Knowledge Management Systems in Polish Public Hospitals – research results and directions of improvement

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Abstract: The paper aims to present the progress in building a knowledge management system in Polish public hospitals and as well as recommended actions improving it. It describes a fragment of the multi-annual research of the author with regard to knowledge management in public hospitals.
According to the research at least 1/3 of the surveyed hospitals are advanced in terms of building a knowledge based system which means it comprises all areas of management as well as applies more advanced methods and procedures of managing the knowledge. The issue of improving knowledge management systems, assuming they always exist even in a chaotic and not well-ordered form, is problematic not only for public hospitals in Poland.
A correct operation of a knowledge management system depends on many factors which makes its implementation and efficient usage extremely difficult. All actions must be carefully thought over and duly undertaken. A team of hospital employees in charge of knowledge management should be appointed and supported with information technologies. Great importance must be attached to building an organization culture encouraging knowledge sharing. Similarly, appropriate relations between particular elements of the knowledge management system operating in a hospital and its environment are vital.

1. Introduction

Knowledge management is of interdisciplinary nature so some people consider it as an independent system and others focus on relations with processes of creating and executing an organization strategy. Representatives of various disciplines argue what knowledge management is and what are its determinants, features and conditions that an organization must meet to

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implement this concept. Trends enumerated and discussed by the literature have a lot in common. In the author's view a pragmatic approach (Linh-Chi 2012: 78-88) towards knowledge management seems to be crucial.

There is no main factor deciding about the final shape of a knowledge management system. Depending on circumstances, there are various elements interacting with different intensity. Some knowledge management systems emphasize the usage of information technology and rather focus on information management rather than knowledge. Others emphasize knowledge sharing or building a permanent education system. There are systems which bet on innovativeness and creativity of employees and subsequently on shaping and using intellectual capital for the purposes of enhancing the market value of an organization (Tabaszewska 2011: 60). Regardless of the knowledge management system accepted by an organization we may say that the necessity of implementing it is affected by factors inside the organization as well as its environment.

Considering the research area of the elaboration, a knowledge management system is understood (Mikuła 2005: 21; Mikuła 2007: 121) as a set of principles, methods, a collection of information, people and a network of mutual relations enabling an organization to accept and pursue knowledge management systems in order to achieve its objectives.

2. Method and results

The paper aims to present the progress in building a knowledge management system in Polish public hospitals and well as recommended actions improving it. It describes a fragment of the multi-annual research of the author with regard to knowledge management in public hospitals (Krawczyk-Sołtys 2013a; Krawczyk-Sołtys 2012a: 155-162; Krawczyk-Sołtys 2011: 407-422; Krawczyk-Sołtys 2012b: 135-148; Krawczyk-Sołtys 2013b: 209-222; Krawczyk-Sołtys 2014: 109-114).

The empirical research was carried out in 65 public hospitals operating in sixteen voivodeships which accounted for almost 13% of all public hospitals in Poland (Krawczyk-Sołtys 2013a: 251-338). While striving for possibly the greatest differentiation of the research sample five criteria were accepted:

1.   the kind of a hospital owner;

2.   the scope of services rendered;

3.   location of the surveyed hospitals;

4.   presence in hospital ranking lists;

5.   possessing a current accreditation certificate.

The distribution of answers to the question about existence of a knowledge management system was symmetric – 51% of respondent's think that such a system exists, remaining 49% think on the contrary. It is worth emphasizing that the knowledge management system in a hospital is of primary nature (Mikuła 2012:24) which means that the basis for its operation has always existed though it may be little ordered, entire and aware and that it must exist in any kind of form for the purposes of designing (redesigning). Respondents indicated the existence of the knowledge management system in their hospital when knowledge management processes or any other related practices were followed.

A knowledge orientation process consists in a gradual transformation of an organization management system until it comprises all management areas including the usage of more and more advanced methods and procedures with regard to knowledge management. One of the key questions concerned more advanced methods and knowledge management procedures; there were five of them (Limański 2008: 182). The first level was indicated by merely 3% of respondents. Knowledge is not systematically gathered and updated and the personnel is not willing to share it. The management staff is not convinced of the importance of knowledge in managing a hospital. The second level was pointed out by 45%. The management staff appreciates significance of knowledge in activities of an organization though it is not a common conviction. Internal sources of knowledge are identified at this level which leads to effective search for knowledge. The third level of advancement in knowledge management where there is full awareness of prominence of knowledge in management was declared by about 32% of the surveyed hospitals. The sources of information and knowledge are identified and verified. Procedures of extracting information and constant evaluation of information sources are applied. The fourth level of was declared by merely 1.5% respondents. This stage implemented an integrated system of methods and procedures for storing and searching information. A significant role is played by strategies for developing knowledge management – strategic knowledge management is advanced. Less than 19% considered knowledge management in their hospitals to be at the highest, fifth level of

