <li>→ Pharmacies' stock management mechanisms have changed and are controlled by manufacturers (N).</li> <li>→ It has become a norm to call the GPs and ask for alternative medication, whenever there is no stock or possibility to get the medication. (N).</li> </ul> </li> <br/> <li>• <b>Some pharmaceutical companies are selling directly to the patient (E).</b> <ul style="list-style-type: none"> <li>→ the structure of the distribution channel has changed (N).</li> </ul> </li> <br/> <li>• <b>Signs of (more intense) trading between pharmacies to cope with the shortage of medication, and</b></li> <li>• <b>Some pharmacies are producing their own medications (those with a Specials license) (E).</b> <ul style="list-style-type: none"> <li>→ Change in the played role (N).</li> </ul> </li> <br/> <li>• <b>If there is shortage of medicine for pharmacies (E).</b> <ul style="list-style-type: none"> <li>→ they call the manufacturers directly, instead of calling the wholesaler (change of procedures at the macro level) (N).</li> </ul> </li> </ul> |
|--|--|--|---|---|

|                            |                |   |  |   |
|----------------------------|----------------|---|--|---|
|                            |                |   |  | <ul style="list-style-type: none"> <li>• <b>Increase of Ostome drugs (E).</b><br/>→ change in the structure of the distribution system (drugs can be dispensed by DAC – dispensing appliance contractors) or through agency scheme with pharmacies) (N).</li> </ul>   |
|                            | <b>FUTURE</b>  |   | <ul style="list-style-type: none"> <li>• <b>Introduction of the Home Care distribution (specialist drugs delivered directly at home via nurses) (E).</b><br/>→ Pharmacies become more vulnerable (they are not needed for getting the medicine to the patient) (R).</li> <li>• <b>Pharmacies may have their own consultation rooms (way of dealing with the quota system imposed by manufacturers) (E).</b><br/>→ Patients may be pout off (R).</li> </ul> | <ul style="list-style-type: none"> <li>• <b>Wholesalers play the role of distributors for one single manufacturer (E).</b><br/>→ this business model may not be sustainable for wholesalers (N).</li> <li>• <b>Introduction of the Home Care distribution (specialist drugs delivered directly at home via nurses) (E).</b></li> <li>• → Change in the structure of the distribution channel (N).</li> <li>• <b>The sells of generics will be 2/3 superior than branded (E).</b><br/>→ Manufacturers will have to turn to high value specialised drugs (N).</li> </ul>  |
| <b>REPRESENT PRACTICES</b> |                | <b>R → E (RESULTS)</b>  |  | <b>R → N (DESCRIPTIONS)</b>   |
|                            | <b>PAST</b>    |   |  |   |
|                            | <b>PRESENT</b> | <ul style="list-style-type: none"> <li>• <b>Manufacturers want to control / control the market – (predominant view) (R).</b><br/>→ They impose quota systems and single manufacturer policy (E).<br/>→ pharmacies have to spend more resources to get the medicine they need (E).</li> <li>• <b>Independent pharmacies have greater leeway (R).</b><br/>→ they export and they do not have to buy from own wholesaler (E).</li> <li>• <b>Manufacturers’ current business model around branded drugs is doom to finish in the</b></li> </ul> |  | <ul style="list-style-type: none"> <li>• <b>Manufacturers have an obligation to supply wholesalers and pharmacies, so that the patient can get access to the medication (R), and</b></li> <li>• <b>Pharmacies are the ones who worry the most about ethics (R).</b><br/>→ Pharma voice (associations of pharmacies – CCA, NPA – cohesive voice for pharmacy) are getting together, trying to raise these ethical issues and trying to change the rule of the game – negotiating new laws with the government. (N).</li> <li>• <b>The government should play a more active role to assure that manufacturers do not control the market (R).</b><br/>→ There is a need for more strict rules to be</li> </ul> |

|                              |                |  |  |  |
|------------------------------|----------------|--|--|--|
|                              |                | <p><b>near future (R).</b><br/> → They are aware of this and this led them to take the mentioned measures, trying to “milk” the current business model as much as possible <b>(E).</b></p>   |  | <p>imposed <b>(N).</b></p>   |
|                              | <b>FUTURE</b>  | <ul style="list-style-type: none"> <li>• <b>Relationships with wholesalers are getting worse (R).</b><br/> → It is becoming more difficult doing business with these parties <b>(E).</b></li> <li>• <b>No one knows who is supposed to do what (R).</b><br/> → Actors interact playing multiple roles and different roles from what they used to in the past (e.g. pharmacies sell to other pharmacies) <b>(E).</b></li> </ul> |  | <ul style="list-style-type: none"> <li>• <b>Things can’t get worse than what they are now (R).</b><br/> → The rules of the market have changed and everyone has readjusted to the new system <b>(N).</b></li> <li>• <b>The wholesalers are the most influential actor in the market (one respondent) (R).</b><br/> → The wholesalers influence the way the system of drugs distribution works <b>(N).</b></li> <li>• <b>Manufacturers’ current business model around branded drugs is doom to finish in the near future (R).</b><br/> → Manufacturers will have to change their business model <b>(N).</b></li> <li>• <b>Manufacturers can not rule the market! (R)</b><br/> → something (new legislation/major force like government intervention) has to be done to stop it <b>(N).</b></li> </ul> |
| <b>NORMALIZING PRACTICES</b> |                | <b>N → E (RULES)</b>   | <b>N → R (MEASUREMENTS AND METHODS OF MEASUREMENT)</b>   |  |
|                              | <b>PAST</b>    |  |  |  |
|                              | <b>PRESENT</b> | <ul style="list-style-type: none"> <li>• <b>There is a code of conduct (N).</b><br/> → Companies can not overrule the market and manipulate it to their own interest <b>(E).</b></li> <li>• Wholesalers are allowed to export, not pharmacies <b>(N).</b><br/> → Given the present situation, pharmacies feel tempted (and some do...) to export <b>(E).</b></li> </ul>  | <ul style="list-style-type: none"> <li>• <b>Lobbying is being carried out by professional groups that got together to discuss issues for pharmacies (N).</b><br/> → greater sense of unity amongst pharmacies <b>(R).</b><br/> → the Government has something to say / a role to play in this scenario <b>(R).</b></li> <li>• <b>Discounts should be made according to certain mechanism that were already installed,</b></li> </ul> |  |

