World Academy of Science, Engineering and Technology
International Journal of Economics and Management Engineering
Vol:9, No:7, 2015

Role-Specific Target-Systems in Professional Bureaucracies: A Qualitative Analysis in the OR

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Abstract**—**This paper firstly discusses the initial situation and problems. Afterward, it defines professional bureaucracies and shows their impact for the OR-work. The OR-center and its actors are shown. Finally, the paper provides the empiric design for detecting the target systems of the different work groups within the OR, the quality criteria in qualitative research and empirical results. It is shown that different groups have different targets in their daily work and that helps for a better understanding. More precisely, by detecting the target systems of these experts, we can 'bridge' the different points of view to create a common basis for the work in the OR. One of the aims was to find bridges to overcome separating factors. This paper describes the situation in Germany focusing the Hannover Medical School. It can be assumed that the results can be transferred to other countries using the DRG-System (Diagnosis Related Groups).

Keywords**—**Hospital**,** OR, professional bureaucracies, target systems.

I. Introduction

IT is often discussed and known that people work for and with people, and this has a great impact on their results in hospitals. In the last years, the environment of German hospitals has been marked by cost and competitive pressure [1] and an increase in patient-centered care and activity [2]. The financial situation forces German hospitals to implement cost-reducing measures to improve efficiency. In this context, the planning and control in the operation department are playing a major role. On average 40 % [3] – 46 % [4] of the general expenses for an operative treatment occur on the day of operation. This shows the relevance of the operation department for the hospital's economic success. According to a recent study [5], 91 % of surveyed hospitals say that patient transport has an important role, hence a key role. There is an evident need for action in scheduling, to increase cost effectiveness and to generate competitive advantages [5]. Moreover, it is a fact, that good time scheduling for operations improves the subjective well-being of patients, and thus the image of the hospital, in general, is enhanced strongly [6]. The economic success is the focus of a successful hospital as well as the quality of medical care and employee- and client satisfaction. Referral physicians and patients are perceived as clients [7].

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In this context, the Institute of Standardized and applied hospital Management (ISAK), Medical School Hannover (MHH) in cooperation with the Institute of Production Systems and Logistics (IFA), Leibniz University Hannover have gained a grant from the *"Deutsche Forschungsgemeinschaft"* (DFG). The content of the research project is the development of a model analyzing the transferability of factory planning and organization methods to hospitals, specifically the OR. Practice Partner is the OR-center of the MHH, comprising 40 operation rooms. The MHH has a special position within the higher education landscape in Germany being a university with its own hospital - this is called an integration model.

The research project was divided into five task packets. An essential aspect is the identification of the target systems of the participant actors and the visualization of qualitative impacts and interrelations, which is shown in this paper. To know these target systems is essential for human resource management. The quality of the data acquisition and the analysis of these data will be the basis for the development and further processing of a model. Initially, the organizational framework conditions are introduced, which are very important in this context. According to Mintzberg, hospitals as well as universities are professional bureaucracies [8]-[10]. So, first, the professional bureaucracies and their characteristics will be shown to allow for a theoretical foundation. Afterward, the actors in an OR will be presented, outlining the planned data acquisition as the results of the analysis.

II. Theoretical Background

A. Professional Bureaucracies

According to Mintzberg, a criterion for a professional bureaucracy are the highly skilled "professional experts" working on a high level of specialization in organizations. The experts are allowed a high degree of autonomy, and generally, they show more loyalty and esteem towards their profession than to the organization (predominance of discipline) [11].

In this case, i.e. working in the OR means many experts meet there. On the physician's side, there are anesthetists and representatives of surgery (e.g. trauma and visceral surgery); on the side of care, you find experts in anesthesia, nursing, intensive care medicine and discipline-bound nurses. One of the questions of this research project is to find out who else has an impact on a successful planning and controlling of an OR-center.

Due to the mentioned predominance of discipline every expert wants to ensure that his unit functions, though he is less

interested in overall aims of the organization. Commitment to the organization in general or at least in their area of expertise remains unattractive until their individual career opportunities stay uncoupled from the development of the whole organization. Additionally, the regulations for Ph.D. and postdoctoral lecture qualifications of physicians are of special importance in German university hospitals [9]. This means that there is a high degree of identification with the individual profession, so the expert sees himself more as a representative of his profession than a member of the whole organization [10].

Another attribute of a professional bureaucracy is very present in hospitals. Reference [12] describes this attribute as the lack of integration; describing the lack of cooperation within professional groups as well as interdisciplinary cooperation. In hospitals, there are different administration structures for physicians, nurses, paramedical staff and management. The single employee as an expert has a relatively strong position because of a high individual autonomy which is regarded as an essential condition for working as an expert. This condition is legally defined in the public sector [9].

