Walking a Tightrope: Managing Paradoxes and Tensions between Care taking and Efficiency during IT-enabled Organizational Transformation in a Hospital Group

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Abstract
The healthcare sector in general and hospitals in particular are often portrayed as lagging behind in terms of organizational efficiency. Management is facing the challenge to introduce economic principles to guide the caregiving processes of their organization. Yet, the internal structures of hospitals seldom follow exclusively an economic rationale. Patient care and quality of treatments are core to the ethos of medical personnel. This paper aims for studying the role of management in accommodating stakeholders’ concerns that result from different rationales. We use the introduction of a centralized pharmacy and electronic ordering system in a German hospital (group) as an illustrative case. In doing so this paper portrays the careful maneuvering of management in order to mitigate and overcome the tension between economic and medical logic. It shows how management translates regulatory constraints into accepted rules and mechanisms that facilitate quality of care and productivity at the same time.

1. Introduction
The increasing costs of the healthcare systems in most countries have shaped the public discourse. Healthcare reforms have been geared towards capping further increases of costs and even to reduce costs. A number of areas have been identified as candidates for efficiency gains. They range from enhancing internal processes by introducing principles of business management to rearranging the financial incentives for reimbursement. At the same time the public is concerned about the quality of care. Compromising care is seen as a taboo. Thus, healthcare providers, like hospitals, find themselves in a precarious situation. They are expected to reduce their costs significantly but at the same time this may not result in inferior care delivered to the patient. These two facets of the public discourse are an expression of two rationales that simultaneously hold sway. The tensions arise from apparently contradictory logics of care giving and economic principles.

In hospitals the management faces the external economic pressures that require the implementation of organizational and technological innovations. Yet, the internal structures of hospitals seldom follow exclusively an economic rationale. In this paper we argue that a major challenge for a successful organizational transformation is to achieve a buy-in of stakeholders operating under different rationales.

For medical personnel, the ‘effectiveness’ of the treatment assumes priority over the economic ‘efficiency’ of the organizational process. Patient care is core to the professional ethos and identity of key communities such as doctors, nurses or pharmacists. In this setting, information technology is often heralded as the sword capable to cut the Gordian Knot by reducing costs without sacrificing - or even improving - the quality of care [9]. Yet, only rarely have both goals been achieved simultaneously. The two aforementioned rationales render IT-enabled organizational transformation a precarious undertaking. Furthermore, IT has not been a major factor in the work practices of medical personnel until recently. Hence, the experience as well as a sense of benefits and shortcomings of new technology is limited, leading to potential conflicts when support for such innovation is needed.

The attempt of a larger transformation required for implementing organizational innovations resembles walking a tightrope. It involves intervening in established relationships and working practices of several organizational units. Such interference may be viewed as an encroachment of management or technology on the autonomy of medical personnel. A balance needs to be found between economics, professional responsibility and technological requirements. As such these implementation processes take place in a politically sensitive environment.

This paper sets out to study the role of management in accommodating these tensions. It uses the introduction of an electronic ordering system in a German hospital (group) as an illustrating case. Ac-
ceptance and outcome of a socio-technical design are dependent on management’s capability to translate external (mainly economic) constraints into an adequate internal structure and to achieve a buy-in of the involved stakeholders. By delineating the conflicts caused by the different rationales we are able to study the organizational transformation as a balancing act by management.

The paper proposes to study such innovation processes as a transformation of a constellation of practices [24], which highlights the political dimension and the necessary alignment processes between different communities. The next section provides an overview of the theoretical framework. The third section serves as an introduction to the case and the regulatory as well as economic background. Next, we elaborate on the codes of practice of the different disciplines as proxies for values and principles governing their practices. This is followed by the description and analysis of the organizational transformation. Next, we discuss practical and theoretical implications of our findings before summarizing our findings.