|  |               |   |  |
|--|---------------|---|--|
|  |               | <p><b>but this is not happening (N).</b><br/> → Relations between pharmacies and wholesalers/manufacturers is getting worse (E).</p> <ul style="list-style-type: none"> <li>• <b>The Government has not been able /not bothered to do something about the excessive growing power of manufacturers (N).</b><br/> → The pharmacies feel that the Government has let them down (R).</li> <li>• <b>Things are now done via quota systems (N).</b><br/> → But the way these quotas are defined remains ambiguous for pharmacies... pharmacies feel that manufacturers use this system as they please to serve their interests (R).</li> </ul> |  |
|  | <b>FUTURE</b> | <ul style="list-style-type: none"> <li>• <b>Pharmacy associations are negotiating new rules to assure that there is enough stock of medication (N).</b><br/> → This will change the stocking practice (E).</li> </ul>   |  |

[E]: Exchange Practices  
[R]: Representational Practices  
[N]: Normalizing Practice

**Bold** sections indicate the vector emanatory

**Table 3: NPP Vector Framework for Wholesalers**

|  | <b>TIME</b> | <b>EXCHANGE PRACTICES</b> | <b>REPRESENTATIONAL PRACTICES</b> | <b>NORMALIZING PRACTICES</b> |
|--|-------------|---------------------------|-----------------------------------|------------------------------|
|--|-------------|---------------------------|-----------------------------------|------------------------------|

| EXCHANGE PRACTICES | PAST |         | E → R (MEASUREMENTS) | E → N (INTERESTS)  |
|--------------------|------|---------|----------------------|--|
|                    |      | PRESENT |                      | <p><b>Buying in from Europe (parallel imports):</b><br/> <b>(sub-group differences for MLW)[E]</b><br/> →Unichem used to buy a lot of product from Europe. Devaluation of the pound means that products bought 4-5 years ago have lost value and this is displeasing pharmacists [R].</p> <p><b>Customer (pharmacy) orders were previously delivered twice a day: [E]</b><br/> →Products were distributed at good prices [R].</p> <p><b>Information transfer and market information exchange are critical resources to maintain relationships in the market:</b><br/> <b>(sub-group differences for SLW) [E]</b><br/> → Information transfer to and from wholesalers is important knowledge to determine product availability and find signals for what drugs one ought to buy in the market [R].<br/> → w/s are now taking the role of information gatherers and negotiators in the market. This is somewhat a structural consequence as the market is now considered a “tangled web of relationships” amongst key players [R].</p> <p><b>Re-wholesaling of drugs is ongoing: [E]</b><br/> → As it is more viable to sell the stock than to dispense the stock by pharmacies, re-wholesale is manifesting itself as a drug shortage issue in the market [R].<br/> →This raises questions i.e. what really is in shortage? [R].<br/> →Currency devaluation is furthering re-wholesale/parallel export to Europe [R].<br/> → Manufacturers realise that the product is worth more in Europe and that customers (pharmacies) are willing to buy more than they require to export and make a profit [R].<br/> <b>(sub-group agreement for MLW and</b></p> |

**SLW)**

→Pharmacies are aggrieved due to income cuts and not being reimbursed properly. They are partially to blame for the shortage of drugs **[R]**. **(sub-group agreement for MLW and SLW)**

**Trends of MNE procurement of generic companies: [E] (sub-group agreement for MLW and SLW)**

→MNE have the power to procure **[R]**.  
→This is a commercially driven directive to gain control on branded and generic products **[R]**.  
→Manufacturers will make the monies they are set to lose from off patent drugs through generics **[R]**.

**All major Full line Wholesalers have a short line wholesale element for generics [E] (sub-group difference for MLW).**

→ Generics are very profitable for MLW **[R]**.  
→ MLW are buying short liners who specialise in generics or have developed their own generic offer **[R]**.

**The manufacturer wholesale link is really important: [E] (sub-group differences for SLW)**

→Manufacturers need Short line wholesalers as a route to the market. If they relied only on the top three players they would not be in control of the total market **[R]**.

**Main line wholesalers have more stock than short liners: [E]. (sub-group differences for MLW and SLW)**

→Key differences between full liners and short liners are found in stock levels. Main liners are the preferred supply route for manufacturers **[R]**.

