

# Market Analysis

## Networked Healthcare

### Integration through sustainable value creation

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**Abstract** As different stakeholder groups become more interrelated, influence and decision patterns in the healthcare environment change. The authors argue that pharmaceutical companies need to find better ways of integrating into the healthcare network to address present challenges such as issues of public trust and decreasing access to medical professionals. The paper shows the root cause of such challenges to lie in the lack of value created by pharmaceutical companies for the healthcare network as a whole and proposes a framework to measure that value beyond pure financial metrics. Based on concrete examples, an approach for integration into the healthcare network leading to more successful interaction with various stakeholders is presented. Integration is seen as successful if pharmaceutical companies are able to create sustainable value to all relevant stakeholder groups in a balanced fashion.

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#### INTRODUCTION

During the Summer of 2005, employees of a major US pharmaceutical company<sup>1</sup> discovered that a website counselling patients in a specific therapeutic area, operated and maintained by a single individual without any medical background, received eight times more traffic than the homepage of their own blockbuster drug, operated and maintained at a yearly cost of several million dollars by a team including medical professionals.

In the Fall of 2006, the Stanford University Medical Centre announced a new policy denying pharmaceutical sales representatives access to medical school facilities and patient care areas except for very specific occasions under well-regulated conditions. At the same time, doctors were prohibited to accept any gifts from drug makers.<sup>2,3</sup>

The two examples above illustrate how trust in the pharmaceutical industry is being lost and how that trend negatively impacts companies' relationships with their

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customers. Steps have been taken: public relations campaigns, corporate social responsibility initiatives, well-publicised philanthropic activities. So far, these efforts have failed to reverse the flow of criticism. Ultimately, the revenues generated by pharmaceutical companies are not perceived to match the contribution they make to the individual patient and to the healthcare system as a whole.

The lack of success in reversing this perception may be due to the impression that the steps taken so far are mostly ‘cosmetic’. They are performed by departments such as ‘public relations’ or ‘corporate social responsibility’ and are, by nature, decoupled from a company’s commercial operations. Another explanation is that, while the healthcare environment is becoming more networked,<sup>4</sup> pharmaceutical companies are continuing to mainly concentrate on prescribing customers, instead of addressing the whole network of stakeholders. This narrow focus fails to produce a sustainable improvement of the industry perception for two main reasons. First, non-prescribing stakeholders, such as the media, governmental health authorities and patient advocacy groups, have a significant influence on the perception of the pharmaceutical industry. Secondly, that perception is shaped through ongoing

interactions between different stakeholders (prescribing and nonprescribing) within the healthcare network. Improvement will only be achieved by understanding this network, addressing the needs and concerns of all important stakeholder groups, and ultimately becoming a trusted and integrated player of that network (see Figure 1).

This paper is the fourth and last paper of a series dealing with the implications of an increasingly networked healthcare environment for the pharmaceutical sales and marketing function. It presents ideas on how companies can better integrate into the healthcare network through the creation of sustainable value for the network as whole.

## THE CASE FOR INTEGRATION

The disconnect between the pharmaceutical industry and the wider healthcare network becomes obvious when contrasting the industry’s self perception and that of the public. The industry sees itself as a socially responsible provider of innovative products. The public perception, on the other hand, is entirely different. Negative reporting in the media focuses on issues such as questionable R&D practices (eg creation of new illness definitions, partial reporting of clinical trial data, animal testing), poor

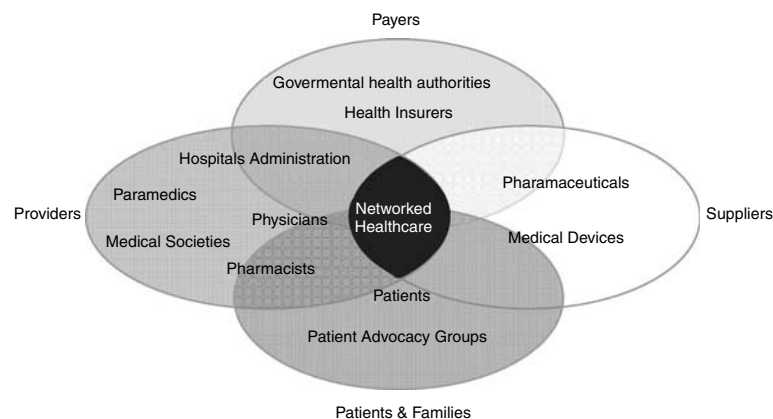


Figure 1: Networked healthcare as driving force of integration.

