OPEN ACCESS

Research Article

Planning, budgeting and performance management at Swiss hospitals – Are Swiss hospitals at a crossroads – Will these medical specialist organisations in future develop into institutions with a business orientation?

Die Krankenhäuser der Schweiz am Wendepunkt von der medizinischen Expertenorganisation hin zu betriebswirtschaftlich geführten Institutionen? – Untersuchung zu deren Performance-Management-System

Konrad Walser[1]
Etienne Huber[2]
André Meister[2]

1 University of Applied Sciences Bern, E-Government Institute, Bern, Switzerland

2 NOVO Business Consultants AG, Bern, Switzerland

Abstract

This article explores the question of how Swiss hospitals can establish a coherent performance management system with a long term orientation. With the introduction of competitive mechanisms (DRG system) in the new Medical Insurance Act, a business orientation with regard to hospital management has become a key factor for market survival. The present study is based on a written survey of all Swiss hospitals in the German-speaking regions of the country. They were asked about the status quo and the targets for their performance management systems, based on a general maturity model for performance management, adapted for hospitals.

The descriptive evaluation of the data indicates that most hospitals are on the right road. Planning and Controlling are highly matured (in terms of processes), but the strategic importance of an effective performance management system (Reporting, IT integration) is still widely underestimated. Thus most hospitals already have extensive planning mechanisms, but do not give these mechanisms priority when it comes to IT support.

Bivariate analyses (correlation matrices) of the results of the survey show that IT, in particular, plays a central role as a carrier medium or platform for performance management. At the same time, these detailed analyses indicate that (management oriented) hospital planning is the actual driver for the establishment and extension of sound performance management systems. The study shows that well-developed IT infrastructures and clear planning figures will allow for performance management of detailed content.

It should also not be forgotten that a well-functioning performance management system also has an organisational component. It is only when the tasks, skills and responsibilities of hospital management as these relate to business outlook, medical treatment and care are coordinated that hospitals can be managed in a more performance-orientated way.

Keywords: hospital information management, performance management, reporting, planning, controlling, data warehouses, diagnosis related groups

Zusammenfassung

Der Beitrag behandelt die Frage, wie die Schweizer Krankenhäuser ein kohärentes und langfristig ausgerichtetes Performance Management aufbauen können. Mit der Einführung von Wettbewerbsmechanismen

(DRG-System) im neuen Krankenversicherungsgesetz wird die betriebswirtschaftliche Ausrichtung der Krankenhausführung zum Schlüsselfaktor für ein Bestehen am Markt. Die Basis der vorliegenden Untersuchung bildet eine schriftliche Befragung aller Deutschschweizer Krankenhäuser. Diese wurden auf der Grundlage eines Reifegrade-Modells zum Ist- sowie dem Soll-Zustand von deren Performance-Management-Systemen befragt. Das Reifegradmodell wurde für Krankenhäuser angepasst.
Die deskriptive Auswertung der Daten zeigt, dass die meisten Krankenhäuser auf dem richtigen Weg sind. Planung und Controlling haben mehrheitlich einen hohen Reifegrad, indes wird die strategische Wichtigkeit eines wirksamen Performance Managements (Reporting, IT-Integration) vielerorts noch unterschätzt. So verfügen die meisten Krankenhäuser bereits heute über ausgebaute Planungsmechanismen, beurteilen aber die dazu gehörige Informatikunterstützung als nicht prioritär.
Dabei zeigen die bivariaten Auswertungen (Korrelationsmatrizen) der Umfrage, dass gerade der IT als Träger oder Plattform des Performance-Managements eine zentrale Rolle zukommt. Gleichzeitig weisen diese weiterführenden Analysen darauf hin, dass die betriebswirtschaftliche Krankenhausplanung der eigentliche Treiber zum Auf- und Ausbau von leistungsfähigen Performance-Management-Systemen ist. Erst eine gut entwickelte und integrierte IT und klare Planwerte, so zeigt sich ausgehend von der Untersuchung, lassen ein umfassendes Performance Management zu.
Ein gut funktionierendes Performance Management beinhaltet überdies auch eine organisatorische Komponente. Erst wenn die Aufgaben, Kompetenzen und Verantwortlichkeiten im Hinblick auf die Krankenhaussteuerung bezüglich Betriebswirtschaft, Medizin und Pflege aufeinander abgestimmt sind, können Krankenhäuser leistungsorientiert geführt werden.

1 Introduction

The immense increase in the costs of health care in recent years [1], especially the cost of treating patients admitted to hospitals, has necessitated some changes in health care policies. A new medical insurance act was promulgated in 2007, which came into effect on 1 January 2012 after a transitional period [2]. The main reform implemented by this legislation is the introduction of a new form of hospital financing [3], [4]. The system of so-called lump-sum, case-based financing used in Germany has been adapted for use in Switzerland. Thus it is no longer the actual costs but the services rendered as part of basic health care that are financed. In real terms, the services are paid for by standardised contributions that apply throughout Switzerland for each illness (diagnosis-related groups – DRG). These lump sums must be used by hospitals to cover not only the treatment costs but also their operating costs, the costs of non-university education and training and investments. At the same time, a system of free hospital choice was introduced. One of the main objectives of this system change is to provide hospitals with incentives to optimise their service structures, based on the payment of case-dependent lump sums, thus enabling them to keep their costs constant or even to reduce them [4].
It is here that the present study has its starting point. We assume in the following that an optimisation of service structures is only possible if an extended performance management system is in place. While public hospitals were previously content with operating cost transparency (performance measurement), the range of services provided now requires active control (performance management). From an organisational and technical point of view, appropriate management information systems must be provided for control purposes. There are a number of so-called hospital information systems (HIS) suitable for this purpose. These incorporate a dispositive information system (for the actual collection and dissemination of the data) and an operational performance measurement or management system (for the interpretation of the data, e.g. for controlling and reporting purposes; for general, non-hospital-specific information, also see [5], p. 66; [6], p. 291; [7], p. 44; [8], p. 10-21; [9], p. 6; [10]; [11]; [12], p. 669). Simple HIS systems offer electronic processing of individual core processes (e.g. the electronic documentation of patient files) and support processes (such as human resources management or building management). There are also more complex HIS systems that can be used for integrated control of all medical and administrative processes [13]. Either way, comprehensive IT solutions have become an indispensable part of hospital management systems.
Against the background of the need for efficiency created by the new financing system, this article first explores the question of the current state of development of extant hospital information systems at Swiss hospitals – where these go beyond a specific system type, i.e. the actual

Table 1: Controlling functions according to [15] and [19]

Planning function	Controlling function	Reporting function
• Support of material planning • Provision of prognosis, specifications and time information for material planning • Compiling and development of a planning system • Maintenance of planning activities and assistance with planning strategies • Plausibility checks • Coordination and aggregation of sub-plans • Drawing up the overall operational plan	• Conversion of plans to control parameters • Comparison of actual/target to determine the level of target achievement • Defining tolerance limits • Deviation analyses	• The architecture of the information system • Provision of information data to enable control and management of the company • Ensuring the decision- and user-friendly handling of information • Gathering relevant data and creating a decision- and user-friendly system • Provision of decision-making instruments • Advice on the selection of corrective options • Handling of special business studies • Assurance of financial viability of the information system

status, in order to determine to what extent these are capable of creating a hospital information system that will support performance management (target status) and of successful expansion. This article explores current state of performance management at Swiss hospitals and the further developments required, as well as how these could be implemented.