2. Constellation of practices as a theoretical lens

Throughout this paper we use the theoretical lens of practice theory, specifically communities of practice [24]. It recognizes and underlines the distinct logics and identities of the practices of management, doctors, pharmacists, nurses and administrative staff, which are constantly reproduced in daily routines. Wenger [24] contrasts his concept of communities-of-practice (CoP) with the view that regards organizational performance as the outcome of prescriptive modes of change such as engineering efficient processes (ibid, p. 10): “People in organizations contribute to organizational goals by participating inventively in practices that can never be fully captured by institutionalized processes” (ibid, p. 10). Thus a prescriptive, engineering mode of implementation may be detrimental to improving practices and may alienate employees from their workplace. The notion of learning as engagement in joint practices leads Wenger to his concept of communities-of-practice that resides between the individual and the institutional setting. Individuals pursuing joint enterprises over time form communities.

While CoPs constitute the starting point of our analysis, the main focus of this paper is on the interplay between different communities-of-practice (e.g. different wards, different professional roles, hierarchical levels). Individuals may be part of several communities-of-practice at the same time (multi-membership). Such persons are boundary spanners engaging in brokering activities that involve translating meaning from within one CoP to another and facilitating coordination between CoPs. Objects traversing across CoPs serve a similar purpose. They coordinate different (potentially diverging) perspectives on and meanings associated with them across CoPs. The literature commonly refers to them as boundary objects ([20]; [24], p. 106).

In line with Wenger, we propose to conceive an organization as a constellation of practices: an assembly of distinct, yet interrelated practices. Over time boundary practices and boundary objects emerge which shape the constellation. Communities constantly (re-)define their own boundaries and relate to neighboring communities. From this point of view, the overall performance of the organization (designed organization) is dependent on the interlinking of practices in the constellation (lived organization) (cf. [24], p. 241).

This includes the practice of management, which is at risk of interfering with the established interfaces between communities. Management needs to facilitate innovation as productive or constructive tension. New institutional designs need to resonate with the different communities, their goals and their practices.

If we link the role of IT to practice theory, for most practices technology becomes integral part of their routines and thus vanishes into the background. Caretaking practices, e.g., are in the foreground, IT which facilitates administrative functions such as inventory control, replenishment etc. becomes integral part of the practices of caretaking. They are reflected (in the foreground) during periods of transformation or in the case of breakdowns but become transparent and move to the background, or equipment in the language of Heidegger [18], once they have become part of the daily routines.

We propose to study the case of IT-enabled organizational transformation as a struggle to achieve a new alignment of practices over a number of different communities. We conceive IT as an enabler of new organizational designs. Yet its implementation is enmeshed in a number of organizational innovations.

3. The research setting

This section provides background information for our case and introduces the main organizational units. Moreover, it provides an overview of the employed research method.
3.1 The German hospital sector

In Germany, the healthcare reform of 2000 set the path to gradually implementing a reimbursement system for hospital services that is based on diagnosis related groups (DRG) (cf. [17]). At the time decision makers envisioned that the introduction of DRGs would foster competition and enhance the efficiency of processes. It would steer incentive structures towards introducing economic principles in the healthcare sector. Thereby, the increasing costs of healthcare would be capped without compromising the quality of treatments. Since DRGs became mandatory for all hospitals in Germany (in 2009), their management faces the need to gather detailed data on costs associated to specific treatments. Such transparency allows calculating whether incurred costs of a specific DRG are adequately reimbursed. Thus, organizational efficiency along with IT supported accounting procedures is a major field of innovation in the hospital sector.

Pharmaceuticals are a major cost factor in hospitals (cf. [12]). Several hospitals have engaged in redesigning their procurement processes (cf. [13]) aiming for significant cost savings.

3.2 The Medical Logistics Hub at St. Paul’s Hospital

The paper looks at the transformation of a traditional hospital pharmacy at St. Paul’s Hospital (SPH) into a medical logistics hub (MLH) that provides services to an entire group. SPH is situated in a middle-sized city in Germany. It is part of a group of private hospitals and several other care taking facilities spread over north-west Germany. The group’s management is comprised of directors for care as well as administration and is also located on the premises of SPH.