consideration for the developing world (eg pricing of HIV medication and lack of research in disease areas with low commercial potential), aggressive marketing and sales methods (eg patient manipulation through DTC campaigns, misusing medical journals for marketing purposes), the focus on profitable me-too products instead of innovative drugs, scandals around drug safety and the way pharmaceutical companies deal with adverse events.<sup>5</sup>

Aside from the bad press, there is a deeper 'value disconnect' between pharmaceutical companies and their prescribing and nonprescribing customers. A recent corporate reputation survey conducted on behalf of a pharmaceutical company among its external stakeholders (GPs, specialists, pharmacists, representatives of medical professionals, health insurers, patients, government and opinion leaders) may serve as an example. A clear majority of respondents expected the pharmaceutical industry to play a much more active role in society by sharing knowledge and experience with medical professionals and showing involvement in maintaining quality of healthcare.<sup>6</sup> Indeed, the common perception of many healthcare professionals is that the industry is too focused on 'pushing pills'. Pharmaceutical companies are considered a cost driver, mainly concerned with maximising sales and profit-margins while neglecting the creation of value-adding services around their products, which would ultimately help improve patient outcomes and reduce healthcare costs.

How can this negative perception and 'value disconnect' be overcome? Previous articles in the series on networked healthcare have highlighted the need for pharmaceutical companies to gain a systematic understanding of influence and relationships between the various networked stakeholder groups and individuals.<sup>7</sup> Furthermore, it has been argued

that companies need to re-think their organisations to successfully engage with the healthcare network.<sup>8</sup> With the proper understanding of the network and an organisation aligned to deal with the network, pharmaceutical companies can look beyond their role as a supplier of drugs.

## BALANCED VALUE CREATION

To date, the interests of shareholders have often outweighed those of other stakeholders, such as patients, healthcare professionals and payers.<sup>9</sup> The prevailing financial performance measurements do not generate the incentive for pharmaceutical companies to create sustainable value for the healthcare environment as whole.

There are three main dimensions for which a company creates sustainable value: financial performance (ie in terms of its own profitability), healthcare effectiveness (ie in terms of concrete patient treatment outcomes) and healthcare efficiency (ie in terms of contribution to cost-containment in the healthcare system).

As Michael Porter argues: 'The way to transform healthcare is to realign competition with value for patients. Value in healthcare is the health outcome per dollar of cost expended. (...) As simple and obvious as this seems to be, however, improving value has not been the central goal of the participants in the system'.<sup>10</sup> Building on this view, the lack of value improvement seems to originate from a narrow focus on the main stakeholders of the healthcare system. Taking the network perspective, the main output of the healthcare system must ultimately be 'health', measured and defined in patient outcomes. This perspective, however, needs to be balanced with the cost at which this output is delivered and the profitability levels of all stakeholders operating in the network. Effectiveness in terms of health provided, efficiency in terms of cost of

delivering health and financial performance in terms of profitability of healthcare operations are of concern to all stakeholders of the healthcare network and should be made transparent to all (see Figure 2).

### Healthcare effectiveness

From the perspective of patients and healthcare professionals, healthcare effectiveness is based on the value to health of innovative products sold by the pharmaceutical company. Beyond products, effectiveness is generated when disease-oriented needs are fulfilled and when quality and associated costs are documented in a transparent process. While this poses significant data and measurement challenges, health outcomes are likely to be the key competitive battleground going forward.

Further contributions to effectiveness include the facilitation of knowledge sharing on disease and treatments between healthcare professionals (eg the development of treatment guidelines) as well as the provision of continuous, neutral medical education to doctors in the company's field of excellence. In addition, pharmaceutical companies can contribute to the improvement of effectiveness by supporting physicians to better inform and involve their patients

through different communication and education solutions. For instance, quality assurance programmes jointly developed with payers and healthcare professionals can reduce the amount of incorrect diagnosis, and well-developed disease websites allow patients to have a better understanding of choices and trade-offs associated with given treatment regimens. Mobile technology can be used to enable the physician-patient interaction (eg appointment reminders over text-messaging) and drive compliance (eg medication regime reminders).