knowledge management in hospitals where knowledge is treated as the basis for gaining and maintaining a competitive edge. Methods and procedures for acquiring, creating, storing knowledge constitute a developed system integrated with the hospital management system. The distribution of answers to the question about progression in knowledge management in a hospital may denote an incomplete differentiation of levels third and fifth. This may be confirmed by the smallest percentage of respondents identifying with the fourth level which implemented an integrated system of methods and procedures of creating, storing and searching information conditioning the transition to the next level. This conclusion is confirmed by answers of respondents declaring the highest level of advancement in knowledge management who also indicate the existence of a knowledge management system in their hospitals being on the stage of integration where knowledge management is an integral part of operation processes and knowledge resources are reflected in the value of an organization.

Tiwana (2003: 346-347) perceives this process of creating knowledge management systems as more analytical indicating nine stages of attaining a full and aware knowledge management system.

For the purposes of reaching subsequent stages of building a knowledge management system it is necessary to use instruments of knowledge management which do not allow administration and bureaucratic interference – they have to have a direct character and they meet requirements whose processes of creating and using knowledge contribute to gaining and maintaining a competitive edge. Social and cultural conditions first of all denote employment of highly qualified people as well as developing an organization culture encouraging the usage of people's qualifications for creating new knowledge and active usage of the existing one. Institutional and legal conditions for developing knowledge should favour internal intellectual entrepreneurship involving independent forming knowledge-based ventures by units and teams acting within an organization. Economic conditions first of all include corporate mechanisms for financing processes of creating and using knowledge. The basis for creation and the usage of knowledge is provided by information processes which have to occur in a more advanced information technology environment. Apart from such environment, knowledge cannot be the most productive resource of an organization because through knowledge one strives for gaining and maintaining a competitive edge. An effective knowledge usage is not only about having it, it is more important to gain, store and process it (particularly associating it with various parts of

knowledge) and find it when it is necessary in a useful form (Jemielniak, Koźmiński 2008: 14-16). The value of knowledge as a resource (Pfeffer, Sutton 1999: 83-108) does not depend on its possession but on the scope of its usage for the purposes of completing specific tasks.

Being aware of hospital operation largely dependent on securing patients with health services of high quality and employees with conditions fulfilling their professional ambitions as well as a far-reaching look on the competitive position of the hospital, a strict relation must be emphasised between an organizational structure and knowledge management. Even successful location of knowledge and giving access to it does not secure using it when building or changing procedures, structures, organizational actions or enhancing intellectual property. It happens in organizations whose knowledge was not included in the organizational culture (Grodzicki 2011: 141-142). Respondents indicated the most important element which must be taken into account when targeting an organizational culture on knowledge (Evans 2005: 137). A single answer questionnaire was applied in case of this question (respondents could select one answer only). Most respondents (36%) considered thinking capital of key importance in their hospital, namely conditions encouraging new ideas and a free flow of knowledge resources which is one of basic elements of knowledge management philosophy. 25% were in favour of the ability of handling complexity, resistance to stress related to insecurity and readiness to act under defined circumstances as well as joint responsibility – maintaining relevant controlling mechanisms while securing people the freedom of experimenting and developing in agreement with others. Over 11% admitted significant importance to the teaching culture meaning as readiness to help others reflected in human relations and ways of hospital functioning. The smallest percentage of respondents pointed to diversity of attitudes to solving problems encountered by the hospital.

Then for the purposes of defining the stage of progression in building knowledge management systems in public hospitals respondents were asked to define the stage of its advancement; there were five of them to choose (Strojny 2004: 14). The first one, chaos – there is no connection between knowledge and goals of the hospital and the usage of knowledge in practice is of informal and random nature- 11% of respondents thought this way. ¼ indicated awareness as a phase in building a knowledge management system characterised by conducting pilot projects in knowledge management as well as awareness of the need of using it intensively in hospital functioning. The knowledge management system on the stage of being directed (the correlation between procedures and tools used in managing knowledge and benefits for the

hospital is noticeable) was pointed out by the biggest number of respondents, namely 35%. The last two stages of building this system comprise all management areas i.e. the usage of more advanced methods and procedures of knowledge management. In every tenth surveyed hospital respondents indicated the management phase when the hospital is equipped with implemented procedures and tools of managing knowledge however it encounters technological and cultural problems; 20% considered the knowledge management system in their hospital to be on the stage of system integration where knowledge management is an integral part of operational processes and knowledge resources are reflected in the value of the organization. To sum up, the knowledge management system operates in practice in hospitals which were located in the last group of answers.