In 2001 SPH joined forces with a major German logistics provider to set up a medical logistics hub in a city 30 km apart. By the end of 2007 the MLH provided services to 18 hospitals and 24 other care facilities. This amounts to a total of 2,500 points of consummation (e.g. wards) that can draw on a catalog comprising 1,350 items and transmitted their orders electronically to MLH.

3.3 Research method

We collected case material across different organizational units. A major source of information has been the management of SPH and MLH. We conducted three extensive tape-recorded, semi-structured interviews, one with the logistics manager of MLH and the others with a manager of the hospital group. In addition we had the opportunity to visit wards, the hospital logistics unit and a community pharmacy associated with the hospital. Thereby, we were able to talk to members of the mentioned organizational units and professions about their daily routines, the use of technology and their perception of the changes. Furthermore, we collected and analyzed secondary sources (presentations, web-pages, annual reports, image-films, and brochures) concerning the transformation.

4. Two logics prevalent in hospitals

For Wenger [24] a community-of-practice necessarily entails not only the formation of shared practices but as an inevitable outcome the negotiation of identities as well. We will use this “profound connection between identity and practice” (ibid, p. 149) to delineate principles that govern single CoPs in a hospital. We take the professional codes of practice as proxies for this purpose.

4.1 The logic of care

While the hospital management is associated with a business perspective, the other communities in the hospitals emphasize professional care taking. We distinguish between communities of the ward (nurses), the hospital pharmacy and doctors. While this list is not exhaustive it reflects communities with a professional ethos of care giving.

**Doctors** act upon a medical rather than an economic rationale. Their task is to diagnose the illness accurately and to prescribe adequate pharmaceuticals to effectively cure it. This is echoed in the vow of the medical profession: “The preservation and restoration of my patients’ health shall be the primary imperative of my actions.” [4]² The evaluation of effectiveness and appropriateness of medications is based on factors such as past experiences, patient or ailment specific factors (e.g. allergies, critical interactions, etc.), published studies and recommendations by colleagues. Doctors enjoy freedom of medication, i.e. they decide which medication needs to be administered to the patient. The effectiveness of the treatment rather than efficiency is their responsibility.³

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1. All names have been altered for anonymity reasons.
2. Own translation.
3. This becomes evident in §2 (2) of their code of conduct: The well-being of the patient is the maxim of their actions. In particular
The Association of Hospital Pharmacists (ADKA) expresses in a similar vein the prevalence of patients’ well-being in their 2011 position paper. The supply of pharmaceuticals is to be organized in a way that the right patient receives the right pharmaceutical in the right dosage, in the right form, at the right time, informed correctly and documented. Thus, a hospital pharmacy not only serves as an instance to procure and stock pharmaceuticals. A major task and legal obligation is counseling nurses, doctors and patients in all aspects of prescribing and administering pharmaceuticals. Their highly specialized training allows pharmacists to identify critical interactions, evaluate medications and review studies conducted to test their effectiveness.

Although, economic viability has been mentioned in ADKA’s statement of goals, it critically reflects on negative implications on choice, procurement and use of pharmaceuticals due to “myopic revenue maximization and cost minimization” [3]. Given their code of practice, hospital pharmacists are supposed to provide neutral counsel and information. Although their professional understanding mentions economic viability of therapies, patient safety and well-being is most critical to hospital pharmacists. Nurses are professionals trained in patient care. They closely interact with the patient. Their code of ethics specifies the promotion of health, the prevention of illness, the restoration of health and the alleviation of suffering as the four fundamental responsibilities of nurses (cf. [8]). “The nurse’s primary professional responsibility is to people requiring nursing care.” ([8] p. 2).

In addition to other duties, nurses administer the prescribed medication to patients and provide feedback to doctors about its effectiveness. Wards typically hold a limited inventory of day-to-day medication. This inventory is mainly under the administration of the nurses. As a collective, they are responsible for stock management. In addition to stock replenishment, they ensure that medication reaching the expiry date is no longer administered to the patient. The proper management of stock-levels or the economic concerns that come alongside inefficient stock management are not part of their ethos. The ICN code of ethics mentions “economic working conditions” ([8] p. 3) but clearly assigns patient care a dominant role. For that purpose nurses rely on a steady and immediate supply of pharmaceuticals in order to stick to the prescribed medication regime. It is the provision of care and the wellbeing of the patients that takes center stage in the profession’s identity.