### Healthcare efficiency

Today, healthcare systems are confronted with serious financial constraints. These concerns are spreading to all stakeholders in the network, with governments and payers retreating from full coverage, patients becoming more cost-conscious and manufacturers recognising that the market is no longer willing to accept any price. As a result, healthcare efficiency is becoming a critical dimension for all stakeholder groups.

Healthcare efficiency focuses on the impact which pharmaceutical products and services have on the cost of patient treatment and care or the overall effect on costs and savings in the healthcare system.

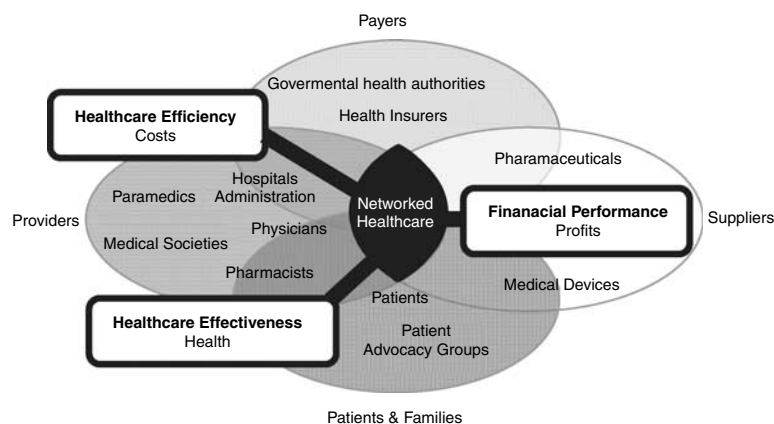


Figure 2: Three areas of balanced pharmaceutical value creation in networked healthcare.

Typically, the stakeholders interested in collaborating to develop potential value propositions in this area are public and private health insurers, governmental institutions responsible for reimbursement issues and hospital administrators aiming for cost-containment to ensure growth and profitability themselves.

Costs of treatment and care with specific pharmaceutical products or therapies need to be made transparent. This information will support payers, governmental institutions and hospital administrators as important additional input for their decision-making processes. First steps in this direction are being made by some companies which announced flexible pricing schemes of their drugs either based on the purchasing power of the treated patients, or on the further clinical evidence they are able to produce during the commercial life of a molecule.<sup>11,12</sup> Increased transparency and the ability to create a common language to effectively communicate value contribution in terms of cost savings will help all partners in the healthcare network.

### Financial performance

Last but not the least, the financial performance of pharmaceutical companies will remain an indispensable element for sustainable value creation — to shareholders, but also to all other groups

who are directly or indirectly affected by a company's activities. Profits are an essential condition to pharmaceutical innovation and its commercialisation. It is, however, suggested that financial performance should not remain the single dimension when it comes to strategic and operational decision making.

In summary, it is proposed to shift from profit-orientation to value-orientation, defined as balancing financial performance with health effectiveness and efficiency. All three dimensions need to be considered by pharmaceutical companies when developing value propositions to address the needs of stakeholders. Communicating these efforts and successes will contribute to re-building the lost trust and address many of the issues the pharmaceutical industry is confronted with today. The challenge lies in how to make this happen.

### AN APPROACH FOR NETWORK INTEGRATION

Integrating into a network of players is a relationship-based process. It is continuous, reciprocal and evolving according to the partners' abilities to meet each others' expectations. Based on these criteria, the approach for integration is shown as a circular process. It consists of three generic phases: value proposition development, stakeholder involvement and value measurement (Figure 3).