Due to the fact that the knowledge management system is created out of sub-systems completing its functions and tasks (Soo et al., 2002: 137), respondents were asked to prioritise these sub-systems in terms of their importance to the knowledge management system in a hospital (applying the scale from 4 to 1 points). The highest number of points was scored by the transfer sub-system meaning the transfer of knowledge between employees contributing to creation of new knowledge (196) and data bases enabling co-workers to share information and knowledge as well as to create their sets (163). Then a sub-system of connections network was indicated namely absorption of information and knowledge both from internal as well as external sources, on the formal and informal levels – 152 points. The least importance was attached to the sub-system of organizational language which through codifying knowledge of one's own into data and decoding information from databases enables employees to understand the state of affairs in verbal and non-verbal communication processes – 140 points.

In the knowledge management system it is essential to have a set of mutual connections: personnel, methods, principles and resources as well as a set of information which allows for implementation of knowledge management strategies, a major role is played by its sub-system of managing knowledge employees. By means of the Likert scale the scope of fundamental guidelines to build this system was defined (Morawski 2005: 72-74). Identification of basic hospital values favouring completion of management processes in an organization perceived as a community of learning professionals scored an average rating of 4.08. Out of guidelines for building the sub-system of managing knowledge employees the highest score was given to establishing key hospital competences securing the hospital with a competitive edge as compared

to other entities – 4.38. Defining key knowledge employees possessing relevant qualifications for building a competitive position got on average 3.98 whereas monitoring the environment in terms of talents constantly supplementing the intellectual capital of the hospital scored only 3.48. Defining a vision, a mission and strategic goals with regard to knowledge development (creating new knowledge, sharing it) obtained on average 3.72 while specifying variants of a personal strategy in view of established strategic goals which may differ with instruments of managing knowledge employees scored – 3.09. Remaining elements of the sub-system were ranked below 3 which denotes a low level or not following guidelines in the surveyed hospitals. The analysis, evaluation and selection of an optimum personal strategy being a thoughtfully selected set of instruments for managing knowledge employees in view of chosen goals of managing knowledge obtained 2.98 whereas implementation of a leading strategy as well as selection of possible strategies supporting the transfer, storage, access , estimation and the sale of knowledge scored 2.74. Shaping elements of processes for managing knowledge positively correlated with goals obtained 2.68. Respondents ranked the lowest permanent evaluations and modifications of the existing system as well as establishing the way of removing threats and ways of seizing potential opportunities in managing knowledge employees and the entire knowledge management system – merely 2.06 points were given. Referring to the last score, it is worthwhile to emphasise the fact that the importance of this guideline of building the sub-system of managing knowledge employees is underestimated and may result in a gradual loss of hospital adjusting to the changing environment. The structure of answers to this question confirms the lack of complete and intentional knowledge management in public hospitals namely the existence of the knowledge management system.

3. Conclusions

According to the research at least 1/3 of the surveyed hospitals are advanced in terms of building a knowledge based system which means it comprises all areas of management as well as applies more advanced methods and procedures of managing the knowledge. The issue of improving knowledge management systems (assuming they always exist even in a chaotic and

not well-ordered form) is problematic not only for public hospitals in Poland (Syed et al. 2012: 22-44; Velasco et al. 2011: 13-20; Fahey, Burbridge 2008: 21-31).

Implementation of procedures and tools of knowledge management is a recommended action so that the knowledge management system is integrated. This means that knowledge management is an integral part of operational processes and knowledge resources are supposed to increase the value of an organization. They require improvement within sub-systems performing functions and tasks in the area of knowledge management that the system is made up with: the transfer allowing for dissemination knowledge among employees contributing to creation of new knowledge; databases enabling co-workers to share information or knowledge; a connections network allowing for absorption of information and knowledge from both internal as well as external sources on the formal and informal levels; an organizational language which through codifying its knowledge into comprehensible data and decoding information from databases allows employees to understand the state of affairs during verbal and non-verbal communication.

It might be useful to apply a *Clinical Decision Support* – CDS (Ash et al. 2012: 6), which may be defined as a set of all information, reminders, distresses and other data characteristic of a patient in a particular hospital. This is a system used in about 20% American hospitals (Wills et al., 2010: 565-598) – mainly in clinical hospitals as well as in the so called *community hospitals* (an equivalent to Polish public hospitals). Polish public hospitals may apply solutions in the area of clinical knowledge management systems which are used by such hospitals in other countries.