As the brief overview shows, the logic of care is deeply rooted in the identity of the three professions. At various points this logic resurfaces in the daily practices of the three groups.

4.2 Economic logic and imperatives

The health care systems in many Western countries are riddled with increasing costs. Rising costs and projections of further demographic changes urge policy makers to take initiative and focus on economic principles in the health care sector.

As a result, organizational efficiency along with IT supported accounting procedures emerged as an important field of innovation in the German hospital sector. Given reduced funding, hospitals need to be run in entrepreneurial structures as modern service providers (cf. [23]). The quote illustrates management’s perception of the external pressure on hospitals: “[...] according to politics there is still a potential to save 35% of the costs in healthcare, and they say we could easily achieve that by organizing better.”

Hospital chains and cooperations increasingly take hold in the German hospital sector [5]. The ability to exploit specialization advantages and economies of scale in principal allows mitigating the economic pressure. Realizing these potential benefits is challenging though.

As mentioned before pharmaceuticals but also personnel are the most important cost drivers in hospitals. In 2010 costs for personnel amounted to 60% of the total costs German hospitals incurred. The medical and nursing personnel accounted for 61% of these costs ([21], p. 6).

5. Tensions between care and efficiency

The previous section delineated the core values and underlying logics that govern the perception and practices of different CoPs in hospitals. While different emphasis on quality of care and economic efficiency does not per se translate into conflict, it still bears significant potential for conflict that may ultimately threaten the success of organizational transformation. IT may serve as a remedy for the seemingly conflicting logics, making good care more efficient, yet it may also become a focal point of conflict.
## 5.1 Areas of conflicts and tensions

Juxtaposing the logic of care [14] and the economic logic reveals the tensions between the two.

The obvious targets for reducing costs from an economic perspective are personnel and cost of medication. Both are politically sensitive and easily provoke resistance and skepticism. This is due to different interpretive frames of either of the two rationales.

Price differences for pharmaceuticals with the same active ingredient are significant. Yet, the quality of the medication is not identical and doctors may view the rules about the selection of medication as an encroachment of their medical expertise and professional responsibility towards the patient.

Centralizing a pharmacy and expanding its services to other hospitals as in our case raises the fear of leading also to a reduced the number of pharmacists. Moreover, the increased physical distance renders counseling more cumbersome. A reduction of the professional role of pharmacists to a mere ordering clerk is not in line with their professional identity.

A major organizational transformation that involves a redistribution of competencies and responsibilities may be perceived as a reproach and critique of the quality of work so far.

Imperfect conditions that characterize the daily routines and require constant improvisation by the personnel in order to ensure the best-possible care for the patient gives rise to a rather general area of conflict. Practitioners question the espoused benefits as not being able to stand the test of real life. While the benefits look good on paper, it is doubted whether they can cope with the mundane messiness of daily routines. Care givers need to constantly devise workarounds to ensure a high level of care. Even worse, occasionally they design workarounds in order to meet benchmarks such as waiting times by not admitting patients to the building because this is when the time is taken.6

In section 6 we will show how these general areas of conflict manifested themselves in the given case, perceptions of the different communities and management’s practices of mitigating them.

## 5.2 IT as a potential remedy?

Information technology has been heralded as a remedy for both, quality and efficiency of care. Some would argue: technology in itself is neutral, what matters is the underlying logic driving the design of technology and the processes of integrating technology into the practices of work. This includes innovation and transformation.

From a managerial perspective IT enables some organizational designs that were economically inconceivable beforehand. The expansion of the service area of a hospital pharmacy would not be economically viable let alone profitable if not supported by IT (e.g. facilitating electronic ordering). In addition to its enabling role IT is increasingly used to steer and control organizations. On the one side this is due to its ability to generate and master data. On the other hand IT-enabled organizational processes induce certain behaviors of its users. This reveals a directive form of control.

