SenseConsulting (Jente de Vries, Lisanne van Zwol) and Lieke Ruigrok prepared this teaching note under the supervision of Dr. Paolo Perego from the Rotterdam School of Management (RSM) Accounting and Control department and with the guidance of Tao Yue from the RSM Case development Centre. We wish to thank Reinier Feitz (founder Xpert Clinic), Thbyou Mojen (founder Xpert Clinic), Jak Dekker (director Equipe Zorgbedrijven), Kees Ijsselstein (surgeon), Joris Veltkamp (hand therapist) and Harm Slijper (quality innovation manager) at Xpert Clinic for their information and opinions.

This case is based on field research data. It is to provide material for class discussion rather than to illustrate either effective or ineffective handling of a management situation.

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PULSE: QUALITY CONTROL AT XPERT CLINIC

TEACHING NOTE

Synopsis

The field of health care is changing due to a variety of factors, such as rising costs, demographic changes, technological innovation, the introduction of more business-like and market-based principles, and an increased involvement of the media and the general public. Within this context, quality control and quality reporting have become increasingly important to health care providers, governmental institutions and insurance companies, as well as patients. Although there is a general consensus that measuring and monitoring quality is important in health care, there are many different notions about the required characteristics of management control systems for quality and how and for what purposes they should be used. What is quality? How do you measure quality, and how can it be measured in a reliable and valid way? How do you build a system that satisfies the needs of all the stakeholders involved? Who should you involve in building such a system? What impact will the system have on other organizational elements? These are important questions that need to be answered before and during the course of building and implementing a management control system focused on quality.

This case presents the challenges faced by the founders of Xpert Clinic in relation to – among other things – the questions posed above. The clinic was founded in 2008, when Reinier Feitz and Thybout Moojen left the hospital at which they had set up a separate business unit for hand and wrist surgery (HWS). The issue of quality control was very important to them, not only because of their vision about how to organize health care, but also because of the (unfavorable) reputation of Zelfstandige Behandelcentra (ZBC’s: independent treatment centers) and the need for attracting insurers, patients and good surgeons.

This case illustrates the following issues:

- The challenge of building a management control system in a dynamic context, characterized by a great variety of stakeholders with different needs;
- The need for re-aligning the organizational architecture when one of its determinants is changed;
- The challenge of determining how a management control system should be designed, implemented and used and with what purpose, as well as how to deal with the dilemmas that are encountered during this process; and
- The challenges of management control of quality in an environment dominated by ‘professionals.’

Teaching Objectives

This case is situated in the Netherlands, where the health care sector has undergone significant changes in a short period of time, including a shift to a greater emphasis on quality control. It can be used to discuss the issue of quality measurement in general and dealing with a wide variety of stakeholders in building a system. The distinctive feature of this case is that the challenge is presented in a ‘professional’ environment, referring to the community of professionals (i.e. surgeons) that is the main subject of the management control system. The challenge here is about designing, implementing and using the system in such a way that its objectives are achieved. The case exemplifies that building the physical system and objectifying quality might be a necessary, but not a sufficient condition for actual quality control: there is much more to it.

This case serves the following teaching objectives:

1. Understanding how the business environment shapes the business strategy
   - The influence of technology, markets (including stakeholders), and regulation
2. **Understanding how the business environment shapes the organizational architecture**
   - The need for aligning the different elements of the organizational architecture
   - The need for re-aligning the different elements of the organizational architecture when one of these elements is changed significantly

3. **Understanding the complexities of the decision-making process in designing, implementing, using and extending a management control system**
   - Top-down vs. bottom-up processes, resistance and uncertainty, (unexpected) side effects

4. **Understanding the impact of management control systems on professionals**
   - The potential violation of professional autonomy and independent decision-making

**Suitability for Use**

The case is suitable for undergraduate and graduate programs in business administration and health care management. It is also suitable for executive and MBA courses or workshops. The case can be used in courses on management accounting and management control, organizational economics, organizational behavior and change management.