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|  |  |  | <p>→ First tier Short liners can control stock and act as gatekeepers and choose where to sell [R].</p> <p><b>Manufacturing of drugs in India is an issue implicating the shortage of drugs:</b> [E]</p> <p>→ Despite cost effectiveness in terms of labour issues, products not matching quality controls and temperature controls in shipping are stalling drugs entering the market [R].</p> <p>→ Tight regulations on imports, strict SOPs (standards of operating practice) judged by the MRHA (Medicine and Healthcare Products Regulatory Agency) further impact upon drug shortages and delays into the market [R].</p> <p><b>Drug shortages for Generics:</b> [E]<br/> <b>(sub-group agreement for MLW and SLW)</b></p> <p>→ Shortages of API (<i>active pharmaceutical ingredient</i>) for generic drugs are another factor for drug shortages to w/s which lead to NCSO (No Cheaper Stock Obtainable) for which pharmacies are reimbursed at the cheaper generic price when it is not available in the market [R].</p> <p>→ Manufacturers are struggling to produce products [R].</p> <p><b>Pharmacies sell drugs back to wholesale:</b> [E]</p> <p>→ With a license (from the Royal society) retailers sell drugs for commercial purposes [R].</p> <p><b>SOPs (Standards of operating practice) must be adhered to by w/s: (sub-group differences for MLW and SLW)</b> [E]</p> <p>→ MHRA is highly concerned with SOPs and not one SOP fits all w/s (e.g. short line</p> |  |
|--|--|--|--|--|

|                            |                |   |  |   |
|----------------------------|----------------|---|--|---|
|                            |                |   | and full line)[R].<br>→However, MLW need to satisfy SOPs for ‘manufacturers’ (which differ) and also for the government [R]. |   |
|                            | <b>FUTURE</b>  |   |  |   |
| <b>REPRESENT PRACTICES</b> | <b>PAST</b>    | <b>R → E (RESULTS)</b>  |  | <b>R → N (DESCRIPTIONS)</b>   |
|                            |                | <p><b>Manufacturers used to source from Full line wholesalers (MLW): [R]</b><br/>→Due to DTP MLW no longer exist as no one w/s provides the whole gambit of product offerings[E].</p> <p><b>Pfizer’s DTP model of exclusivity increased disharmony: [R]</b><br/>→Non Alliance customers were forced to have accounts with Unichem [E].</p> <p><b>Negative impact of w/s model change ): [R]</b><br/>→Many regional and small wholesalers do not exist (similar to the airline industry)[E].</p> <p><b>Wholesale and manufacturer relationships are a key driver of change: (sub-group differences for MLW) [R]</b><br/>→Five years ago manufacturers changed relationships with full line wholesalers from ‘transaction-based’ to logistic providers and end-to-end service provides [E].</p> |  | <p><b>The system 2 to 3 years ago it was more simple and basic: [R]</b><br/>→Now many factors are intertwined. It is a complex system [N].</p> <p><b>More change in this industry in the last 3-4 years than the past 40 years: [R]</b><br/>→A constantly moving scenario [N].</p>                  |
|                            | <b>PRESENT</b> | <p><b>Main line wholesale equivalents now exist in the marketplace: [E].</b><br/>→Full line is now classed as Main line and include Alliance; Boots; AAH (owned shops are Lloyds); Phoenix (owned shops called Rowlands) and Molsey Brooks [R].</p> <p><b>Short line wholesalers (SLW) operate of a two tiered system: [E].</b></p>   |  | <p><b>There is an increase of volume in the marketplace, lower value and higher over head costs: [R]</b><br/>→Manager are constantly driving internal costs down and trying to not comprise quality [N].</p> <p><b>Category M is a tool to regulate pharmacy into dispensing generics: [R].</b></p> |

|  |  |  |  |
|--|--|--|--|
|  | <p><b>(sub-group differences for SLW and MLW)</b></p> <ul style="list-style-type: none"> <li>→ Two tiers of SLW include: First Tier who do generics, PIs and ethical drugs and Secondly a lower Tier that gets hold of what they can do and sells for what they can [R].</li> <li>→ In contrast to main liners short liners don't carry the "whole shooting match of ethical's, bandages, OTC etc." [R].</li> <li>→ SLW were opened up on the basis of proving an economic route to retail [R].</li> </ul> <p><b>Evolution of roles for key market players: [R]</b></p> <ul style="list-style-type: none"> <li>→ The power is with the manufacturers for pricing of stock for w/s as they raise prices for drugs and w/s needed to accommodate for this [E].</li> <li>→ The big three Full liners (AAH, UNICHEM and PHOENIX) through DTP will have accounts with every single pharmacy [E].</li> <li>→ Pharmacies are like business men and focus more on getting the best price in the market than on patient care services [E].</li> </ul> <p><b>DTP from a wholesale perspective is where manufacturers control the market: [R] (sub-group agreement for SLW and MLW).</b></p> <ul style="list-style-type: none"> <li>→ <b>Manufacturers</b> control margins and quotas (average of 20 of a product to pharmacies). This can stem grey marketing [E].</li> <li>→ DTP has made exchange and the system more transparent [E].</li> <li>→ Manufacturers are the biggest culprits in that they are not short of stock and they control stock levels [E].</li> <li>→ DTP restricts flow of drugs to the end user [E].</li> <li>→ Manufacturers control service levels</li> </ul> |  | <p>→ Generics put less pressure on the medicine bill and governments use pharmacy to drive bills down [N].</p> |
|--|--|--|--|