IT induced efficiency gains are the result of increased transparency, paperless information flows, increased control and reduced coordination cost. Yet, the economic benefit of IT is contested and obviously not simply the result of investment decisions. Pertinent research suggests to look at organizational properties [2] and task level evidence [1].

The provision of care in contemporary hospitals relies increasingly on IT, which supports and enhances the quality of care by providing more transparency and coordination among care givers. Documentation of treatments is accessible via IT, diagnostic methods (e.g. in radiology) require IT and support collaboration among healthcare professionals. Yet, its contribution to increasing quality of care requires a transformation of working practices and embedding technology into the daily routines.

However, only rarely have both goals been achieved simultaneously. On the contrary, there is a plethora of failed IT projects in health care [11].

## 6. Walking the tightrope: Organizational transformation at St. Paul’s hospital

The following case of St. Paul’s hospital group studies how management addressed the cost of medication by introducing a centralized pharmacy and the requisite organizational adjustments regarding logistics, ordering and replenishment of medication. It illustrates and attempts to mitigate the tension between the two logics and achieve active buy-in from the different communities for the organizational transformation.

### 6.1 The economic logic of centralizing the pharmacy

The initiative to create the medical logistics hub started somewhat serendipitous: Even before the

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MLH was built, a hospital from a neighboring county approached the SPH requesting to be serviced by the pharmacy of SPH. Their rationale was primarily based on saving the space required for the in-house pharmacy. Once SPH agreed, other hospitals had similar requests. While in the beginning the demand was met by extending the space in the SPH pharmacy, it soon led to a broader discussion of economizing on the entire procurement process. At the same time, management became aware of potential resistance from within the hospitals. As such the interim solution served as test bed which sensitized the management for problems associated with such processes.

A number of parameters have been identified that drive medication cost across the hospital group.

- **Transparency of costs**
  On a broader level, management was keen to achieve higher levels of transparency with regard to costs and reimbursement. Often the documentation was not sufficient to calculate costs of medicines on a DRG- let alone patient level.

- **Number of different medication**
  The traditional autonomy of the hospitals, specific contracts with manufacturers, and doctors’ freedom of medication yielded a large number of different medications across the hospital group, with significant redundancy in terms of different brands for the same treatments.

- **Price reduction through demand pooling on a limited number of medication**
  Given the extensive and diverse medication lists across the hospitals, procurement processes were fragmented and the scope for demand pooling was limited. Establishing one medication list (mandatory medication catalog) across the hospital group, improved the bargaining position of MLH vis-à-vis the pharmaceutical companies. By coordinating purchases and pooling demands, MLH has been able to procure medication at significant lower prices.

- **Stock level control**
  Inventory management was mainly based on pack replacement. Stock levels and open orders were rarely documented. These practices resulted in duplicate orders and excessive inventory. Since each specialty and ward required a different range of pharmaceuticals they cannot easily swap overstock medication in their respective hospital. Where swapping occurred, nurses did it because other wards require a specific pharmaceutical immediately. It was usually not done because of the expiry date. The layout and storing of pharmaceuticals in the wards was not designed to quickly check the inventory and valid thru dates. Consequently, pharmacies and wards had to dispose of valuable pharmaceuticals because they exceeded the expiry date. Avoiding excessive inventory and out of date medication is an economic imperative.

- **Optimizing logistics**
  Previously, manufacturers and wholesalers had delivered their products to each hospital separately. Nurses and the pharmacists ensured the in-house distribution. Since the establishment of MLH, it has become the only delivery address for suppliers. MLH does the distribution to the hospitals, while the recently established facility management has taken over in-house distribution and has relieved nurses and pharmacists from these tasks.