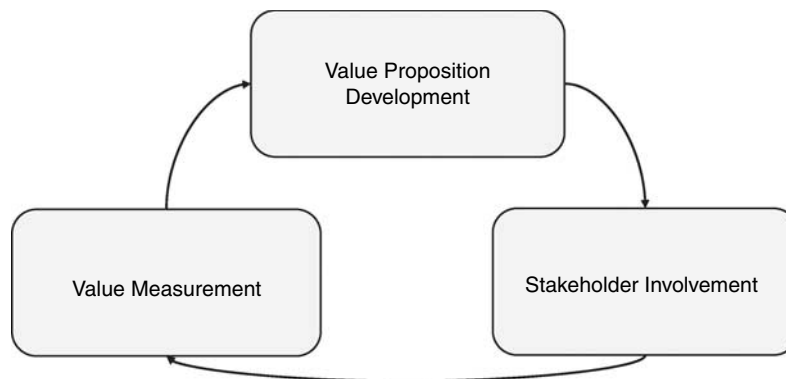


Figure 3: The process of network integration.

Concrete examples will support the explanation of each phase.

first-hand project experiences of the author team.

## VALUE PROPOSITION DEVELOPMENT

As a first step, a company needs to develop value propositions for the stakeholder network based on its strategy. The identified value propositions should be organised based on the stakeholder groups whose needs they will address as well as the value-creation dimensions they will impact (see Figure 4). Based on the stakeholder groups and value dimensions a company may choose to emphasise value propositions need to be prioritised and integrated into the operational planning process.

An illustration of value propositions addressing different stakeholder groups are provided below through two case studies: (A) *Networks of Care* and (B) *Knowledge Brokerage Platform*, which are drawn from

### Case A: Networks of care

Pharmaco is a company selling specialised products in the interventional cardiology setting. In the context of a more networked healthcare environment, in the beginning of 2003, management became aware that traditional marketing and sales approaches focused on brand building and ‘share of voice’ were no longer having an impact. As a part of the ongoing strategic discussion, the role of enabling ‘Networks of Care’ as a possible sales strategy for the organisation became a topic. Networks of Care were defined as ‘groups of external stakeholders, deliberately enabled by a firm and sharing a long-term need to exchange work-related knowledge through online and offline interaction’. In order to understand how such networks could best be supported, Pharmaco performed in-depth interviews with customers all

Key dimensions	Effectiveness	Efficiency	Profitability
Stakeholders			
Payers			
Health Insurers		Value proposition 1 Value proposition 2	
Gov't Health Authorities	Value proposition 1	Value proposition 1	
...			
Providers			
Hospital Admins	Value proposition 1 Value proposition 2	Value proposition 1 Value proposition 2 Value proposition 3	Value
Pharmacists			
Physicians			
Paramedics			
...			
Patients & Families			
Patients			
PAGs			

Figure 4: Prioritisation of value propositions.

over Europe. The company identified the need of medical professionals for more neutral, product-independent interaction possibilities among peers. It also realised that payers needed a better understanding of medical decision-making processes in networks and solutions to optimise the budget allocation process. As a result, several concrete value propositions were developed, such as:

- Small workshops and events organised by the company for physicians around a clearly defined disease-oriented topic often functioning as a springboard for more continuous Networks of Care.
- Facilitation services to help physicians and insurance companies develop reimbursement solutions suitable for hospital networks.
- A virtual library consisting of medical information both regarding own and competitive products, allowing physicians to conduct a targeted search and download files to their computer.
- Online collaboration services providing customers with a platform for virtual interaction with colleagues on a European level.

### Case B: Knowledge brokerage platform

Alpha-Pharm is a specialised pharmaceutical company providing hospital-based drugs. Two of its products are highly innovative and expensive specialty drugs considered as having a life-saving impact. Alpha-Pharm is operating a customer service centre, open for physicians' requests from all over Europe. An assessment of the requests submitted to its customer service centre revealed that many could not be fulfilled. Urgent questions could not be answered immediately by the staff in the customer service centre either because of a lack of medical knowledge or because the discussions were considered off-label. This turned out to be a key challenge as customers perceived the immediate

support of time-critical decisions to be highly important.

Faced with this situation, Alpha-Pharm decided to develop a new platform to address the above challenges by:

- Enabling the direct connection of physicians in need of urgent support with available peers with the required expertise.
- Guaranteeing the urgent delivery of products to any hospital in Europe that would not have the products available on stock.