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|  |  | <p>upstream, benefit from cost optimisation and information availability [E].</p> <p><b>Category M tariffs on generics drugs impact main line wholesalers more than short liners (sub-group differences for SLW) [R].</b></p> <p>→ The big three wholesalers (AAH, Unichem and Phoenix) are impacted by this tariff being at the mercy of what manufacturers price at and sell out at. Manufacturers know they can impact retailers (or pharmacies) and their reimbursements by doing so. This impact is less so for short line wholesalers who are not bound by single sourcing agreements with manufacturers [E].</p> <p><b>The commercial business model has changed for short line wholesalers (sub-group differences for SLW): [R]</b></p> <p>→ Product shortages have influenced exchange practices as more monitoring of supply and demand is required. w/s are buying more products at the least expensive prices before prices shoot up and also buying more units of drugs as a backup plan [E].</p> <p>→ SLW are described as “supply and demand” managers of stock [E].</p> <p><b>More interdependencies on profit making now exists between market players: [R]</b></p> <p>→ If one party fails to pay another it impacts all players as cash flow is halted [E].</p> <p>There is need to be more sensitive to the positions of players both upward and downward in the market (short line and full line) [E].</p> <p><b>Exclusive agreements and selling</b></p> |  |  |
|--|--|--|--|--|

|  |                      |   |  |   |
|--|----------------------|---|--|---|
|  |                      | <p><b>structures differ for pharmaceuticals :</b><br/> <b>[R]</b><br/> <b>(sub-group differences for MLW)</b><br/> →Alliance Healthcare are exclusive distributors of Pfizer <b>[E]</b>.<br/> →Two and three structured models are used by manufacturers e.g. GSK uses a two structured model selling to AAH and Unichem<b>[E]</b>.</p> <p><b>Rising costs and volumes and lowering product value is a big strain for full liner: (sub-group differences for MLW)[R].</b><br/> →Millions of miles per year coupled with major spikes when forecasting fuel price creates the need to put proportions of revenue aside for fuel<b>[E]</b>.<br/> → Overhead costs in terms of fuel, living, inflations etc. are on the rise <b>[E]</b>.<br/> →vans are bigger to take more volumes (compared to 5-10 years ago when vans were 3/4s full) <b>[E]</b>.<br/> →Value of products are down in exchange <b>[E]</b>.</p> <p><b>There is need to manage Risk Customers (or pharmacies) by Main liners (sub-group differences for MLW)[R].</b><br/> →Main liner analyses buying profiles of customers to see where quota restrictions need to be placed if they face restricted supply <b>[E]</b>.<br/> →This restricts product flow <b>[E]</b>.</p> |  |   |
|  | <p><b>FUTURE</b></p> |   |  | <p><b>Manufacturers lacking block buster drugs and driving generics market: [R].</b><br/> →It is debateable if R&amp;D monies will be spent for blockbuster's <b>[N]</b>.</p> |

|                       |         |               |   |   |
|-----------------------|---------|---------------|---|---|
|                       |         |               |   | <p><b>Wholesalers are fearful of new models (sub-group differences for MLW)[R].</b></p> <p>→The entry of 'Fourth Competitors' and a new direct model to pharmacy bypassing them is a concern[N].</p> <p>→The Switching back of practices from export to import would reshape the market[N].</p> <p>→Direct models for generics and patents are concerning them [N].</p> |
| NORMALIZING PRACTICES |         | N → E (RULES) | N → R (MEASUREMENTS AND METHODS OF MEASUREMENT)   |   |
|                       | PAST    |               |   |   |
|                       | PRESENT |               | <p><b>System dynamics infer that: [N]</b></p> <p>→Risk analysis needs to be done [R].</p> <p>→A causative effect impacts all players (sub-group agreement for MLW and SLW) [R].</p> <p>→The system is in peaks and troughs where before it ebbed and flowed [R].</p> <p>→Less customer loyalty in the system [R].</p> <p>→A system governed by price[R].</p> <p>→The market is more competitive for w/s [R].</p> <p><b>MLW do not see it as a stable market for them: [N] (sub-group differences for MLW)</b></p> <p>→At the mercy of DTP and products off patents drive the generics market [R].</p> <p>→They are essentially a route to market despite their benefit of having multiple pharmacy accounts[R].</p> |   |
| FUTURE                |         |               |   |   |

[E]: Exchange Practices  
[R]: Representational Practices

[N]: Normalizing Practice

**Bold** sections indicate the vector emanatory

**Table 4: NPP Vector Framework for Manufacturer**

|                    | TIME    | EXCHANGE PRACTICES | REPRESENTATIONAL PRACTICES   | NORMALIZING PRACTICES    |
|--------------------|---------|--------------------|--|--------------------------|
| EXCHANGE PRACTICES | PAST    |                    | <p><b>E → R (MEASUREMENTS)</b></p> <ul style="list-style-type: none"> <li>• R&amp;D costs are increasing and sales are steady/decreasing <b>(E)</b>, and:</li> <li>• There is pushing from funding bodies <b>(E)</b>.<br/>→ manufacturers perceive themselves as being more vulnerable <b>(R)</b>.</li> </ul>                      | <b>E → N (INTERESTS)</b> |
|                    | PRESENT |                    | <ul style="list-style-type: none"> <li>• Manufacturers are outsourcing from other countries (e.g. India) to lower their costs <b>(E)</b>.<br/>→ The quality of their products is not perceived as decreasing, as the other players in the system know that they have mechanisms installed to assure quality <b>(R)</b>.</li> </ul> |                          |
|                    | FUTURE  |                    | <ul style="list-style-type: none"> <li>• Manufacturers are beginning to invest/trade more strongly in biological based medicines and not as much on chemical based <b>(E)</b>.</li> </ul>  |                          |