Table 1 summarizes the economic benefits of a central pharmacy for the hospital group.

| **Table 1: Overview of organizational innovations originating from an economic rationale** |
|---------------------------------|---------------------------------------------------------------|
| **Organizational innovation**   | **Economic rationale**                                        |
| Central pharmacy servicing      | • Economize on space, instruments and human resources        |
| multiple hospitals              | • Economies of scale (I) by bundling joint ordering           |
| IT-support and documentation    | • Reduce waste of medicines by increasing inventory transparency |
|                                | • Reduce duplicate orders making order status transparent    |
|                                | • Enable and support managerial control by allowing to determine economic viability of DRGs |
| Prescriptions based on active   | • Economies of scale (II) by reducing average cost due to larger quantities |
| ingredients                     | • Higher flexibility of procurement increases buying power    |
| Basket-module system            | • Increase transparency of inventory, enable lean replenishment |

### 6.2 Concerns about compromising on quality

As convincing as the economic rationale of the centralized pharmacy (MLH) seemed to be, there were profound concerns that the quality of providing medication could be compromised. Doctors and nurses were afraid that the direct link to the pharmacist for consultation and feedback would be severed. The medical staff was concerned that stock-outs might occur and that medication would not be available in emergency situations. Moreover, doctors were concerned about their freedom to select the best medication.

Management was aware early on that building a centralized MLH would not only require to rethink procurement and delivery processes but it would also need to take into account the implications for the
affected units and their practices. “You wouldn’t imagine how much the people in the units can boycott such efforts, if they don’t want to. [...] the real skill was to get the people on board. [...] You can come up with the best designs, yet [if you don’t get the people on board] they will be dissatisfied.” (Fran, hospital group manager)

6.3 Design and transformation of practices for cost savings and quality

When preparing the transition to the medication logistics hub (MLH), management was acutely aware of the concerns of the medical and nursing staff. They presented their plans early on and solicited feedback. Moreover they emphasized that the quality of medication supply was their primary concern, while they pursued the goal of cost reduction as essential for the viability and sustainability of the hospital. They showed an understanding of the identities of the distinct communities and the linkages between them. We use four practices as an illustration:

- Medication list and the medication committee

In order to exploit the increased buying power of the central MLH a common and significantly smaller list of medications was needed. Management established the hospital group medication committee as a new community entrusted with the task to decide on the medication list. The new, regularly meeting body is comprised of the chief physicians of the SPH group and the chief pharmacist of the MLH. While management refrained from intervening in the exact choice of medication, it established that only active ingredients and not brand names would be included in the list. Furthermore, management set the task of the committee to agree on a reduced list of preferably one type of medication (in terms of active ingredients) for a specific treatment. For exceptions, the members would have to argue with their peers. Doctors would prescribe only items from this list. The pharmacy at the MLH guarantees that pharmaceuticals on the list are always on stock and controls their quality.

To assign the medication committee to the hospital group level was not an evident choice but reflects the attempt by management to establish group level knowledge, decision-making and responsibility with respect to medication, balancing economic necessities as well as medical and pharmaceutical insight. It is thus meant to facilitate the emergence of new practices of knowledge exchange and consensus building among experts in their respective fields. As such it reinforces their competence and scope of action. Yet, at the same time, pharmacists would be enabled to negotiate and exploit price differences yielding opportunities to reduce the cost for pharmaceuticals through coordinated, higher volume purchasing.

- Ordering and stock-keeping in the wards

Two ways of ordering pharmaceuticals from the MLH were put in place in the wards. On the one hand, nurses issue orders via a Web shop. On the other hand, a so-called ‘basket module system’ was installed. Essentially, it consists of a refitting of wards by installing new cabinets with baskets that store the stock of the ward. Each basket has a detachable signal card labeled with a barcode and additional information. Once nurses become aware that stock levels reach the defined minimum stock level for a particular pharmaceutical they would manually reposition the signal cards to a dedicated area in the cabinet labeled “replenishment orders”. The hospital’s facility management staff regularly visits the wards. They scan the barcode on all signal cards in the “replenishment orders” area and reposition them to another “order taken” area. Facility management staff also delivers the pharmaceuticals to the ward and then moves the signal cards back to the baskets.

Before this system was put in place, the required range of pharmaceuticals was agreed and minimum stock levels were calculated based on average consumption rates. This resulted in a customization of the basket-module system for each ward.