## STAKEHOLDER INVOLVEMENT

Institutionalising the involvement of external stakeholders in internal processes is an important step in ensuring that the right decisions are taken and the best knowledge and experiences (independently of origin) are leveraged throughout the innovation process.

To improve the quality of decisions and further integration, 'simple' business rules can be implemented. For instance, the presence or opinion of independent physicians, sick fund managers or patients' advocates could be required in business-relevant decisions which have an impact on customers and patients. In addition, companies can develop knowledge-based communities together with stakeholders. In such communities, stakeholders take an active role in the development of a shared knowledge domain and practice.

### Case A: Networks of care

Pharmaco developed its service solution concept for Networks of Care based on a strong involvement of external and internal stakeholders. In the process of developing the new competencies needed to support 'Networks of Care', a cross-functional internal team consisting of sales, medical, marketing and customer-services staff was initiated. Throughout the concept

development process, continuous interaction took place with a group of customers and specialised consultants, who provided feedback and validated the design and functionality of the service offering. Out of this interaction with physicians and other key stakeholders, a variety of Networks of Care types emerged over time. Examples are 'protocol/guideline networks' on a national and European level, 'logistic networks' focusing on the development of joint solutions among different hospitals to transfer patients where the best medical care in these specific patient cases could be delivered, 'round-table networks' where physicians from different specialisation fields could work on specific areas of expertise together and share their different insights, 'quality assurance' networks to validate the impact of different treatment strategies in various reimbursement settings and 'study networks' (eg observational studies, registries) to develop clinical insights to challenges faced in daily practice and not addressed by current research. The strategic initiative resulted in a company-wide ability to initiate and support these different kinds of Networks of Care according to the specific needs of physicians and other stakeholders. Today this ability is widely recognised by various stakeholders and provides the company a sustainable competitive advantage.

### **Case B: Knowledge brokerage platform**

As Alpha-Pharm had identified the need of calling physicians for immediate support in urgent situations, many capabilities, both internal and external to the organisation, had to be activated in order to meet the challenge. Medical expertise from inside the company as well as from customers was required to identify the core issues of healthcare professionals in this specific field and situation. Regulatory expertise

was needed to understand the legal positioning of the service and its related consequences (ie potential liability issues) for the company. Key processes of the information and product delivery services were designed, and service-level agreements with partners defined in order to guarantee a consistent quality. Logistic details were specified internally and with outsourced contractors. In addition, a dedicated technology platform was selected and implemented with the help of external experts in order to guarantee the connectivity between all parties and Alpha-Pharm, allowing the capturing of the different interactions and resulting knowledge.

Within three months, an emergency service platform was designed and a single phone number was implemented, allowing physicians all over Europe to call anytime. Medical connectivity with a peer was guaranteed within 2 min of the first call. Product delivery, if required, was guaranteed within 6 h after the first contact with the call centre.

With the help of its customers, Alpha-Pharm identified specific hospitals in Europe with the expertise and minimal infrastructure (24h/7 days availability, mastering of minimum two languages) to be elected as 'centres of excellence', with physicians serving as medical experts for in-calling peers. In order to foster continuous learning and share best-practices for different cases, an interaction platform between the call centre at Alpha-Pharm and the different centres of excellence was implemented. A continuous quality monitoring system was put in place. The system gathered, structured and reported feedback to the different centres of excellence including an evaluation and quality review of their provided services and a report on the patient outcome.

The internal medical team and a group of physicians of the identified centres of



excellence, as well as Alpha-Pharm's customer service agents needed to be trained on the new connectivity requirement. The whole organisation was instructed to promote the service and provide information material (stickers and flyers with the emergency number) to physicians. When the new service was launched, it was clearly positioned as a strategic initiative meant to fulfil the company's vision of being the partner of choice for its stakeholders providing relevant answers to urgent questions.

## VALUE MEASUREMENT

The final step in the network integration approach lies in a balanced impact assessment of the value created for the various stakeholder groups or the network as a whole according to the three dimensions outlined in the previous sections: financial performance, healthcare effectiveness and healthcare efficiency.

For *financial performance*, key indicators such as sales, revenues and profit, but also productivity ratios such as sales per employee, income per sales and operational expenses per sales remain typical metrics.