|                       |         |   |   |                             |
|-----------------------|---------|---|---|-----------------------------|
|                       |         |   | <p>→ This gives them greater power / protection from competitors, given that biological medicines are more difficult to copy/ develop (R).</p> <p>→ Pharmacies become more vulnerable, as these medicines are administrated at hospitals by nurses (pharmacies are no longer needed) (R).</p> |                             |
| REPRESENT PRACTICES   |         | <b>R → E (RESULTS)</b>  |   | <b>R → N (DESCRIPTIONS)</b> |
|                       | PAST    |   |   |                             |
|                       | PRESENT | <ul style="list-style-type: none"> <li>• <b>Manufacturers are under a lot of pressure to lower their high costs (R).</b></li> <li>→ Manufacturers transfer this pressure to wholesalers, using a single wholesaler to become more efficient and outsourcing from emerging countries (E).</li> <li>• <b>Manufacturers that wouldn't consider entering the generics market are now changing they way they perceive it (R).</b></li> <li>→ Manufacturers are increasingly focusing on generics' production (E).</li> </ul> |   |                             |
|                       | FUTURE  |   |   |                             |
| NORMALIZING PRACTICES |         | <b>N → E (RULES)</b>  | <b>N → R (MEASUREMENTS AND METHODS OF MEASUREMENT)</b>  |                             |
|                       | PAST    |   |   |                             |
|                       | PRESENT | <ul style="list-style-type: none"> <li>• <b>The manufacturer's plant in Europe is part of a regulatory filling. (N).</b></li> <li>→ The company does not outsource completely to emerging countries, some of the production remains in Europe (E).</li> </ul>   |   |                             |
|                       | FUTURE  | <ul style="list-style-type: none"> <li>• <b>Manufacturers' business model will have to change in the future (N).</b></li> <li>→ Manufacturers are exploring the existing model as much as possible, trying to make as much profit</li> </ul>  |   |                             |

|  |  |   |  |  |
|--|--|---|--|--|
|  |  | as possible- via sole wholesaler / outsourcing from emerging countries (E). |  |  |
|--|--|---|--|--|

[E]: Exchange Practices  
[R]: Representational Practices  
[N]: Normalizing Practice

**Bold** sections indicate the vector emanatory

**Table 5: NPP Vector Framework for Professional Bodies**

|                           | TIME    | EXCHANGE PRACTICES | REPRESENTATIONAL PRACTICES   | NORMALIZING PRACTICES   |
|---------------------------|---------|--------------------|--|---|
| <b>EXCHANGE PRACTICES</b> | PAST    |                    | <b>E → R (MEASUREMENTS)</b><br><b>Relationships with Banks were more positive and open in the past: (E)</b><br>→ Banks would be open to lend monies to pharmacy pre Category M when cash flow and return on monies were steadier, more transparent and guaranteed for pharmacy (R).<br><br><b>Better relations between Pharmacy and Wholesaler in the past: (E)</b><br>→ Both parties were engaged in discount and negotiations pre DTP which led to more interaction and stronger relationships between these actors (R). | <b>E → N (INTERESTS)</b><br><b>Pharmacy made massive profits previously on generic drugs: (E)</b><br>→ Cap of 500 million on generics drugs put in place the 980 million profits pharmacy made on generics pre 2007. The market was shocked as measures were put in place for pharmacies to pay back the extra monies made (N). |
|                           | PRESENT |                    | <b>A marketplace of cheaply priced generic and equivalent drugs can be problematic for pharmacy: (E)</b>   | <b>Relationships with banks disrupted: (E)</b><br>→ Shocks in cash flow for pharmacies  |

|  |  |  |   |   |
|--|--|--|---|---|
|  |  |  | <p>→ Cheaper exchange coupled with NHS claw backs on prices and manufacturer control represents an unfavourable market practice for pharmacies [R].</p> <p>→ Pharmacies want to destock branded generics as ROI is poor (branded equates to 70% of value and 17% of prescriptions) [R].</p> <p>→ Different mechanism for setting prices impacts the value of buying branded (set by PSNC and DH) vs generics drugs. Generics can be bought from an open market at sold for a fraction of a price. Despite profits made from generics the system will claw it back [R].</p> <p>→ The move from generics, to generic equivalents makes it a tightly controlled market [R].</p> <p><b>NCSO (no cheap stock available to order): [E]</b></p> <p>→ The current terms and services for when non branded generics are out of stock and pharmacies won't dispense branded due to price differential leads to NCSO (no cheap stock available to order) which the government has to approve by paying pharmacies the difference by purchasing the more expensive brand [R].</p> <p><b>DTP has triggered restrictions in pricing, distribution and norms in interaction:</b></p> <p><b>a) Restricted Discounts for pharmacy: [E]</b></p> <p>→ This applies to 80% of branded products involved in a DTP type model. Restricted discounts are given to pharmaceuticals who lack IT infrastructure to do DTP and rely on few suppliers. They benefit by taking more money from fewer discounts on branded drugs.</p> <p><b>b) Volume cuts, margin drops, delays and higher unit costs depicts wholesaler exchange: [E]</b></p> | <p>from Category M and the complex reimbursement system tied with uncertainty and multiple interests for key decision makers need normalising to open up lending [N].</p> |
|--|--|--|---|---|

|  |  |  |  |  |
|--|--|--|--|--|
|  |  |  | <p>→The detriment of exchange practices is seen as a consequence of Direct to Pharmacy (DTP) measures [R].</p> <p>→Stalled deliveries by the leading wholesalers is problematic equating to 4-5 day delays for pharmacy and is a consequence of DTP[R].</p> <p><b>c)DTP equates to the need to apply for multiple accounts [E]</b></p> <p>→ Change in norms post DTP include new and existing pharmacies having to apply to Pfizer to open an account and Pfizer quotas being very shop specific [R].</p> <p>→it squeezes out smaller wholesalers [R].</p> <p>→Professional bodies are questioning how this impacts “<i>the lack of a vibrant market</i>” [R].</p> <p><b>New Medicines Service: [E]</b></p> <p>→ New services for providing specialist support to patients in chronic conditions is woven into the contractual arrangements for reimbursement and remuneration demonstrating tight governmental control [R].</p> <p><b>Wholesalers are playing a very competitive game on stocks: [E]</b></p> <p>→ Pharmacy perceive wholesalers as needing to play the game otherwise they won't get the large stocks they require from pharmaceuticals. The pareto rule applies to them.</p> <p><b>Parallel Export is an ongoing trend: [E]</b></p> <p>→ Incentives for exporting products to other states in Europe or outside Europe is ongoing [R].</p> <p>→ Parallel export is a trend along with the devaluation of the pound leading to product chasing and shortages in the market [R].</p> <p><b>Counterfeit drugs is under control: [E]</b></p> <p>→ The UK market is considered robust and</p> |  |
|--|--|--|--|--|