The transition to a basket-module system involves the transformation of established practices [6] of stock-keeping and replenishment. Facility management is introduced as a new CoP that needs to interact with wards. The signal cards serve as material tokens for aligning different practices. The order status is visible for nurses across different shifts, even if they don’t communicate directly. Likewise, nurses and facility managers align their practices by communicating the order status via these tokens.

The chosen transformation did not put into question nurses’ ability and responsibility for stock-keeping and replenishment. Yet, a new division of labor between the logistics unit and nurses allows to economize on replenishment activities.

- Receiving of orders and delivery

The orders from the different wards arrive electronically at the MLH where they are consolidated and fed into the commissioning process. A pharmacist controls the commissioned orders and seals the box containing the ordered pharmaceuticals of the ward. Hospitals and other facilities can negotiate service level agreements (SLA), e.g. different terms of delivery. Some hospitals receive up to five deliveries per day while for others (e.g. hospices) three deliveries per week may suffice. The logistics company is in charge of organizing the transport. Urgent medication is delivered by cabs.
This set-up addresses two of the initial objections. First, the individual needs of the wards are addressed by customized SLAs. Second, practices that work around the established process (cab delivery, borrowing from other wards or community pharmacies) are taken into consideration. This supports nurses’ responsibility for constant supply of (urgent) medication.

- Counseling

In order to retain the quality of counseling services to the wards, the pharmaceutical personnel at the MLH has not been reduced. Hospitals and wards have dedicated pharmacists that regularly visit the wards to confer with nurses and doctors. Each ward has specified visiting hours in which the pharmacist is present. Apart from counseling pharmacists also review the stock in the ward on that occasion. In addition pharmacists are available by phone. As a result the overall level of counseling and consultation has been extended rather than reduced.

By concentrating pharmaceutical personnel and expertise at the MLH, management established a new pharmacists’ CoP. While this fosters joint learning and exchange of knowledge, it represents a disruption in regard to existing interactions with wards. Yet, keeping dedicated pharmacists and regular personal meetings between wards and pharmacists mitigates this risk.

7. Discussion

One might read the introduction of the Medical Logistics Hub at St. Paul’s Hospital Group as a story of process redesign. Cost savings have been achieved as a result of extended IT use for procurement and logistics and related organizational changes, namely outsourcing and centralization of services. However, the process redesign view misses two points: a) it does not explain where the design ideas, some of which were less than obvious, came from and b) it does not explain the issue of achieving buy-in across the organization, in particular against the backdrop of the competing logics and indeed identities of different communities across the organization.

In order to address these issues we looked at the management practices and conceptualized the organization as a constellation of communities of practice.

7.1 Management Practices

The management of a private hospital group has to be mindful of the costs the operations incur. They are specifically confronted with ongoing regulatory changes and clearly articulated expectations of government to reduce cost and become more efficient. Yet, the quality of health services becomes more important as competition increases. Patients and their advisors, such as GPs, try to assess the quality and reputation of a hospital before making a choice and there is an increasing number of portals on the Web offering hospital comparisons and quality assessments. Hence, economic considerations are necessary, yet not sufficient.

SPH’s management has pursued a value driven approach, clearly prioritizing the quality of patient care and looking for economic efficiencies as part of a quest for a professional conduct. Moreover, improving efficiency is not primarily seen as a cost cutting exercise but rather a quest to find innovative solutions, which make better use of resources. Outsourcing of the logistics services and related service level agreements, which clearly denote costs, may have enforced a sense of cost consciousness and an appreciation of the value generated. So in essence it is a change of perspective, giving organizational improvements a positive touch of joint achievement and taking pride in quality improvement.

The practices of management resonate with Gosling and Mintzberg’s description [26] of engaging management, facilitating and inspiring the members of the organization to deliver a better service, combining numerous little changes into a profound transformation, finding solutions as a participatory and collaborative effort. By recognizing the professional ethos and its implications, management succeeded to evoke the commitment of the members of different CoPs. The design of the solution explicitly acknowledges and reinforces the medical responsibility and accountability, yet establishes institutional mechanisms (rules, procedures) that are geared towards reduced medication cost.