The present article thus first provides an overview of the challenges posed by dispositive information systems in hospitals; based on this, it defines the elements required for operational performance management systems. A survey was carried out in all hospitals in German-speaking Switzerland in the autumn of 2012, with the purpose of obtaining answers to the study questions. A specially developed model to determine the level of development of hospital performance management systems allowed survey participants to specify their current development status and the development stages planned over the next two years (i.e. to autumn 2014). The univariate (descriptive) analyses of the results of this survey provide a general overview of the actual and target status of performance management systems, while the bivariate evaluations (correlation matrices) allow inferences to be drawn on the procedures required to establish and extend performance management systems.

2 Hospital information systems

2.1 Performance management based on an integrated information system

According to [14], performance management may be defined as an ongoing communication process between employees and their supervisors. The purpose of this continuous communication process is to ensure that a company is orientated towards achieving the strategic targets it has set for itself.

According to [15], such a performance management system can be divided into the functions of planning, controlling and reporting. In this case, planning involves the design of a strategy of how something should be done or implemented. Controlling is the comparison of actual and target status, while reporting is the preparation of the required management information. A more detailed description of these three functions is given in Table 1.

The implementation of the three functions (planning, controlling and reporting) takes place in so-called loops, i.e. the sequence of planning, controlling and reporting is repeated each time, with the results of the reporting stage serving as input for further planning.

2.2 The hospital information system as the basis for sound performance management

An important basis for adequate, productive and efficient performance management is an adequate information system, especially in a hospital, where data must be compared and exchanged.

As shown in Figure 1, the information system of a hospital must be able to ensure the collection, processing and transmission of data both within the functional groupings (such as Medicine, Administration, Financial Management, Human Resources, IT, Procurement, etc.) and between departments.

From a hierarchical point of view, the information system must make it possible to collate data in various ways if it is to produce useful management information.

Horizontal data processing, on the other hand, must allow an adjustment of focus. While, for example, the number and diagnosis of patients is the most important information from a medical point of view, it is the cost of medication, treatment, food, etc., that will be most important from a financial point of view. Normally both the vertical and horizontal transmission of information requires the extraction of data from one system and its integration into another system (e.g. via print-outs or Excel lists). These media discontinuities not only constitute a complex and lengthy procedure, but may also result in data quality problems and increase or even cause conflicts. This also

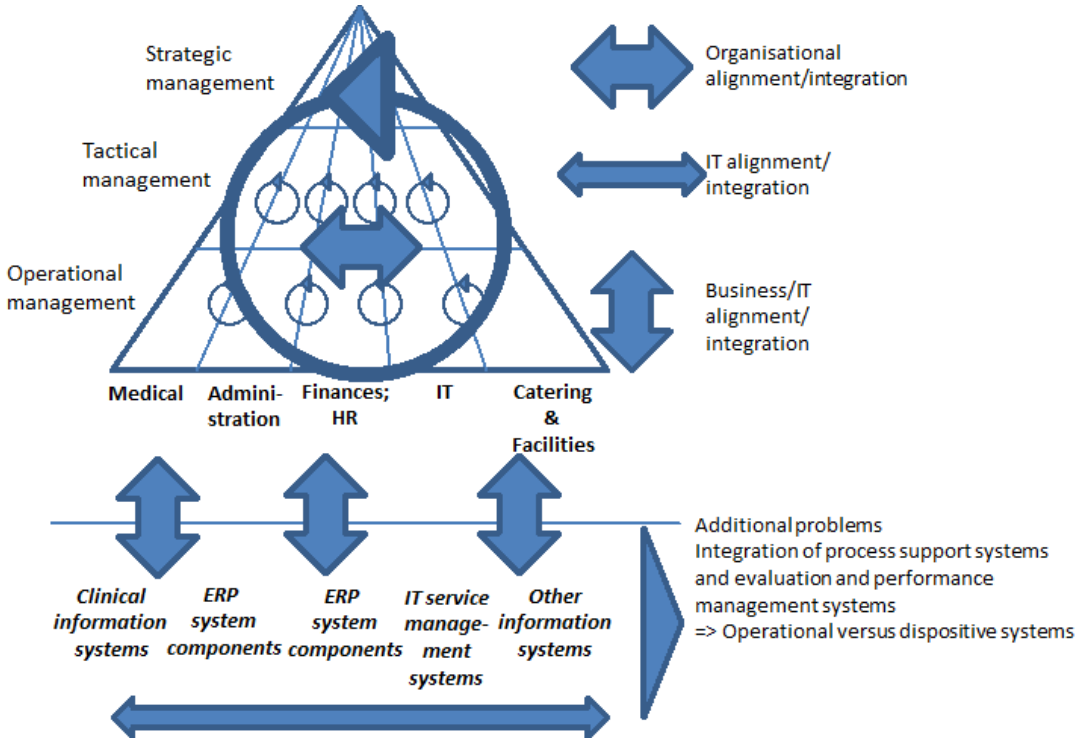

Figure 1: Hospital information system and information reconciliation/integration in the hospital (own figure based on [11])

applies to a situation in which the various departments within one hospital may have very different management structures and corporate cultures. Traditionally, the medical division occupies a dominant position. However, due to the new management objectives, a hospital constitutes an organisation that must be economically managed and increasingly able to withstand competition. Both, explicitly and implicitly, this may repeatedly result in conflicts and thus in interruptions in the information flows or the misinterpretation of data transmitted between the various levels and departments.

A standardised information system with the lowest possible number of media discontinuities (e.g. with a central data warehouse) thus facilitates data transparency and the alignment or integration of the departments into a uniform management system. This is also the case because the exchangeability of data makes it possible to create efficient control circuits at all hierarchical levels.