|                                   |               |   |  |   |
|-----------------------------------|---------------|---|--|---|
|                                   |               |   | <p>well policed regarding counterfeit drugs <b>[R]</b>.</p> <p><b>Pharmacies are focusing more on price related issues for exchange and less on patient's services: [E]</b></p> <p>→ A flaw of the current contractual framework for pharmacies that is raising interest is the lack of focus on <i>services</i> and the provision of patient care within the system <b>[R]</b>.</p> |   |
|                                   | <b>FUTURE</b> |   |  | <p><b>PSNC plays a key role with the department of health as a negotiator for remuneration: [E]</b></p> <p>→ In the future pharmacy bodies perceive more money being needed for <i>services</i> as currently more money is available for the <i>procurement</i> of drugs <b>[N]</b>.</p>                                    |
| <b>REPRESENTATIONAL PRACTICES</b> | <b>PAST</b>   | <b>R → E (RESULTS)</b>  |  | <b>R → N (DESCRIPTIONS)</b>   |
|                                   |               | <p><b>The industry model pre-DTP was thought of as a form of 'Subtle DTP': [R]</b></p> <p>→ Pre-DTP pharmaceuticals were gaining control and monitoring who was selling what and keeping control of data <b>[E]</b>.</p> <p>→ The system pre-DTP is referred to as a possible 'cartel' and did not impact the number of products pharmacies could buy but the amount of discount negotiated with pharmaceuticals <b>[E]</b>.</p> <p><b>DTP as a model to maintain supply chain integrity: [R]</b></p> <p>→ This was the pharmaceutical sell for DTP but professional bodies are not convinced from actual results and practices. They believe manufacturers have the upper hand and more control post DTP <b>[E]</b>.</p> |  | <p><b>Incremental changes has not consolidated the market: [R]</b></p> <p>→ Incremental change has caused problems for funding (pre 2004 reimbursement issues had been separate to remuneration) <b>[N]</b>.</p> <p>→ It took sixty years to get into a system like this and it needs consolidating further <b>[N]</b>.</p> |

|  |                       |   |  |   |
|--|-----------------------|---|--|---|
|  | <p><b>PRESENT</b></p> | <p><b>Legislation is more transparent:</b><br/> <b>[R]</b><br/> The notion of trusting government (NHS) and PSNC to represent best interests in dialogues/episodes of exchange is not supported by all bodies <b>[E]</b>.</p> |  | <p><b>Game playing by Pharmaceuticals on generic drug monies:</b> <b>[R]</b><br/> → Strong beliefs are held on current practices where manufacturers offer no discounts for branded generics and take money away 200 million of the 500 million pot for generics. A nightmare scenario discarding pharmacy interests and one which needs re-thinking <b>[NI]</b>.</p> <p><b>Generic drug reimbursement and remuneration is an issue:</b> <b>[R]</b><br/> → Global Sum and Generic drug reimbursement and remuneration issue for pharmacies is currently a big issue for the Department of Health. Of the sum of 500 million it is suggested that 200 million is being taken by branded pharmaceuticals. Issue of discount claw backs where by default branded takes away generic monies is unresolved <b>[NI]</b>.</p> <p><b>Planning and decision making is difficult to accomplish in the current system by actors:</b> <b>[R]</b><br/> → Market shocks in price, stock shortages, funding (Category M) hold the system back <b>[NI]</b>.<br/> → Public service obligations are being lobbied for to ensure they are more widely accepted and adhered to in the industry and the UK as they are in Europe e.g. the issue of stock shortages <b>[NI]</b>.<br/> → Aimp and other bodies are in constant dialogue with the pharmacy branch of the DOH and with wholesalers to inform each other of respective positions and to negotiate improvements <b>[NI]</b>.</p> <p><b>Stock Shortages and quota management for Pharmacy is improving</b> <b>[R]</b><br/> → Mixed beliefs held: CCA say that</p> |
|--|-----------------------|---|--|---|

|                    |               |                      |                                |  |
|--------------------|---------------|----------------------|--------------------------------|--|
|                    |               |                      |                                | <p>better algorithms are being used by the industry to determine quotas have been refined over time but does not appear to be an overall consensus held by professional bodies [N].</p> <p>→ NPA and other Trade Associations believe there is still a problem with returning adequate stock in the system that needs fixing [N].</p>  |
|                    | <b>FUTURE</b> |                      |                                | <p><b>Remuneration and Reimbursement contract is an ongoing process: [R]</b></p> <p>→ The contract is a living thing under constant evolution, in need of change and frequent monitoring [N].</p> <p>The task of ‘Regulation’ is difficult in this market [R]</p> <p>→ The market has to be careful of anti-competitive practices, how to remain competitive and drive down costs further for the NHS [N].</p> <p>→ There is conflicts in the way the market is managed to drive down costs when stock is controlled (via quotas) which drive up prices [N].</p> <p><b>DTP does not benefit pharmacy (regardless of retailer size) [R]</b></p> <p>→ DTP has led to increased bureaucracy, increased discounting and extra work [N].</p> <p><b>Fractures in the system for future drug accessibility: [R]</b></p> <p>→ The amalgamation of three trade associations (CCA, NPA and AIMp) to formulate the group Pharmacy Voice represents the need to re-think the current system and exchange practices and negotiate a consolidated voice to government.</p> |
| <b>NORMALIZING</b> |               | <b>N → E (RULES)</b> | <b>N → R (MEASUREMENTS AND</b> |  |