**Data Collection**

The case material is based on in-depth interviews with the two founders of Xpert Clinic (Reinier Feitz and Thybout Moojen), the director of the mother company Equipe Zorgbedrijven (Jak Dekker), a hand surgeon (Kees Ijsselstein), a hand therapist (Joris Veltkamp), and the quality innovation manager of Xpert Clinic (Harm Slijper). The issues are articulated and enhanced for clarity. Furthermore, the case material is based on internal documents of the clinic and publicly available information (e.g., company website). Official authorization from Xpert Clinic was obtained in accordance with our code of ethics.

**Teaching Plan**

**CASE A**

Case A shows the developments from Feitz and Moojen’s first encounter until the moment they founded their own clinic. The case is centered around the business environment in which Xpert Clinic operated. It outlines the stakeholders that were connected to the clinic and how their needs could impact the way in which quality is controlled. The purpose of Case A is for students to explore management control in a professional setting. It touches upon issues such as: What is quality in health care? Why is controlling quality important? What external and internal forces affect quality? How should you attend to the needs of professionals in designing a management control system? How do you evaluate and measure quality? How can you improve quality based on the measurement?

**Questions to prepare students for the discussion:**

Students are expected to read the case and prepare the following questions before joining the plenary discussion. These questions will help familiarize them with the essential details in the case, better understand the issues presented, and gain sufficient background knowledge needed in the discussion. An analysis of these questions will be given during the plenary discussion.

Moreover, students will be assigned articles to read before the class. Our experience shows that without adequate reading in advance, students are not likely to think “out of the box.” They are more likely to see only the face value of the problem presented in the case, and therefore, cannot
make an accurate diagnosis or provide valuable solutions. A list of preparatory articles is included at the end of this Teaching Note.

**Preparation questions:**
1. Can you briefly describe the case? In other words, what are the issues at hand?
2. Why are quality and its measurement considered important at Xpert Clinic?
3. Which factors do you think should be considered when building a quality system?

**Assignment questions:**
4. Map out the different stakeholders in this case. Indicate what their needs are in relation to management control for quality and identify possible challenges of the implementation and use of a management control system with regard to each stakeholder (i.e., Are there any trade-offs?).

**Questions to open the discussion:**

1. Can you briefly describe the case? In other words, what are the issues at hand?

There is a quality control and quality management issue to be examined. Xpert Clinic was faced with having to control quality in a dynamic context, with many different stakeholders involved, each having their own needs. After leaving the hospital unit to build Xpert Clinic, the founders had to prove their quality in order to survive in the market.

**Questions to advance the discussion:**

2. Why are quality and its measurement considered important at Xpert Clinic?

This question can be answered by using the organizational architecture framework of Brickley (2004, 2009). This model illustrates how strategy is determined by the business environment, which consists of technology, markets, and regulation. At Xpert Clinic, the impact of these elements resulted in a focus on quality:

- **Technology:**
  - Sophisticated technologies enabled Xpert Clinic to deliver highly specialized HWS care; it is a technology-intensive practice.

- **Markets:**
  - **Patients/general public:** the public became more critical towards health care organizations. Patients pressured for more transparency and accountability, which increased the need to demonstrate quality.
  - **Competitors:** hospitals and other ZBCs were the main competitors of Xpert Clinic. Traditionally, patients were referred to the hospitals by their GP. To convince GPs to refer patients to Xpert Clinic, demonstrating quality was of major importance.
  - **Surgeons:** Feitz and Moojen soon found that attracting good surgeons (i.e., surgeons specialized in HWS) was difficult. They believed having a good management control system could support them in attracting good surgeons.
  - **Insurers:** due to changes in the regulation of health care, insurance companies became powerful players. Insurers were able to send patients to certain care providers, which were selected, among others, based on quality criteria or costs. Therefore, it was important for Feitz and Moojen to demonstrate the quality of the treatments at Xpert Clinic. Without contracts with the insurers, it would be difficult to attract patients to Xpert Clinic.

- **Regulation:**
  - **Government**
    - **Inspectorate (IGZ):** in the Netherlands, the inspectorate and other auditing institutions played an important role in monitoring the quality of
health care. A negative evaluation by the IGZ could have a significant impact on the future of Xpert Clinic.