The direct sustainable value creation in terms of *healthcare effectiveness* needs to be measured by concrete patient outcomes. These alternative performance metrics could be 'number of lives saved', 'number of patients back to work', 'level of patient mobility', 'level of life quality', etc. The indirect sustainable value creation in terms of healthcare effectiveness is reflected in the services delivered to healthcare professionals, such as physicians, nurses and pharmacists. Alternative performance metrics in this case could be the measurement of concrete efforts in medical knowledge dissemination, the success of efforts in continuous

medical education or the progress of patient-directed prevention and compliance initiatives in the company's therapeutic areas.

The created value in terms of *healthcare efficiency* needs to be measured by alternative metrics such as reduced costs for a certain patient treatment and care process linked to a more efficient drug, a different pricing approach or the provision of additional services supporting stakeholders in the treatment process, the reduction of impairment or the increase in health per dollars invested.

Today's management information systems are not able to deliver most of the above-mentioned performance metrics. Some of the information is available, but not included from an overall performance perspective. Other data can only be gathered and understood with the help of other stakeholders, which requires the necessary stakeholder relationships in the first place. Furthermore, all involved parties need to develop additional expertise in handling, quantifying and evaluating soft factors, such as 'improved health aspects' or 'improved treatment knowledge'.

## Case A: Networks of care

- *Healthcare effectiveness*: Within the first 12 months more than 5,000 patients could be treated according to the 'standard of care', thanks to the logistic infrastructure of the supported networks. More than 600 physicians were interacting on the online service platform, collaborating in virtual meetings, sharing clinical pathways, etc. Eighty-two additional patient lives could be saved during the first two years of the initiative as a direct result of these networks.
- *Healthcare efficiency*: A substantial number of the hospitals involved in the network of care could establish a more transparent basis for budget allocation and as a result the costs

of sub-optimal treatment could be reduced consistently.

- *Financial performance:* Within six months from launch, more than 60 networks of care had been set up and supported Europe-wide, involving more than a thousand customers. A substantial impact on the company's top-line (22 per cent sales increase) could also be demonstrated.

### Case B: Knowledge brokerage platform

- *Healthcare efficiency and effectiveness:* Based on existing clinical evidence, Alpha-Pharm could show that 60–80 additional patient lives had

been saved through the deployment of the service within the first 12 months of launch. During this time, more than 120 life-saving real-time discussions between physicians across Europe were enabled.

More than 30 per cent of them ended with a recommendation not to use the company's own product. All of the conversations were established within 2 min of the incoming call.

- *Financial performance and customer satisfaction:* Within the first year of launch, 15 per cent of the company turnover was generated through the emergency platform. It became a preferred platform for several key customers (pharmacists and department

**Table 1:** Case overview

(A) Networks of care	(B) Knowledge brokerage platform
<p>Value proposition development</p> <p><i>Unmet needs</i></p> <p>Medical professionals: neutral, product unrelated interaction possibilities</p> <p>Payers: better understanding of medical decision-making processes to optimise budget allocation</p> <p><i>Developed value propositions</i></p> <p>Small events organised around a clearly defined topic</p> <p>Virtual library allowing physicians to conduct a targeted search and download files</p> <p>Internet-based interaction and knowledge sharing platform among peers</p> <p>Stakeholder involvement</p> <p><i>Organisational preparation</i></p> <p>Cross-functional team with internal and external resources for design and launch of the service.</p> <p><i>Shared value creation</i></p> <p>Continuous interaction with groups of customers providing feedback and validating the value proposition</p> <p>Value measurement</p> <p><i>Healthcare effectiveness (health)</i></p> <p>5,000+ patients treated according to standard of care thanks to the logistical infrastructure of the supported networks of care</p> <p>600+ customers interacting on the online service platform for more than 2h/week</p> <p>More than 82 additional lives could be saved during the first two years of the initiative</p> <p><i>Healthcare efficiency (cost)</i></p> <p>More transparent basis for budget allocation established with participating institutions</p> <p>Cost of sub-optimal treatment could be reduced consistently in participating centres</p> <p><i>Financial performance (profit)</i></p> <p>Launch of 60 networks within 6 months involving 1,000+ customers</p> <p>22% of sales increase within target networks against standard population (project ROI less than four months)</p>	<p><i>Unmet needs</i></p> <p>In-calling physicians: real-time expert advice for on the usage of the company's drug, off-label</p> <p>Hospital administrations/payers: minimisation of inventory costs for expensive drugs</p> <p><i>Developed value propositions</i></p> <p>Establishing an expert-platform for immediate medical expert connectivity</p> <p>Guarantee urgent (6h) delivery of products to any place in Europe</p> <p><i>Organisational preparation</i></p> <p>Identification of 'Centres of Excellence' by experts</p> <p><i>Shared value creation</i></p> <p>Peer-to-peer feedback in order to ensure and improve the quality of the provided service</p> <p><i>Healthcare effectiveness (health) and efficiency (cost)</i></p> <p>120+ life-saving real-time discussions enabled between physicians.</p> <p>250+ physicians benefited from an expert opinion at the point of decision within 2min</p> <p><i>Financial performance (profit)</i></p> <p>15% of the company turnover generated through the more profitable emergency platform within 12 months</p> <p>Overall increase of customer satisfaction significant to peers and previous years</p>