The Aristotelian concept of prudence (phronesis in Greek, see e.g. [7]) denotes the competence of acting in an appropriate manner, conscious of contingencies. It describes management’s ability to respond to a diverse and conflicting set of requirements, such as regulatory and economic constraints, and to find a balance between economics, professional responsibility, as well as organizational and technological requirements. Moreover, management has conveyed a sense of respect towards the members of the organization and indeed the patients. This sense of respect has become characteristic throughout the entire organization.

This portrays management as a skill in stewarding and enabling the cultivation of practices in which healthcare professionals can engage in care taking.
7.2 Constellations of Communities of Practice

In order to understand the organization of the hospital group we have conceptualized it as a constellation of distinct, yet related and partly overlapping communities of practice (CoP). The central pharmacy, the wards, facility management or the medication committee all have distinct identities and routines. Their achievements are the result of collaboration, coordination and ongoing alignment among the members of the communities but also across the communities. The CoPs facilitate learning and the induction of new members into a practice. Their identities reflect a combination of professional identity and the identity of the community within the hospital (group) [24].

The structural changes have become embedded in new or transformed practices of coordination and collaboration aimed at developing, stabilizing and reproducing routines. Moreover, the communities of practice convey clarity about responsibilities and accountability. This is evident at several instances of the presented case: Pharmacists are positioned as boundary spanners who regularly meet with doctors and nurses in hospitals. Their professional role and obligation to provide counsel is enforced in the chosen design. The medication committee puts the onus on a peer group to devise a list of medication. It underscores and appreciates the expertise of chief physicians as well as pharmacists in choosing effective, high quality medication. Simultaneously, MLH is enabled to exploit economic advantages of centralized procurement.

Boundary objects such as signal cards or the medication list provide links or even bridges across communities and facilitate coordination. The constellation of CoPs and the boundary objects reinforce and reproduce the sense of mutual dependence among the CoP.

At times it is the material nature of the boundary objects which facilitates the embodiment and reproduction of practices. In contrast, the immaterial logic of the medication list (branded medication is identified and referred to by active ingredients) is fragile and occasionally causes break downs, as patients and nurses are struggling with changes of brands even for an ongoing prescription: patients request their medication based on shape and color of pills and nurses have to identify different branded medications as instances of the same set of active ingredients.

In particular during the transformation, management acted as a community steward [25] by facilitating a transformation of the mutual alignment between different CoPs. The ability of the management to align these practices to the overall goals as well as the readiness to learn, adjust, negotiate and compromise is crucial for the success of such transformation processes.

7.3 Information Technology

IT does not feature prominently in our case and analysis despite the fact that it is an important and unquestioned part of the solution. Nurses order electronically, warehousing, inventory management and distribution are supported by information systems as is the medication list. More importantly, IT is used in a cost accounting and the mentioned requirements to document cost per patient and per diagnostic. Overall, these systems have become embedded in the daily routines of the various communities. They are perceived as part of the infrastructure and have de facto moved into the background.

8. Conclusions

Organizational transformation and innovation involves intervening in established relationships and working practices within and across organizational units. Such interference may be viewed as an encroachment of the regulator, management or technology on the autonomy of medical personnel and their ability to deliver the best possible care. Yet, the case of SPH and the establishment of the MLH illustrates a distinct set of management practices geared towards reconciling the conflicting logics of economics of care.

The management of St. Paul’s Hospital showed prudence in the sense that they designed the organizational solution in a way that provided sufficient scope of action and reiterated a sense of accountability of the different communities of practice. This accountability that was based on respect for the competence and logics of these communities. The various communities have been carefully stewarded in adapting old and developing new practices.

Technology is not neutral, rather it can be deployed to support distinct, even opposing logics. In St. Paul’s Hospital, technology is used as a facilitator of organizational change and innovation to support a logic of care under economic constraints: It enables the physical separation of hospital wards and pharmacy without compromising on service level and transparency. It has become part of the organization’s “equipment” and has successfully moved into the background, while the daily practices of caretaking and administration are in the foreground.
9. References