More detailed IT solutions based on data warehouse systems – in which data are linked with each other according to predefined mechanisms – allow for the static or fairly flexible compilation of reports for certain departments. The so-called OLAP (online analytical processing) technology can also be used to execute multi-dimensional and thus specifically performance management-orientated requests for information. This makes it possible to directly obtain the following key data: Number of cases with 100% cost coverage during the entire last year; number of similar cases during the last half-year for each of the medical departments within the hospital, etc.

Information management will thus be regarded as a support function for performance management from this point onwards. Thus comprehensive methodical performance management comprises the three functions of planning, controlling and reporting, as well as the technical function of IT.

3 Survey and evaluation of results

3.1 Methodical procedure

The survey of the state of development of performance management systems at hospitals was designed and implemented in the form of an online survey of hospitals in German-speaking Switzerland in September 2012. Switzerland has a total of 313 hospitals in all categories and in all language regions. As, for language reasons, the survey was only carried out in the German-speaking region of Switzerland, this reduced the number of hospitals surveyed to 210 institutions, of which it was possible to contact a total of 194 by email. Emails containing a link to the online questionnaire were sent to the CFOs or heads of finance and controlling at these 194 hospitals. Following the first round of emails, a reminder was sent to recipients from whom no response had been received a week later. In total, 69 CFOs or financial heads responded. This is equivalent to a response rate of 35.75%. Almost all the hospitals in major centres responded.

A descriptive overview of the type and size of the hospitals that participated in the survey is provided below. This is followed by an overview of the univariate analysis of the development status of these hospitals, both currently and in two years' time, after which the developments are compared by means of multivariate analyses.

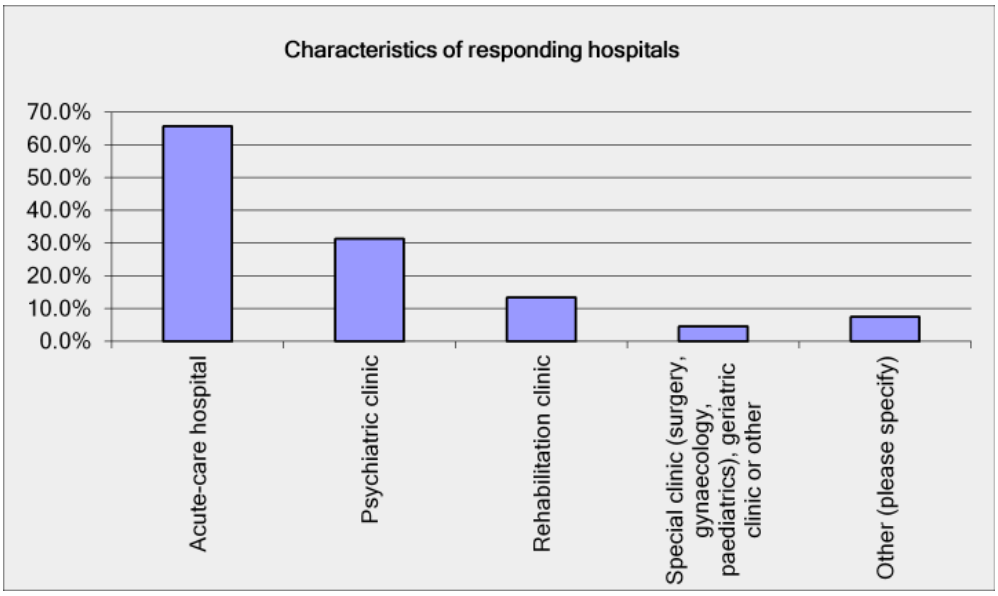

Figure 2: Distribution of responding hospitals in terms of the various classifications, N=69

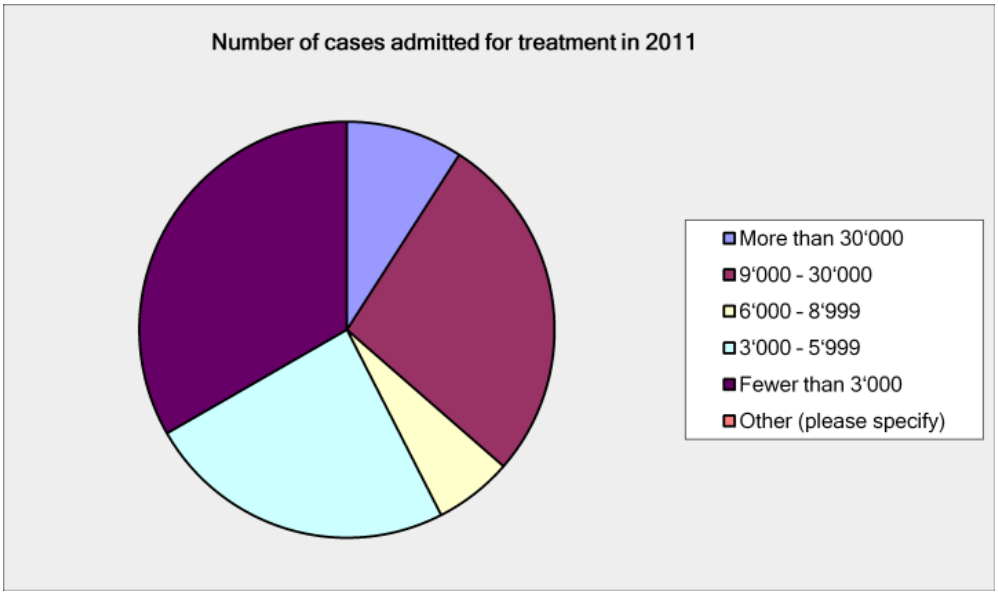

Figure 3: Number of hospital admissions in 2011 for the responding hospitals, N=69

3.2 Bivariate analysis of the current and target situation in hospitals

3.2.1 Types of responding hospitals

The hospitals surveyed are classified in accordance with that used by the Federal Office for Statistics (see [16]; Figure 2). This classification makes a distinction between acute-care hospitals, psychiatric clinics, rehabilitation clinics, special clinics and other hospitals or care institutions. The distribution of survey participants corresponds relatively accurately to the ratios of hospital types in Switzerland. Almost all the hospitals in major centres participated in the survey. Similarly, the number of psychiatric clinics that completed the questionnaire is relatively high. The response rate for hospitals classified as "other", however, was below average. It is assumed, however, that the use of complex performance management systems is not a priority for the management of such special clinics and very small hospitals, possibly because it is too expensive. Thus the results of the survey may be regarded as representative overall.