- **Health insurance**: the Dutch government implemented rules and regulations that impacted the insurance system. ZBCs were able to get treatments reimbursed through the insurance of their patients.

Although the focus on quality at Xpert Clinic was in large part driven by the business environment, in this specific case, the vision of the founders also played an important role. From the start, both Feitz and Moojen had a very clear vision about quality in health care. For example, they not only emphasized the use of outcome measures and demonstrating health gains, but also the importance of super specialization. Quality became the main strategic focus of Xpert Clinic, and its services were based on super specialization. That meant the main goal was to become the market leader for one specific type of niche treatments. For clinics that delivered a commodity treatment, for example, cost leadership was the most important focus.

3. **Which factors do you think should be considered when building a quality system?**

There are many possible factors that could/should be taken into account when building a quality system, and students may come up with a wide range of factors. To structure the discussion, several topics may be discussed:

- **Objectives**: for what purpose does the organization want to design, implement and use the management control system? Xpert Clinic’s objectives included, for example, being able to demonstrate health gains and making the health care delivery process more client-centered.

- **Measurement levels/variables**: students may make use of the three-level framework of quality in health care, which states that quality can be measured on three levels: 1) the structural level, covering the organization of the health care system such as physical and staff characteristics, 2) the process level, pointing at the interaction between health care providers and users and the provision of clinical care, and 3) the outcome level, which refers to the patient’s health status and satisfaction. This implies that choices have to be made about which variable(s) will be measured and on which level(s). Also, the number of variables has to be considered. Xpert Clinic could consider in the new system, for example, measures on financial performance (level 1), the quality of interaction between surgeons and therapists and their patients (level 2), and the actual health gains after treatment (level 3).

- **Decision-making**: what impact will the measures have on decision making within the organization? Who will be responsible for making decisions? Would the decision rights at Xpert Clinic be distributed differently with the implementation of the new system? For example, would surgeons get more or less decision-making power? Which data will be used for making which decisions, if at all? Would Xpert’s surgeons be evaluated based on the output of the new system?

- **Objectivity**: when designing the system, decisions have to be made about the objectivity of the measures. Are quantitative measures preferred over qualitative measures, or is a combination more suitable and why? Would the new system at Xpert include patient-based evaluations and would financial measures be included?

- **Involvement**: to what extent will the user(s) of the system be involved in its design and implementation? Do they have a say in what the system will look like? What is the impact of working with a community of professionals? Would Xpert involve surgeons in making decisions about the content of the system?

- **Stakeholders**: who are the stakeholders with regard to the management control system and how may they be impacted by this system? What would be the reaction of the insurers that Xpert Clinic was working with/targeting and how would the inspectorate think of the new system?

4. Map out the different stakeholders in this case. Indicate what their needs are in relation to management control for quality and identify possible challenges with regard to each stakeholder (e.g., are there any trade-offs?).
The case provides students with a list of stakeholders, but they may include other stakeholders as well, when considered relevant. The table consists of an (non-exhaustive) overview of the stakeholders’ needs and potential challenges for Xpert Clinic.