heads) to make orders. The yearly customer satisfaction survey (run against the two major competitors) showed an improvement of the company's image in all important areas: 20 per cent improvement in the 'level of service', 40 per cent improvement in terms of 'responsiveness' and 15 per cent improvement in terms of 'tailoring information and services'. These were considered leading indicators of the company's capability to outperform its competitors in the market, but also setting new standards in terms of customer centricity within the wider corporation.

Recapitulating the network integration process, both examples show how the core business model of the respective companies is impacted. They also illustrate how the interaction pattern of the companies with some of their key stakeholder groups changes and trust re-gained as a result of value-added solutions developed in a close collaboration process. Table 1 provides an overview of both cases.

## CONCLUSIONS OF THIS ARTICLE AND OUTLOOK

This paper has been part of a series of four papers dealing with networked healthcare. An introductory paper set the stage by stating that the product-driven 'share of voice' business model of the past decades is no longer suited to respond to customer demands in an increasingly networked environment. Economical, technological and social changes lead to increased complexity, with new stakeholders entering the stage, and existing stakeholders gaining more influence. The second paper of the series dealt with the challenge of understanding networked healthcare and provided a practical guide to define, map and understand different stakeholder networks. A third paper provided conceptual ideas

and examples of how companies could adapt their organisations to deal with the implications of networked healthcare.

This last paper provided a concrete approach on how pharmaceutical companies can deal with the implications of a changing healthcare environment by actively integrating into the network of stakeholders. Integration is described as a result of companies' ability to provide value propositions to the network of stakeholders, co-developed in established partnerships with them. Furthermore, the proposal for a more balanced impact assessment of pharmaceutical value creation has been made, introducing three dimensions of measurement: concrete patient outcome (healthcare effectiveness), the costs of treatment and care (healthcare efficiency) and the financial performance of pharmaceutical products and services.

As the proposed balanced impact assessment of pharmaceutical value creation is concerned, the authors envision the development of an industry-wide index, comparing the overall value contribution of companies in specified therapeutic areas to their healthcare environment. Similar initiatives measuring companies' sustainability factors have already successfully been launched and are considered as the first signs of a mind shift towards a more balanced view on companies' overall performance.<sup>13</sup>

It has been the aim of the authors of this paper series to address what is considered a necessary paradigm shift of the pharmaceutical business model, moving from a 'share of voice' model to a customer-centric and patient outcome-oriented 'share of care' model. The pharmaceutical industry has the means to take the leading role in integrating the healthcare network towards competition on patient outcomes, driving collaboration across organisational, institutional and stakeholder boundaries.

To do so will, however, require determination, as first-movers will face resistance from the network, rooted in the legacies of the old 'share of voice' paradigm.<sup>14,15</sup> The concepts and examples provided in this series are merely the start of a longer term transformation process. The concrete examples of pioneering organizations, however, illustrate that substantial changes to the classical pharmaceutical business model are already in motion.

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