3.2.2 Number of hospital admissions in 2011 per responding hospital

All the hospitals with around 9,000 hospital admissions in 2011 responded (Figure 3). This corresponds to a full survey among acute-care hospitals.

3.2.3 Overview of the response distributions and individual responses

The questions for the survey were taken from a performance management qualification manual compiled by [17]

and [18] and adapted to the hospital situation. Two questions were asked on each of the four performance management functions, with respondents selecting a response from the development level scale. In addition, respondents were asked to specify their current status of development and the planned development status in two years' time.

A breakdown of questions is provided in Appendix 1 (see Attachment 1). This appendix also lists the corresponding response categories per development level for the total of eight questions (Q1 to Q8), one of which survey respondents were required to tick.

The current and target status for each question is analysed below.

Question 1 – Reporting concept (Figure 4): Apart from financial reporting, 19 of 53 respondents were also familiar with quality reporting (Level 3). Twelve respondents indicated that they were already operating on Level 4, with the inclusion of strategic initiatives and benchmarking operations. It can thus be concluded that there are now several hospitals at each development level in German-speaking Switzerland. When viewing the situation on the basis of the planned extension over the next two years, many hospitals would like to upgrade to Level 5, with a systematic orientation making use of life cycle assessments on reported information (mentioned twice as current and 13 times as target). In comparison with the status quo, there is thus a clear shift from Levels 1–4 to Level 5 (with the greatest increase).

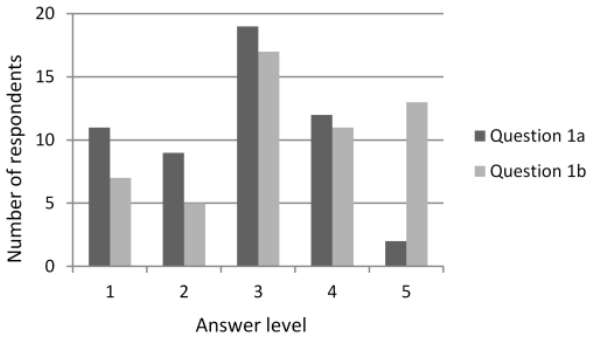

Figure 4: Question Q1 – What form does your hospital's reporting system take?

Question 2 Role of controlling/reporting (Figure 5): The current status of development levels of controlling are distributed over all levels, with the focus on Level 2, which received 14 citations with controlling being cited as the tool for analysing deviations, as well as on Level 4 (controlling as a critical business partner), with 15 out of 52 citations. According to the two-year projected target values, a large majority of hospitals hopes to be operating at Levels 4 (24 citations) and 5 (controlling as the provider of a reporting and analysis factory with 18 citations). Only 10 hospitals indicated that they would remain at Levels 1 to 3.

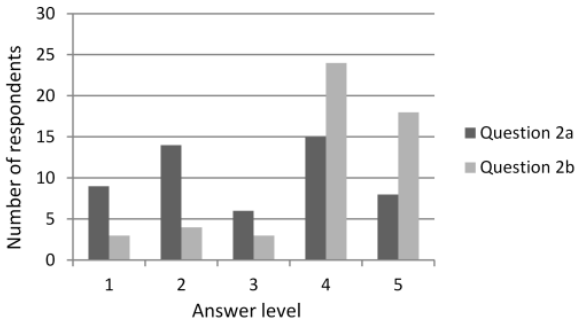

Figure 5: Question Q2 – What role does controlling (medical and financial controlling) play when it comes to reporting?

Question 3 Data warehouse (Figure 6): Manual reporting using Excel (Level 1: 16 citations) without or with data warehouse (Level 2: 12 citations) as well as data warehouses with professional front-ends (Level 3: 13 citations) are currently used by 41 respondents, which corresponds to the great majority of responding hospitals. The greatest increase over two years is expected at Level 3 (+21 citations, thus almost tripling). Another remarkable factor is the change from the current to the target state at Level 5 (increase from 6 to 13 citations in two years), which makes provision for an IT-coordinated DWH and front-end strategy and for government directives on reporting.

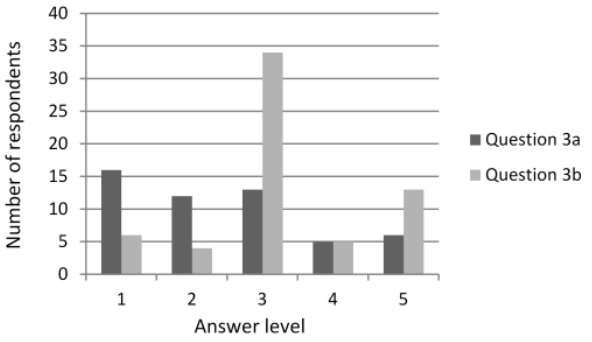

Figure 6: Question Q3 – Does the hospital have a central data warehouse as a central information platform?

Question 4 Role- and level-specific reporting (Figure 7): We can assume that there is currently a relatively balanced distribution of the hospitals surveyed across all development levels. However, a clear extension of the reporting function is planned for the next two years: Standard reports without recipient specification (11 current and 3 target citations), standard reports with role-specific adjustments (10 current and 4 target citations), multi-level reporting with cockpit functions (13 current and 21 target citations) and role-specific standard reports ranging up to ad-hoc enquiry options (15 current and 13 target citations). The change from the current to the target status for Level 5 is relatively pronounced (with time-varied and geographically flexible information provision using mobile terminals), ranging from 2 current citations to 10 target citations.

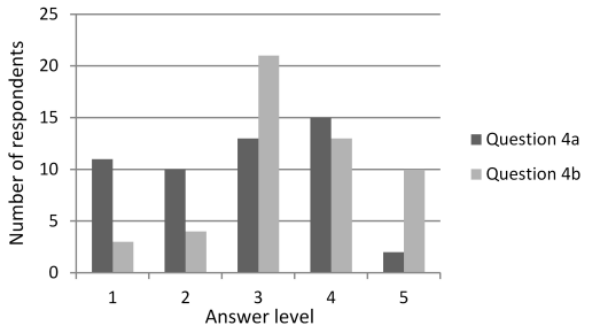

Figure 7: Question Q4 – To what extent is your reporting system targeted to the various roles and levels of its recipient groups?

Question 5 – Hospital planning (Figure 8): The majority of the responding hospitals indicated that they already had a high level of development (Levels 3–4) with regard to their planning instruments and that they would continue to enhance these. Thus 9 of the current 17 hospitals indicated that they aimed at achieving Level 5 in two years' time. The diagram below provides an accurate overview: Level 3: Response category: Planning of finances, services, staff – 12 respondents with current status and 5 respondents with two-year target status; Level 4 Response category: Derivation of operational planning from strategic goals – 16 respondents with current status and 16 respondents with two-year target status; Level 5: Response category: Mostly integrated operational partial planning of finances, services and staff – 17 respondents with current status and 26 respondents with two-year target status.