 Rightness of this direction is confirmed by also respondents pointing out the extent guidelines followed with regard to building a sub-system of managing knowledge employees. Special imperfections were observed in the area of an analysis, evaluation and the selection of optimum personal strategy under particular conditions being a thoughtfully selected set of instruments for managing knowledge employees in view of chosen goals of managing knowledge as well as implementation of a leading strategy and a selection of possible strategies supporting the transfer, storage, access, estimation and the sale of knowledge. Moreover irregularities were indicated in development of elements of processes for managing knowledge positively correlated with goals of knowledge management as well as conducting permanent evaluations and modifications to the existing system and removing threats and ways of seizing potential opportunities in managing knowledge employees and the entire knowledge management system. In order to increase the level of knowledge management in a hospital it seems necessary to

undertake facilitating actions in these areas. Hospitals' engagement into establishing their key competences securing them with a competitive edge compared to other entities as well as identification of basic hospital values favouring completion of knowledge management processes. This provides basis for supposing that there is awareness of special importance of these factors in building the sub-system of managing knowledge employees.

Rubinstein-Montano et al. (2001: 306-309) have presented a method of implementing a knowledge management system called SMARTvision originating from the first letters of the words:

- *strategize*
- *model*
- *act*
- *revise*
- *transfer*

This approach points out particular stages of procedures accounting for all elements of the knowledge management system and thus it is one of the most detailed approaches proposed in the literature. This method seems to be optimal with implementation and improvement of knowledge management systems in hospitals.

An efficiently working knowledge management system in a hospital will allow for a better access to knowledge resources, its skilful usage and re-usage. One must agree with S. Łobejko that an appropriate operation of the system will result in (Łobejko 2004: 37-38):

- facilitation of getting necessary knowledge particularly in case of the dispersed structure of information resources,
- preventing the loss of knowledge in case of an employee leaving the hospital by formalising the knowledge transferred by this employee to the hospital and placing it in the databases,
- assistance with improving key skills by the process of constant knowledge acquisition and thus preventing the same mistakes,
- a growth in effectiveness of managing the process of getting new knowledge by employees as well as securing its correct usage,
- facilitating employees to share knowledge.

The main problem in implementation of the knowledge management system, in the author's view, is too large a number and size of information delivered – there is outdated ,useless, mutually exclusive information in the system which contributes to redundant information in the system and decreases its effectiveness. The next irregularity consists in incompatibility of systems – often even in one organization in different   departments various knowledge management systems are used which makes the flow of knowledge between them impossible leading to storage of the same information in various cells and the lack of the possibility of designing new organizational knowledge. It is recommended to remove those irregularities in order to improve knowledge management systems.

The correct operation of a knowledge management system depends on numerous factors so its implementation and effective application is exceptionally difficult. All actions must be carefully thought over and duly undertaken. A team of hospital employees in charge of knowledge management must be appointed and supported with information technologies. Building an organizational culture favouring knowledge sharing is of vital importance too. The same is true for occurrence of appropriate connections between particular elements of the working knowledge management system and its environment.

It must be emphasised that a correct design of the system (Ramani Gopal, Joy, 2011:7-14) without appropriate consideration of all functions and tasks of knowledge management may bring an organization more problems than benefits.

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System zarządzania wiedzą w polskich szpitalach publicznych – wyniki badań i kierunki usprawnień

Streszczenie:

Celem artykułu jest zaprezentowanie stopnia zaawansowania budowy systemu zarządzania wiedzą w polskich szpitalach publicznych oraz przedstawienie rekomendowanych działań na rzecz jego doskonalenia. W artykule zaprezentowano fragment wieloletnich badań autorki nad zarządzaniem wiedzą w szpitalach publicznych.

W badaniach ustalono, że mniej niż 1/3 badanych szpitali znajduje się na zaawansowanym poziomie budowy systemu zarządzania wiedzą, co oznacza objęcie nim wszystkich obszarów zarządzania, a także wykorzystywania w odniesieniu do nich coraz bardziej zaawansowanych metod i procedur zarządzania wiedzą. Kwestia doskonalenia systemów zarządzania wiedzą – przy założeniu, że istnieją one zawsze, choćby nawet w chaotycznej i nieuporządkowanej formie –, jest problemem nie tylko szpitali publicznych w Polsce.

Prawidłowe funkcjonowanie systemu zarządzania wiedzą zależy od wielu czynników, co powoduje, że jego wdrożenie i skuteczne stosowanie jest niezwykle trudne. Wszystkie działania muszą być należycie przemyślane i podejmowane z właściwą starannością. Należy powołać zespół pracowników odpowiedzialnych w szpitalu za zarządzanie wiedzą oraz wesprzeć go od strony technologii informatycznych. Ogromne znaczenie ma też zbudowanie kultury organizacyjnej sprzyjającej dzieleniu się wiedzą. Tak samo ważne jest występowanie właściwych powiązań między poszczególnymi elementami działającego w szpitalu systemu zarządzania wiedzą a jego otoczeniem.

Słowa kluczowe: system zarządzania wiedzą, szpital publiczny