| PRACTICES |                 |  | METHODS OF MEASUREMENT)   |  |
|-----------|-----------------|--|---|--|
|           | PAST<br>PRESENT |  |   |  |
|           |                 |  | <p><b>Sustainability of the current Reimbursement and Remuneration (R&amp;R) system: [N]</b></p> <p>The notion of sustainability of the reimbursement and remuneration system involving the Global Sum (500 Million Cap) and Category M (which determines the reimbursement prices of generic drugs).<br/> → The global sum cap has meant that pharmacy retains 500 million in the community pharmacy contractual framework despite the drug bill being worth significantly more (e.g. 10/11 billion approximately in 2010).<br/> This is also seen as being “mad economics”<br/> <b>[R]</b><br/> → The system of Global sum is questioned as value has gone up, volume has gone up but profits retained for pharmacy is not going up and retained under tight control, not representative of its actual value <b>[R]</b>.<br/> → The system of R&amp;R causes two major shocks: 1. the inability to determine the worth of value retained and 2. the time lag taken for the system to correct itself of the actual value of drugs (it does not know actual value without a delay which is costly for pharmacy). The impact to business is destructive (pharmacies sell products for less than what they bought products for and on certain drugs they believe they will make profits but when the time lag in the system catches up they realise they made no profit). This can potentially put community pharmacies out if business <b>[R]</b>.<br/> → The NHS is perceived to be benefiting from the current system as are pharmaceuticals on their patent drugs <b>[R]</b>.</p> |  |

|  |               |  |   |  |
|--|---------------|--|---|--|
|  |               |  | <p><b>The potential impact of Lansley Reforms:</b><br/> <b>[N]</b><br/> → Concern exists over privatisation and how the system will be engaged with this <b>[R]</b>.</p> <p><b>Debates and re-thinking of the system/market with the need for new measures: [N]</b><br/> → There has been a failure to understand the system as a whole. The right balance between macro vs macro perspectives and political dimensions are required <b>[R]</b>.<br/> → This market is fluid and similar to one where you create an unstable structure and let the market forces determine the best way of driving business <b>[R]</b>.</p> |  |
|  | <b>FUTURE</b> |  |   |  |

[E]: Exchange Practices  
[R]: Representational Practices  
[N]: Normalizing Practice

**Bold** sections indicate the vector emanatory

Table 6: NPP Vector Framework for PCTs

|                     | TIME    | EXCHANGE PRACTICES  | REPRESENTATIONAL PRACTICES   | NORMALIZING PRACTICES   |
|---------------------|---------|---|--|---|
| EXCHANGE PRACTICES  | PAST    |   | <p><b>E → R (MEASUREMENTS)</b></p> <ul style="list-style-type: none"> <li>• Pharmacies face a lot of competition and whilst trading (E).</li> <li>→ Pharmacies are perceived as self-interest driven (R).</li> </ul>   | <p><b>E → N (INTERESTS)</b></p>   |
|                     | PRESENT |   | <ul style="list-style-type: none"> <li>• The Government / Health Department current priorities consists of cost effectiveness, and not as much on quality as it used to. (E).</li> <li>• This, combined with the fact that NICE now has a more predominant role, led to changes in the PCT's business model (E).</li> <li>→ The patients are the ones who are more vulnerable and that suffer the most with this priorities (R).</li> </ul><br><ul style="list-style-type: none"> <li>• By listening to what the PCT has to say, GPs practice having the patients best interests in mind (E).</li> <li>→ In this case, the patients will look to them and respect them (R).</li> </ul> | <ul style="list-style-type: none"> <li>• The Government / Health Department current priorities consists of cost effectiveness, and not as much on quality as it used to. (E).</li> <li>→ The system works / is developed according to this new priorities (N).</li> </ul> |
|                     | FUTURE  |   |  |   |
| REPRESENT PRACTICES | PAST    |   | <p><b>R → E (RESULTS)</b></p>  | <p><b>R → N (DESCRIPTIONS)</b></p>  |
|                     | PRESENT | <ul style="list-style-type: none"> <li>• The PCT's role is to change the way GPs see the world (R).</li> <li>→ GPs are expected to adjust their prescriptions according to what they learn from the advice given by the PCT (E).</li> <li>→ The PCT can't force GPs to prescribe the drugs they find more appropriate (E).</li> </ul><br><ul style="list-style-type: none"> <li>• Manufacturers do not have power over</li> </ul> |  |   |