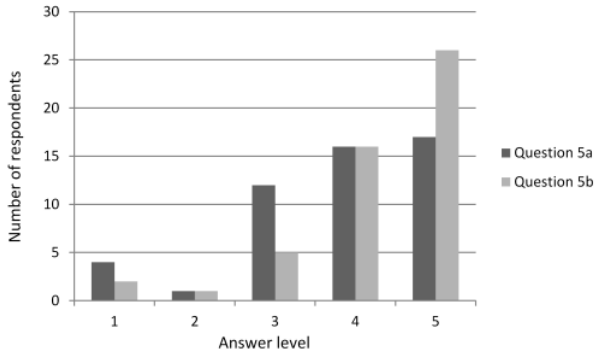

Figure 8: Question Q5 – What is planned at your hospital and how?

Question 6 – The role of controlling in planning (Figure 9): The evaluation of the responses on controlling development levels with regard to planning yielded the following results: The majority of responses indicate that current status is Level 1 (controlling as the point of collection, organisation and validation of data: 19 respondents) and Level 4 (controlling as a critical business partner used to review planning: 24 respondents). The majority of respondents indicated Levels 4 and 5 as their target status (workflow-based planning process: 14 respondents).

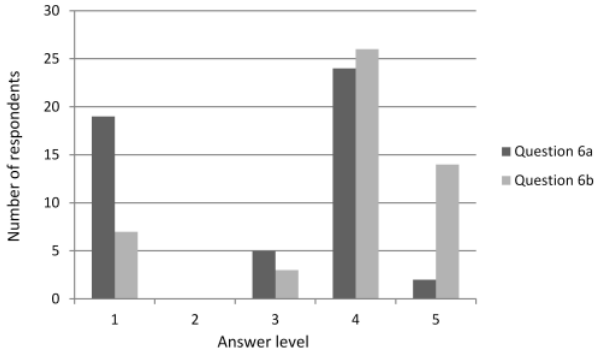

Figure 9: Question Q6 – What role does controlling play in planning?

Question 7 – Use of instruments in planning (Figure 10): The distribution of the responses indicates a backlog in terms low development levels when it comes to using planning instruments (26 respondents cited Level 1 as status in response to the question on reporting and processing data for planning based on Excel). However, a far more balanced picture is obtained in the case of the two-year target status. This resulted in an average of 10.2 citations per level. The maximum number of citations were for Levels 2 (data collection and processing carried out by a central planning system) and 3 (systems technology diagram of integrated financial planning), with each receiving 13 citations.

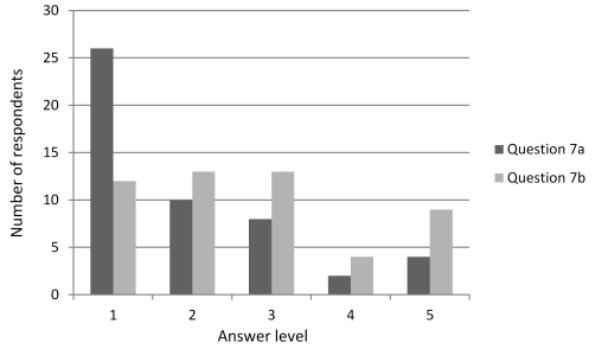

Figure 10: Question Q7 – Which IT instruments are used to support planning?

Question 8 – Quality/cost of planning (Figure 11): Only development levels 1, 3 and 5 were taken into account. The responses with regard to current status indicate a pyramidal distribution profile. Level 3 is the clear front runner (together with current data, planning figures are used by our organisation as a basis for strategic corporate management) with 27 responses. The preceding development Level 1 (time-consuming and error-prone planning processes) received 10 responses in the case of current status, while the highest development Level 5 (in our organisation, IT support reduces costs and increases the quality of planning) received 12 responses. When it comes to the target status, there is a clear shift of responses to Level 5. Thus an additional 16 respondents aim to rationalise and enhance the quality of their planning using IT in over the next two years.

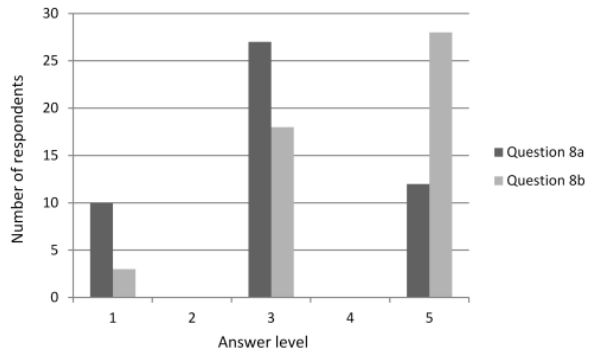

Figure 11: Question Q8 – How do you evaluate the quality and cost of planning at your hospital?

3.3 Interpretation of the results of bivariate analysis

Overall the results for the development levels in performance management and the plans for future expansion in German-speaking Swiss hospitals indicate that planning at most hospitals takes place at a very high level. As far as controlling is concerned, there is still a backlog. In particular, more emphasis should be placed on analysis and reporting factories. Most hospitals indicated that their (mostly static and not very dynamically flexible) reporting system is already at a very high level and is to be further extended with regard to life cycle aspects and assessment flexibility. However, mobile solutions to support planning, budgeting and performance management are neither planned nor desired. In most hospitals, IT planning support remains at the lower development levels. An extension of the data warehouse and the analysis options it offers is rarely planned.
It is also apparent that many hospitals are on very different development levels with regard to the performance management functions of planning, controlling, reporting and IT. This indicates that the motivation for the enhancement of performance management systems can differ from hospital to hospital. The purpose of the following bivariate analysis is to identify these possible motivating factors.

3.4 Bivariate analysis of performance management drivers

Based on the responses received, separate correlation matrices were compiled for the current and two-year target status. Thus any significant correlations between the individual response frequencies can be used to draw conclusions about the interaction between the four performance management functions of planning, controlling and reporting, as well as the IT support process. This makes it possible to determine the potential drivers and impediments to the extension of performance management systems in hospitals.