It should be noted that an expert is someone who gained his professional competence through years of studying and specialization. This leads to the fact that the expert is committed to his profession in point of his professional and ethical standards and is geared to his professional advancement in his specific scientific group [10].

It is known, that the expert takes great efforts and uses his authority to avert restrictive institutional decisions [9].

"Advances in science or treatment are generally more bound to the current questions of research and less to everyday practice in the organization. A characteristic of professional bureaucracy is the contradiction between the classification system within the profession and the social system of the organization. At the level of discipline, many innovations occur which are implemented promptly; there is a high adaptability to new developments. However, the organization in its entirety is rather inert [9]. It is also typical for professional bureaucracies that their members are eager to stand out of the surrounding by their increasing specialization [9], [10].

Against this background, it is most likely, that the role-specific target systems of the involved actors in the OR will not be consistent i.e. oriented to an overall aim. The knowledge of these determining factors is important for a precise data acquisition and analysis process.

B. The OR-Center and Its Actors

The planning and controlling of the OR are confronted with many complex problems completely different from problems of an industrial production. For instance, 30% of all patients are unscheduled and must be treated immediately, i.e. within 8-24 hours [13]. Very often the nature and severity of the disease pattern of incoming patients are unknown as well. The patients compete against each other for e.g. OR-capacities, diagnostics or doctors' time. The focus from a medical point of view is on keeping the patient alive, restoring health or reducing ailments. Moreover, it is essential to increase the efficiency and cost-effectiveness of the OR-process. Another general condition is that many different professional groups, especially doctors of different disciplines are involved who differ in their qualifications, competencies, aims, and motivations during the treatment of patients. The therapy is carried out by medical experts supported by physicians in specialized training. Senior physicians supervise the medical specialists in their area of expertise. The majority of the surgeries are carried out by surgical specialists, complemented where applicable by surgical or anesthetic experts [14]. Therefore, a coordinated scheduling of personnel capacity and other OR-resources, as well as preparation of special surgical devices (e.g. OR-baskets), is required. OR-teams are prime examples of research in team production because of their complementing skills and abilities. It is known from team research that the composition of the team influences the result of the work [15].

III. Study Design

A. Study Design: Acquisition of Role Specific Target Systems

The aim is to find the individual target systems of the involved actors under the determining factor of a professional bureaucracy. Against this background, it is not to expect that the role specific target systems of the involved actors in the OR are homogeneous. Moreover, the actors are pursuing more than one objective in their work. The challenge of the data acquisition is to record the individual target system in its entirety.

The study design was based on a case-study-concept [16]. We chose a qualitative approach in the context of a single-case-study, to focus on the attitudes and perceptions of the involved people, the OR staff. Their everyday knowledge is central to the analysis of the specific field of role specific target systems. This approach has been chosen as qualitative research is a method to show the subject in a holistic way. The data acquisition has been carried out in multiple stages, and the data has been interpreted systematically.

The data were acquired via the Goal-Documentation-Instrument. This instrument is based on three pillars: expert interviews, the utility analysis and card-placement-technique for visualization and the accompanying documentation [17].

For the data acquisition, it was central to consider the diversity of actors in the OR.

By "theoretical sampling" suitable experts will be identified and contacted.

The results have been analyzed with a systematic method of qualitative content analysis [18]. We used the four-pillar-success-model [7], mapping aspects of a successful hospital, as a deductive coding scheme. The four pillars represent the quality of medical care (process, structure and outcome quality), economic dimension, client satisfaction (patients and referring physicians) and employee satisfaction. At a university hospital, there is also research and teaching in

focus.

In this study expert interviews in the form of the Goal-Documentation-Instrument seem to be the most suitable method, because the interviewee as a person is less in focus, but his experiences and interpretations regarding the topic of research. Helpful is an interview field manual to ask all relevant aspects, also giving an orientation regarding the content. Additionally, a possibility is given to compare the interviews. The interview field manual remains open and flexible for an open conversation [19]. Specifically, we asked, "From your point of view, what are your targets in your daily work?".

The method of utility analysis as a part of the Goal-Documentation-Instrument will be used in this research project to develop an image of the different target systems of the involved actors. This approach has the advantage that the opinion of experts as an actor is captured. In comparison to the utility analysis, a questionnaire would only rank the categories. The utility analysis is especially suitable since the statements can be visualized on the spot and assessed by the actors afterward. By marking the single aspects afterward, a comparison of the target balance of the own situation is carried out.

In the research process, we first carried out some pre-test-interviews with experts relating to their individual target systems- They have shown that the execution dependent on the Goal-Documentation-Instrument is feasible.