Table 1: Overview of stakeholders, their needs and potential challenges

<table>
<thead>
<tr>
<th>Needs</th>
<th>Potential challenges for Xpert Clinic in relation to each stakeholder</th>
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</thead>
<tbody>
<tr>
<td>Surgeons</td>
<td></td>
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<tr>
<td>- Autonomy and professional freedom in decision making</td>
<td>- Surgeons may feel threatened in their autonomy by the management control system</td>
</tr>
<tr>
<td>- Further specialization in terms of skills and knowledge of HWS</td>
<td>- Being professionals, surgeons may not be convinced of the validity of the system</td>
</tr>
<tr>
<td>- Data collected in a management control system can be used for research</td>
<td>- The system may have a different impact on surgeons who work independently and those who work in a professional partnership (maatschap)</td>
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<tr>
<td>- Workload reduction (administrative)</td>
<td></td>
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<tr>
<td>Hand therapists</td>
<td></td>
</tr>
<tr>
<td>- Performance improvement/feedback on performance</td>
<td>- Hand therapists might not feel motivated to use the system if the focus is on surgeons’ work only and when/if it costs additional time to input data (as with the old system)</td>
</tr>
<tr>
<td>- Therapist-patient interaction</td>
<td></td>
</tr>
<tr>
<td>- Workload reduction</td>
<td></td>
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<tr>
<td>- Database to use for research</td>
<td></td>
</tr>
<tr>
<td>Government/IGZ</td>
<td></td>
</tr>
<tr>
<td>- Transparency and accountability</td>
<td>- The IGZ may not be convinced of the validity and reliability of the management control system, or that cost reduction will be achieved as a result</td>
</tr>
<tr>
<td>- Quality assurance/reliability</td>
<td></td>
</tr>
<tr>
<td>- Cost reduction</td>
<td></td>
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<tr>
<td>Insurers</td>
<td></td>
</tr>
<tr>
<td>- Transparency/accountability</td>
<td>- The insurance companies may not be convinced of the validity and reliability of the management control system, or that cost reduction will be achieved as a result</td>
</tr>
<tr>
<td>- Best value for money</td>
<td></td>
</tr>
<tr>
<td>- Quality assurance/reliability</td>
<td></td>
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<tr>
<td>- Cost reduction</td>
<td></td>
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<tr>
<td>Patients</td>
<td></td>
</tr>
<tr>
<td>- Quality assurance/reliability</td>
<td>- Patients may get an information overload if too much data is communicated to them</td>
</tr>
<tr>
<td>- Transparency/accountability</td>
<td>- Patients may not be motivated to use the system if it has no direct personal relevance</td>
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<tr>
<td>- Personal involvement</td>
<td></td>
</tr>
<tr>
<td>Other treatment centers (hospital units, ZBCs, private clinics)</td>
<td>- When Xpert Clinic’s data is publicly available, it may benefit competitors</td>
</tr>
<tr>
<td>- Outperforming others to get contracts with insurers (benchmarking)</td>
<td></td>
</tr>
<tr>
<td>- Attracting patients</td>
<td></td>
</tr>
<tr>
<td>- Attracting surgeons</td>
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</table>

**CASE B**

Case B describes the developments of the PULSE management control system – its design, implementation, and integration into the business operations of Xpert Clinic. The case outlines the hurdles overcome by Xpert Clinic in the development of PULSE. By closely examining the system, students are encouraged to look beyond the face value of the system and discuss whether an advanced management control system guarantees high quality.

**Questions to prepare students for the discussion:**

Students are expected to read the case and prepare the following questions before joining the plenary discussion:
1. How did Xpert Clinic attend to the needs of the different stakeholders? How did they incorporate these needs into PULSE?
2. Describe PULSE by following the three elements of the organizational architecture.

**Questions to open the discussion:**

1. How did Xpert Clinic attend to the needs of the different stakeholders? How did they incorporate these needs into the system?

Table 2 consists of an overview of the different stakeholders involved, and how their needs were integrated into the PULSE system. This analysis demonstrates to students how the strategy that is defined by the business environment (including stakeholders) impacts the design of elements of the organizational architecture (note: the focus here is on the performance measurement system).