3.4.1 Results of correlation analysis of the current and target status

The correlation matrices for the current status of performance management development levels (Figure 12) can be interpreted as follows (see also Appendix 3 in Attachment 1).
The first striking aspect is that there is significant correlation in terms of responses to the two questions on planning development levels. This appears logical, but the quality and effort involved in planning increases in line with the scope of planning (the planning types and areas).
In the same way, responses to the two questions about IT maturity in hospitals exhibit significant correlation. This, too, appears to be logical, as it is the extension of the DWH that makes the meaningful use of IT planning instruments possible. In addition, corresponding IT solutions have a positive effect on planning, reporting and controlling.

Planning – Reporting

The extensive correlation of responses to questions Q1 and Q5 indicates that more comprehensive planning will enable more precise reporting. The planning quality/effort also positively correlates with the orientation of the reporting concept. It may be concluded from this that the more accurate the planning (what is planned and how), the more role- and level-specific reporting can take place.

Planning – Controlling

The high correlation coefficients indicate that more extensive planning (what is planned and how versus the controlling role for reporting) is seen as providing for more accurate reporting. In the same way, the extensive correlation indicates that more extensive planning will also allow for more accurate controlling. This link between the development levels of planning and controlling is brought about by the fact that the figures required for controlling can only result from detailed planning.

Planning – IT

The considerable correlation shows that extensive planning (what is planned and how versus the existence of a central data warehouse) is seen as requiring a consolidated data base. At the same time, the planning quality and effort (extension of planning) positively correlates with the existence of a data warehouse. From this it may be concluded that it is assumed that a consolidated database with the corresponding tools will increase the quality of planning and reduce the planning effort required at hospitals. This in turn means that good planning also requires an appropriate, well-integrated IT solution to ensure that the relevant figures do not need to be manually collated and that no media discontinuities occur.

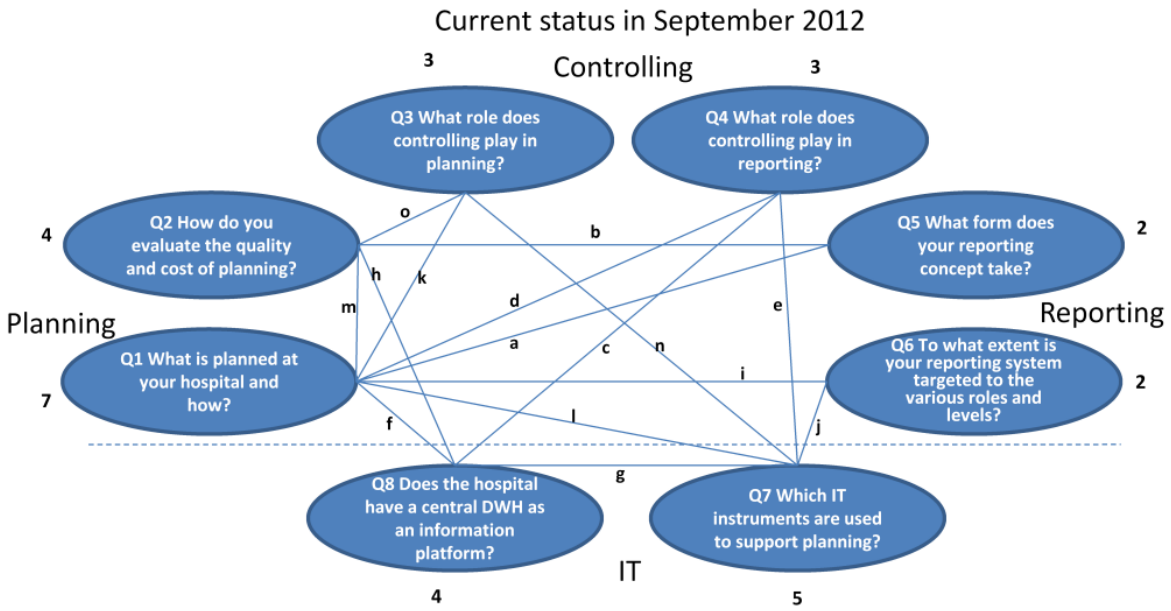

Figure 12: Correlations within the current status 2012 (see Appendix 3 in Attachment 1; for regression coefficient table, values of letters are given and denote significant regression coefficients; numbers indicate the number of significant regression links)

Controlling – IT

On the one hand, the establishment of an extensive controlling system (reporting and analysis factory) correlates with the DWH development level. On the other hand, IT planning support positively correlates with the planning controlling role. It thus follows that the extension of the IT function is a priority when creating an extensive and detailed controlling system.

IT – Reporting

Finally, the extensive correlation between responses to questions Q6 and Q7 indicates that appropriate reporting is seen as requiring sound IT assistance.

The following conclusions may be drawn on the correlation of responses with regard to the target status in two years' time (i.e. two years from the survey date in September 2012) (Figure 13).
Once again it is evident that there is a high level of correlation with regard to responses with regard to planning and IT. Thus it may also be concluded with regard to target status that planning quality and effort are closely linked to the planning scope and that the use of a DWH will still form the basis for the successful use of other IT instruments in two years' time.

Planning – Reporting

In the near future, a more level- and role-specific reporting system for hospitals will positively correlate with planning quality and effort. On the other hand, there are no longer correlations between the content orientation of the reporting system and the planning quality and effort or the level-specificity of the reporting system and planning scope.

Planning – Controlling

An integrated and extensive data warehouse has a positive influence on the planning type and content on the one hand and on the role of controlling in planning on the other hand.
An improved controlling role makes for more differentiated planning with better content at hospitals.

Planning – IT

The development levels of DWH at hospitals correlate positively with more accurate and less cumbersome planning. If an improvement in the quality of planning at hospitals is to be guaranteed with regard to both content and process, this requires according a greater role to IT instruments used for planning.

Reporting – Controlling

The responses with regard to the role of controlling in planning correlate positively with the orientation of reporting concepts. In the widest sense, it may be said that the orientation of reports depends on the planning, thus allowing for differentiated IT support in planning, such as differentiated reports. Differentiated reporting necessitates according a greater role to controlling, which may be explained by the fact that more differentiated controlling organisations also make for more differentiated planning and thus reporting.