B. Sample

The interviews took place over a period of four months (15.11.2013-14.03.2014). A total of 65 interviews were conducted with actors from the different work groups (anesthesia, anesthesia care, surgeons, surgical care). Based on the number of FTEs in each area 10 % of staff were interviewed from each group. The interviewees belong to all levels of hierarchy. In addition, interviews were conducted with the medical director, OR-Manager and the director of nursing.

Interviews were conducted by two research associates from the ISAK. Interviews had a duration of 35-60 minutes and took place in the premises of the OR and the clinical departments.

C. Quality Criteria in Qualitative Research

The question of quality assurance comes up in every research project, here in context with the qualitative acquisition of data. However, the question arises what quality in qualitative research means and how it can be proved and documented. It is rather difficult to find a clear answer to this question and the discussions about it are controversial [20], [21]. Reference [20] is unsure if this question can be answered at all because the term of qualitative research is not defined, too. An explicit action guideline has not been implemented to date, but approaches have been crystalized which seem suitable for quality assurance. The three following approaches can be highlighted:

1. Triangulation

By using complementary methods, theories, data or researchers in analysis, lopsidedness, and bias, which adhere to a method, theory, database or an individual researcher, shall be compensated [22]. Originally this practice has been used as an instrument of validation. Currently, there is a discussion that it should be used as a methodical technique leading to a deeper and wider insight as to the object of investigation.

2. Communicative Validation

The aim of the communicative validation is the attunement between the interviewer and the interviewee about the validation of the data and results, i.e. did the interviewer understand what the interviewee told exactly [18], [22].

3. Intersubjective Conformability

The intersubjective conformability of the research process is the prior quality criterion. Thus, the base is set for the assessment of the results. Reference [21] suggests three ways. First, the documentation of the research process is important. Here, in particular, the preconception of the researcher, the methods of collecting data and the method of analysis must be mentioned. This is complemented by the interpretation of groups. This means for example that there will be project discussions with colleagues who are not involved in the work. It refers to the application of codified procedures [22].

The attendant discussion about the approach and interpretation of data with all participants as well as other colleagues can be described as "soft form" of researcher triangulation. Here, in particular, the question arises how many actors of the same role and group of experts should be examined. This multilevel survey method strengthens the data triangulation. The form of visualization, i.e. the card-based method, is the base of communicative validation of the interview process. Especially the precise description of the research process supports the intersubjective conformability and takes, therefore, a special significance in this research.

IV. Results

The first result is that we needed further categories for the coding, though an inductive coding scheme was introduced in addition to the deductive coding scheme. We found out, that in the economic dimension subcategories are necessary:

- material resources
- process organization: structure
- process organization: time
- process outside the OR
- human resources

For the employee satisfaction, we could identify the following subcategories:

- working time
- working atmosphere
- motivation
- stress
- personal development
- communication

In the category client satisfaction, we only found aspects of patient satisfaction, referring physicians were not in focus.

The primary goals of the individual professional groups in the OR differ considerably.

While for the surgeons, the economic dimension (37%) and quality of medical care (34%) is in the foreground; for the anesthetist employee satisfaction (38%) the most important goal followed by factors of the economic dimension (31%) in second place. For both areas of care (anesthesia and surgical), employee satisfaction is clearly in focus (61% surgical care, anesthetist care57%). Both care groups focus on factors of the economic dimension in second place. Fig. 1 shows the priority of the most important subcategories for the different professional groups.

category	subcategory	surgeons	anesthe-tists	surgical care	anesthesia care
quality of medical care	process qualitiy				
	outcome qualitiy				
economic dimension	process organizaton: structure				
	process organizaton: time				
employee satisfaction	working time				
	working atmosphere				
	motivation				
	personal development				
	communicaton				
research and teaching	teaching				
	priority (1 = most important)				
		1	2	3	4

Fig. 1 Visualization of priorities

V. Conclusion

The controlling and planning of OR-centers is not a new topic, particularly due to the commercial relevance in hospitals. For that reason, there is access to a good documentation of technical data in the OR. However, this topic has not been looked at from a human resource and an organizational point of view. The hospital as a professional bureaucracy demands attention for the special frame conditions. The work in the OR is still teamwork. The OR can be regarded as an example of a team production. Team production develops if no separate individual performance can be identified which can be summarized to a total sum. The team result is rather exceeding the sum of the individual performances [23]. It is known that the cooperation of the involved actors is a decisive factor for the effectiveness of the team production [24]. This conception accompanies our project. In this paper, we described the identification of role-specific target systems. The results show that this is an important point, in particular, because of the different foci of the professional groups. Knowing these differences and communicating them will be a first step for optimizing the OR management system. As a result, this project is to improve the OR-performance in the MHH and also to check whether the results can be transferred to other hospitals. The presented paper helps to comprehend the characteristic of the institution hospital, especially the OR staff.

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