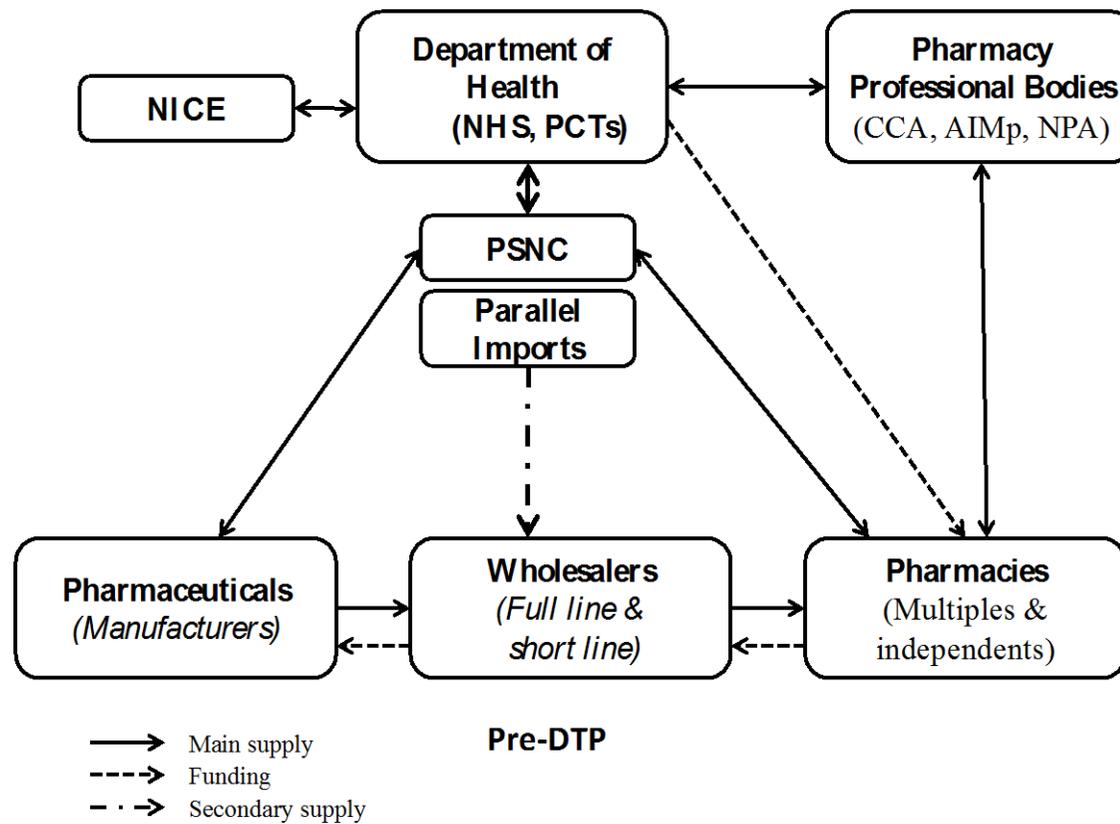
|                              |                |  |   |  |
|------------------------------|----------------|--|---|--|
|                              |                | <p><b>GPs to influence their prescriptions (R).</b><br/> → GPs prescribe according to their own beliefs (E).</p> <ul style="list-style-type: none"> <li>• <b>The PCT members are now aware of the lack of medication on the system (R).</b><br/> → Their advices are developed according to other priorities / do not have that fact under consideration(E).</li> <li>• <b>GPs do not understand the role played by the PCT (don't always believe they have the patients' interests in mind) (R).</b><br/> → GPs do not always prescribe according to PCT's recommendations (E).<br/> → GPs are not usually willing to work with the PCT in a partnership relationship (E).</li> </ul> |   |  |
|                              | <b>FUTURE</b>  |  |   |  |
| <b>NORMALIZING PRACTICES</b> |                | <b>N → E (RULES)</b>   | <b>N → R (MEASUREMENTS AND METHODS OF MEASUREMENT)</b>  |  |
|                              | <b>PAST</b>    |  | <ul style="list-style-type: none"> <li>• Category M drugs (associated with a prescription incentive scheme) was one of the existing mechanisms (N).<br/> → This did not work out as expected and the relationship between the PCT and the GPs got worse (R).</li> </ul> |  |
|                              | <b>PRESENT</b> | <ul style="list-style-type: none"> <li>• GPs are no longer advised to recommend / prescribe generics to the patients (it is not as cost efficient as it used to be – shortage in generics). (N).<br/> → In principle, GPs do not prescribe as much generics(E).</li> <li>• <b>The PCT has to manage with tighter budgets (N).</b><br/> → <b>GPs need to cooperate further with the PCT so that the targets can be achieved,</b></li> </ul>   |   |  |

|  |        |  |  |  |
|--|--------|--|--|--|
|  |        | <p>despite the scarce resources available (E).</p> <ul style="list-style-type: none"> <li>• The PCT's advices should be followed, as these allow cutting costs whilst serving the patients' best interests (N).<br/>→ When this does not happen, the Government will cut somewhere else to achieve its target of increased efficiency (E).</li> <li>• There is a Financial Incentive scheme (N).<br/>→ GP's practice has changed because of this (E).</li> <li>• The rule is that when the drug is firstly commercialised, it can only be branded (there can't be generics) (N).<br/>→ The GPs can only recommend the branded products (E).</li> <li>• NICE (National Institute for Health and Clinical Excellence) has now a more predominant role (N).<br/>→ GPs and the PCTs' practices are conditioned by these. (E).</li> </ul> |  |  |
|  | FUTURE | <ul style="list-style-type: none"> <li>• There will be new norms, different from the current Financial Incentive scheme (N).<br/>→ GP's practice will change because of this (E).</li> <li>• There is an increasing effort to normalise what drugs should be bought (N).<br/>→ This will change GPs practices (E).</li> </ul>  |  |  |

[E]: Exchange Practices  
[R]: Representational Practices  
[N]: Normalizing Practice

**Bold** sections indicate the vector emanatory

**Figure 1: Representation of the UK pharmaceutical drug distribution network Pre-DTP (Single-Wholesaler Manufacturer agreement)**



**Figure 2: Representation of the UK pharmaceutical drug distribution network Post-DTP (Single-Wholesaler Manufacturer agreement)**