Controlling – IT

Good controlling requires a sound IT system. More extensive controlling goes hand in hand with increased development of IT support for planning. High-quality controlling

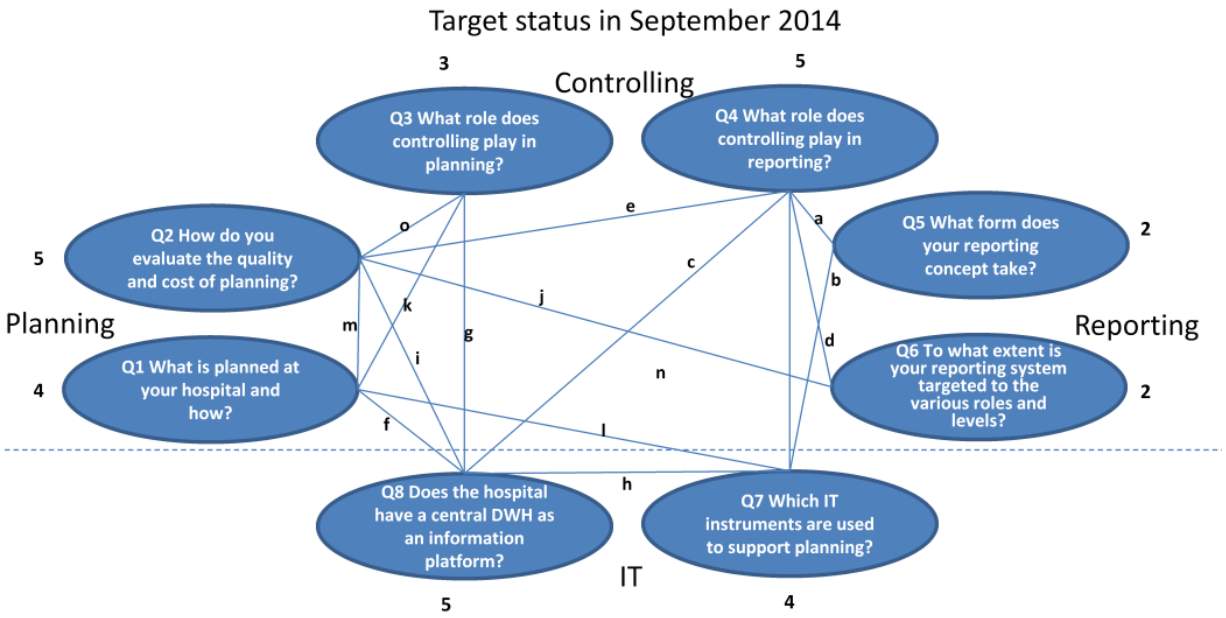

Figure 13: Correlations with the target status in 2014 (see Appendix 4 in Attachment 1; for regression coefficient table, values of letters are given and denote significant regression coefficients; numbers indicate the number of significant regression links)

thus makes better hospital planning possible. Level- and role-specifically differentiated reporting also requires a more differentiated and comprehensive data warehouse.

3.4.2 Conclusions about the results of the correlation matrices

It can be seen that many of the responses to questions about development levels regarding planning, controlling, reporting and IT correlate (something also implied by the development models). However, two clear patterns can be identified when the correlations in terms of current and target status are compared:

1. Extensive planning makes extensive controlling and reporting possible, i.e. planning can act as a kind of trigger for a comprehensive performance management system.
2. Similarly, as far as IT is concerned, it can be concluded that only a well-developed IT concept allows for extensive planning, controlling and reporting activities, which indicates that in this case IT is the carrier medium for all developments in performance management.

However, these extensive (both significant and high) correlations also explain that merely extending the planning and IT system to management is not sufficient when it comes to establish a high-quality performance management system that will be successful over the long term. Thus the controlling activities also need to be verified and adapted to the planning requirements where necessary. On the other hand, care must be taken that optimisation steps (e.g. process optimisations and increased efficiency of treatment paths, etc.) are really implemented. Long-term reporting and reporting on implementation play a particularly important role in this regard.

4 Discussion

First of all, some limitations of the research have to be addressed. Large hospitals are likely to be over represented in the survey since all large Swiss hospitals responded to this survey. This could have led to a bias in the results. However, this bias has not been investigated further. Small to medium-sized hospitals, from an organisational point of view, are more flexible. While larger hospitals generally have more IT resources, they may have more trouble with the different management approaches needed for the medical side of the business and administration. This can make the organisational and technical implementation of a comprehensive performance management system more difficult. These differences in operational, performance and IT-characteristics may influence the results of this survey. However for the purposes of this study it has been assumed from a hypothesis point of view that the intensity of competition has a greater impact on the implementation of performance management systems.

The possible “size” bias will be addressed in further research based on three case studies each investigating a big, medium and small hospital in Switzerland to get a more in depth view of their performance management systems.

The results of the univariate analyses show that hospitals in German-speaking Switzerland are well on the way to establishing or extending their performance management systems. However, the investigation of the development levels of the planning, controlling, reporting functions and IT indicates that data- and figure-based management is often a very fragmented process. It is also not evident that any coordinated improvement of development levels is on the cards in the majority of hospitals studied. Thus, although wide-ranging developments in performance

management instruments have been planned for the next two years, this is often not done with any coordination. Although the bivariate analysis has clearly shown that a coordinated procedure may be useful when developing a system for sound performance management. Thus the planning function can take on the role of a driver, while IT can serve as either a platform or a carrier medium for such developments. One factor that should not be underestimated is the value added by technical integrations aimed at setting up an analysis and reporting factory. The establishment of a performance management system that is effective over the long term thus benefits from increased investment in these two areas. This should, however, not hide the fact that these investments must be coordinated with the actual executive requirements of performance management, i.e. controlling and reporting.

Planning figures that cannot be collected with the available controlling system are just as useless as the compilation of reports that contain no information about the planning and reference figures specified.

An IT-driven process without the corresponding (prior) adjustments in organisation and organisational development should thus definitely be avoided.

The results also indicate that it may not be a good idea to implement (pseudo-)DWH applications (using Excel) that cannot be adjusted for individual or role-specific assessment, due to a lack of data or inadequate data quality and functionality.

Finally, the statements on information management indicate that the operating structures and processes at the hospitals should be viewed in more detail and possibly partially revised; this is because reliable performance management is only possible when the required data for the entire hospital can be collated and compared. There is thus a need for further investigation into the organisational challenges of performance management in Swiss hospitals.

5 Summary and outlook

This article explores the question of the current development status of performance management at Swiss hospitals and the further developments required, as well as how these could be implemented. This analysis was undertaken because the general introduction of lump-sum payments in Switzerland necessitates changes to the hospitals management models if they are to adapt to the new circumstances. Better performance management systems are needed to improve hospital operations and management.

A maturity framework for the evaluation of performance management adjusted to the circumstances of Swiss hospitals formed the basis for an empirical investigation to be performed at these hospitals. Various response categories were defined for between 3 and 5 development levels and these could be selected by the respondents. The survey comprised a total of eight questions about the four functions of planning, controlling, reporting and IT (two questions per function). In addition, survey participants were requested to indicate both the current status (autumn 2012) and the two-year target status (autumn 2014) of developments.