**Table 2: Overview of stakeholders and how their needs were integrated into PULSE**

<table>
<thead>
<tr>
<th>Need alignment</th>
<th>Surgeons</th>
<th>Hand therapists</th>
<th>Government/IGZ</th>
<th>Insurers</th>
<th>Patients</th>
<th>Other treatment centers (hospitals, ZBCs, private clinics)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Having access to complete data sets for research, based on standardized measurement tracks and fixed measurement times</td>
<td>- Making the system easy to use, with an attractive interface and clear instructions</td>
<td>- Getting detailed information about both patient satisfaction, surgeon performance and treatment effectiveness</td>
<td>- Getting detailed information about patient satisfaction, surgeon performance and treatment effectiveness</td>
<td>- Having the opportunity to be involved in the treatment process</td>
<td>- Being able to extend the system to other organizations: PULSE is partially open-source, which implies that other treatment centers and health care organizations may use the software as well</td>
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<tr>
<td></td>
<td>- Receiving personal feedback on performance</td>
<td>- Making the process of data registration more time efficient in comparison to the prior quality system</td>
<td>- Integrating a market orientation and business-like principles into the organization</td>
<td>- Integrating business-like principles into the organization</td>
<td>- Having feedback on personal treatment process and recovery</td>
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<td></td>
<td>- Being relieved of an administrative burden by using Therapist Reported Outcome measures (TRO)</td>
<td>- Providing training about how to work with the system and why such a system is important</td>
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<td></td>
<td>- Having a personalized patient page with treatment-specific information</td>
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<td></td>
<td>- Having a practical tool to communicate with patients</td>
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<td></td>
<td></td>
<td>- Receiving quality outcomes of Xpert Clinic through quality reports</td>
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<tr>
<td></td>
<td>(Note: these features could also be useful in attracting new surgeons to the clinic*)</td>
<td></td>
<td></td>
<td></td>
<td>- Making the system user-friendly and easy to use</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Feeling of safety through the 'extreme-value-detection' system</td>
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</tbody>
</table>
2. Describe the management control system for quality of Xpert Clinic by following the three elements of the organizational architecture.

According to Brickley (2004, 2009), the organizational architecture consists of three elements: 1) decision-right assignment, 2) the performance evaluation system, and 3) the reward system. When applied to Xpert Clinic's PULSE system, these elements could be described as follows:

**Decision-right assignment**

By assigning decision rights within a firm, employees are granted authority over the use of the resources within the firm. At Xpert Clinic, decision rights about the primary process (e.g., assigning treatments to patients) are largely delegated to surgeons, as they have the knowledge and information to make those decisions. This is typical for professional organizations. Hand therapists were able to decide on the content of their own treatments, although their decisions were influenced by the surgeons’ input. Other type of decision rights are in the hands of the management team (e.g., Moojen and Feitz). For example, with regard to PULSE, the design and implementation was done in a relatively top-down manner. The management team was also in charge of policy and strategic decisions. The location/brand managers were involved in the performance management of the surgeons.

**Performance-evaluation system**

The performance-evaluation system at Xpert was represented by the PULSE system. Each step of the treatment process was registered and monitored, from operational aspects to patient satisfaction, treatment outcomes and surgeon performance. Surgeons received quarterly feedback based on a PULSE report, and every half-year, they were subject to a performance evaluation interview. Hand therapists were not evaluated by Xpert directly. Their performance evaluation was conducted by their own company. The directors of this company and Xpert would evaluate their collaboration more in general and make adjustments when needed.

**Reward system**

The reward system and the performance evaluation system are designed with the objective of aligning the interests of the decision makers (e.g., surgeons, hand therapists) with those of the owners/top management. These systems should support solving incentive problems (i.e., employees have fewer incentives to use the firm’s resources efficiently). The PULSE system was used predominantly for feedback about individual and collective performance. There were no financial rewards (or ‘punishments’) for surgeons linked to PULSE results. Surgeons were mainly paid based on their treatments. However, surgeons could be fired based on their service and communication performance. When medical quality turned out to be deficient, an educational plan was set up for surgeons and they were involved in peer-based training. In addition, based on performance outcomes, surgeons could be matched to patients and treatments in which they were most competent. For therapists, there were no financial rewards linked to PULSE. For both surgeons and therapists, there were non-financial rewards, for example, workload reduction, the opportunity to design tailored measurement tracks, and the ability to perform studies with the data provided by the system.

**Questions to advance the discussion:**

3. When considering the organizational architecture model (Brickley), to what extent do you think the three elements of the architecture are mutually consistent in the case of PULSE?

The different elements of the organizational architecture are fundamentally interdependent: changing one element without considering changing the other two is typically a mistake. Whereas many changes were implemented with regard to the performance measurement system at Xpert Clinic, relatively few changes occurred with regard to the distribution of decision rights and the incentive system. Traditionally, surgeons were the primary investigators of the quality of their own work – they measured their own quality. This implies that decision rights are within the hands of the surgeons. The PULSE system did not have a significant impact on the distribution of those
decision rights, although these decisions may be partially transferred to the management level (e.g., matching surgeons with particular treatments). In terms of incentives, the most important change was that surgeons would regularly receive feedback on their performance through PULSE reports. Yet there were no financial incentives linked to PULSE.

One factor that may explain the low level of resistance among surgeons is the fact that the founders – being surgeons themselves – were also subject to the PULSE system. This may have sent out the message to other surgeons that all of them were ‘in the same boat.’ Another explanation may be found in the fact that little changed in the incentive system with the introduction of PULSE: the system mainly served as a feedback tool for surgeons. Surgeons mainly used the information for improving their own performance. Finally, the need for surgeons to be direct involved in the use of PULSE was relatively low, since they were not obliged to fill out forms or use the system in communicating with patients. Students may reflect on the question whether the objectives of the management control system will be achieved when the three elements of the architecture are not fully aligned.

Questions to close the discussion (open question):

Case B ends with an overview of the challenges that lie ahead of Xpert Clinic and the future plans for PULSE. To close the discussion, students may reflect on the following question:

4. According to you, what is the most important future challenge for Xpert Clinic with regard to quality control?

There is no standard or correct answer. Students are encouraged to approach this question from different perspectives, including - for example - finance, managing professionals, and stakeholder management.

Costs vs. benefits

The case describes the early development of PULSE and illustrates how the system was extended incrementally with different features and measures. Developing PULSE was very costly, as it had to be developed ‘from scratch.’ On the one hand, using PULSE may result in cost savings, as time is saved by having patients fill out questionnaires at home and by substituting paper questionnaires with web-based surveys. Data analysis based on PULSE measures may also result in insights about how to improve operational excellence. However, there is a trade-off between costs and benefits when considering quality measurement (see Figure 1).

Figure 1: Cost vs. Benefit

![Cost vs. Benefit](image)

Increasing the number of performance measures (or cost drivers) will initially result in significant benefits at a low cost. Additional information will likely have a significant impact on quality improvement. When a high number of performance measures are used, accuracy and benefits may be high, but the implementation costs are considerable, and most of the potential benefits have probably been achieved already. The cost of maintaining this high level of accuracy may be far greater and not have been accounted for. For example, data storage capacity must increase, the datasets must be analyzed and reported, and greater expertise is required to deal with the vast amount of data.

**Decision-making**

When the case ends, Xpert Clinic has finished the first development stage of the PULSE system: its basic functionalities are implemented and the system is up and running. Students might discuss whether and how the system should be used for decision making within Xpert Clinic. What types of decisions could be made based on the output of PULSE? For example, PULSE could be used for deciding which surgeons should perform which treatments, based on their efficiency and treatment outcomes. Do these decisions imply changes in the organizational architecture? And what impact could these decisions potentially have on the surgeons from a professional perspective?

**Managing professionals**

The PULSE team indicated the process of implementing the system was relatively smooth. Although surgeons had to get used to the system, and some were anxious about the implications, it did not seem like surgeons were actively resisting the system. From a professional’s point of view, a system like PULSE might be considered a violation of autonomy and as a demotion of their social status and expertise. From the management team’s point of view, it is difficult to force professionals to use the system, as it is generally not a very effective way of managing professionals. Students may also discuss the involvement of the surgeons in developing the system. Professionals generally are more easily convinced by hard facts than by vague and subjective measures and results. Would surgeons be convinced of the validity and reliability of the system despite their relatively low (mandatory) involvement in its development and use? PULSE was also used to benchmark the performance of surgeons in terms of medical quality and encourage them to learn from others, which results in a considerably different dynamic among professionals. The discussion can be focused on the question whether this will be effective and why.

Other discussion questions about future challenges for Xpert Clinic may include:
- To what extent may users of PULSE ‘game’ the system and manipulate its outcomes?
- Is having ‘the best’ system a sufficient condition for quality control, or is there more to it?

**Conclusion**

This teaching case allows the teacher to discuss the factors that impact business strategy and organizational architecture in the context of health care. Students are put in the shoes of the founders of Xpert Clinic and have to critically reflect on the design, implementation and use of a management control system for quality. In this case, we used an independent health care clinic, but the learning is applicable to other health care organizations and/or professional organizations.

**Background Readings**