Our research into performance management in Swiss hospitals has led us to make the following observations. The results of univariate analysis of responses show that the hospitals investigated acknowledge their current situation and are investing in the extension of their performance management systems. It is possible, however, that the strategic importance of high-quality performance management is still being underestimated as, to ensure their future competitiveness, the hospitals must establish and extend such performance management systems more rapidly and comprehensively than previously envisaged. It must also be taken into account that performance management constitutes an ongoing process that must be constantly optimised and periodically revised.

The study also shows that there have thus far been very different approaches to the establishment and extension of performance management systems. Additional bivariate analyses have made it clear, however, that the planning function is the driver of performance management on the one hand, while on the other hand IT is to be regarded as the necessary carrier medium for all extensions.

The implications of current organisational or technical facilities at hospitals (such as division into several medical specialisms or coordination between health practitioners, nurses and administrative staff) for performance management did not form part of this study. Because of this, it will be expedient to verify the existing results, for example by conducting semi-structured interviews with representatives of all areas and selected hierarchical levels. Thus further research based on case studies looking into performance management in Swiss hospitals is planned.

From a methodical, content-related and technical point of view, however, the prerequisites for the establishment of integrated performance management systems at Swiss hospitals are already in place. The challenge now is to make use of this promising initial status with as little delay as possible.

Notes

Competing interests

The authors declare that they have no competing interests.

Attachments

Available from
http://www.egms.de/en/journals/mibe/2013-9/mibe000142.shtml

1. Appendices_mibe000142.pdf (145 KB)
   Attachment 1: Appendix 1–4

References

1. Bundesamt für Statistik (BfS). Gesundheitsstatistik 2012. Neuchâtel: BfS; 2012 [cited 2013-01-27]. Available from: http://www.bfs.admin.ch/bfs/portal/de/index/news/publikationen.html?publicationID=5027
2. Schweizerische Eidgenossenschaft. Bundesgesetz über die Krankenversicherung (KVG) vom 18. März 1994. [cited 2013-02-03]. Available from: http://www.admin.ch/ch/d/sr/832_10/
3. Wegmüller B. SwissDRG und neue Spitalfinanzierung. Bern; 22.05.2012 [cited 2013-02-24]. Available from: http://www.hplus.ch/fileadmin/user_upload/Medien/Medienkonferenzen/2012/Deutsch/3_120522_Faktenblatt_SwissDRG_Spitalfinanzierung_D.pdf
4. SwissDRG. Ziele der SwissDRG Einführung. [cited 2013-02-24]. Available from: http://www.swissdrg.org/de/07_casemix_office/Ziele.asp?navid=9
5. Chaudhuri S, Dayal U. An Overview of Data Warehousing and OLAP Technology. SIGMOD Record. 1997;26(1):65-74.
6. Becker J, Holten R. Wirtschaftsinformatik. In: Berndt R, Fantapié C, Schuster P, eds. Springers Handbuch der Betriebswirtschaftslehre. Berlin et al.: Springer; 1998. p. 245-303.
7. Mucksch H, Behme W. Das Data Warehouse-Konzept als Basis einer unternehmensweiten Informationslogistik. In: Mucksch H, Behme W, eds. Das Data Warehouse-Konzept. 3. ed. Wiesbaden: Gabler; 1998. p. 33-100.
8. Chamoni P, Gluchowski, P. Analytische Informationssysteme – Einordnung und Überblick. In: Chamoni P, Gluchowski P, eds. Analytische Informationssysteme. Berlin/Heidelberg: Springer; 1998. p. 3-25.
9. Gluchowski P, Gabriel R, Dittmar, C. Management Support Systeme und Business Intelligence. Computergestützte Informationssysteme für Fach- und Führungskräfte. Berlin: Springer; 2008. pp. 6.
10. Mertens P. Integrierte Informationsverarbeitung – 1. Operative Systeme in der Industrie. Wiesbaden: Gabler; 2009.
11. Mertens P, Meier MC. Integrierte Informationsverarbeitung – 2. Planungs- und Kontrollsysteme in der Industrie. Wiesbaden: Gabler; 2009.
12. Vossen G. Datenbankmodelle, Datenbanksprachen und Datenbankmanagementsysteme. München/Wien: R. Oldenbourg; 1999.
13. Haas P. Medizinische Informationssysteme und Elektronische Krankenakten. Berlin et al.: Springer; 2005.
14. Bacal R. Performance Management. Second ed. New York: McGraw-Hill; 2012.
15. Coenenberg AG, Baum HG. Strategisches Controlling – Grundfragen der strategischen Planung und Kontrolle. Stuttgart: Schäffer-Poeschel; 1992.
16. Bundesamt für Statistik (BfS). Krankenhausstatistik 2010. Neuchâtel: BfS; 2012 [cited 2013-01-27]. Available from: http://www.bfs.admin.ch/bfs/portal/de/index/news/publikationen.Document.153763.pdf
17. Herzog J, Funke C, Winter R, Wortmann F, Marx F. Reifegrade im Corporate Performance Management – Potenziale von Business Intelligence. Zürich: KPMG AG; 2011 [cited 2012-10-14]. Available from: http://www.kpmg.com/CH/de/Library/Articles-Publications/Documents/Advisory/pub-20111201-reifegrade-im-corporate-performance-management-de.pdf
18. Marx F. Entwicklung eines Reifegradmodells zur IT-Unterstützung der Unternehmensführung [Dissertation]. St. Gallen: Hochschule für Wirtschafts-, Rechts- und Sozialwissenschaften sowie Internationale Beziehungen (HSG); 2011 [cited 2013-01-28]. Available from: http://www1.unisg.ch/www/edis.nsf/SysLkpByIdentifier/3970/$FILE/dis3970.pdf
19. Heckert JB, Willson JD. Controllership. New York: 1963.

Corresponding author:
Konrad Walser
University of Applied Sciences Bern, E-Government Institute, Morgartenstrasse 2a/Postbox 305, 3000 Bern 22, Switzerland
konrad.walser@bfh.ch

Please cite as
Walser K, Huber E, Meister A. Planning, budgeting and performance management at Swiss hospitals – Are Swiss hospitals at a crossroads – Will these medical specialist organisations in future develop into institutions with a business orientation? GMS Med Inform Biom Epidemiol. 2013;9(3):Doc14.
DOI: 10.3205/mibe000142, URN: urn:nbn:de:0183-mibe0001429

This article is freely available from
http://www.egms.de/en/journals/mibe/2013-9/mibe000142.shtml

Published: *2013-11-11*