Association for Information Systems
AIS Electronic Library (AISeL)

AMCIS 2004 Proceedings

Americas Conference on Information Systems (AMCIS)

December 2004

ICT and Resource Based Approach in Creating Core Competencies in Public Health

Jarmo Taehkaepaeae
Turku Centre for Computer Science (TUCS)

Follow this and additional works at: http://aisel.aisnet.org/amcis2004

ICT and Resource Based Approach in Creating Core Competencies in Public Health

Jarmo Tähkäpää
Turku School of Economics and Business Administration
Institute of Information Systems Science
Turku Centre for Computer Science (TUCS)
P.O. Box 110, FIN 20521 Turku, Finland
Tel. +358-2-481 481
jarmo.tahkapaa@tukkk.fi

ABSTRACT

The resource based view is an approach which emphasizes the organizations resources and capabilities in its strategy development. The approach has been applied mostly in the competitive private sector but it includes several important lessons which can be used also in the public sector which is struggling with resource problems. The public sector has to find those internal and also external resources which are most essential in its attempt to provide a high quality service to the public.

This article will apply the resource based approach to public health care ICT strategic management. From several important resources, four are selected for closer study. Their effects on each other and on two other essential but still very often ignored resources in health care IS strategic management will be discussed. The assumption of this study is that those two resources will have a central but partly unexplored strategic impact on other resources and that their share of numerous other resources as well as the views of resource based approach in public health care strategic management will increase substantially. The paper connects the theory and earlier research on the resource based approach to experiences of empirical research cases.

Keywords

ICT, resource based, core competencies, health care

INTRODUCTION

Health care area is a complicated system, where numerous different perspectives and choices have to be considered and managed to ensure feasible care. In addition, it is not enough to manage the internal environment but an eye has to be also kept on external changes. Decisions made on state level, changes in demographic balance toward older people, new diagnostic and care technologies are examples of those external issues which have the biggest influence on health care at the moment. In a complex and turbulent environment understanding the determinants of performance is a key focus for health care managers and scholars (Short, Palmer and Ketchen, 2002)

Amit and Schoemaker (1993) stress that managerial decisions on those valuable functions, namely resources, are usually made in a setting which is characterized by three features. First, uncertainty about economic, industrial, regulatory, social and technological environments; competitors' behaviour and customers' preferences. Second, complexity concerning the interrelated causes that shape the firm's environments; the competitive interactions ensuing from differing perceptions of these environments. Third, intraorganizational conflicts among those who make managerial decisions and those who are affected by them. (Amit and Schoemaker, 1993). Though the features are from a competitive environment similar features describe well the environment in public health care too. It is moving towards a businesslike and competitive thinking where strategic management is needed to ensure the development of a complicated network of actors and resources. Health care is no longer a separate and independent area (Grimson, Grimson and Hasselbring, 2000) where the need for changes comes mostly internally, but it has to consider changes and potentials from new perspectives. The developments in the network of actors offer new possibilities for co-operation (Southon, Sauer and Dampney, 1999).

Another dominating feature in health care is the increase of ICT (Information and Communication Technology). ICT in health care is said to be several years behind many other sectors (Ragupathi, 1997) (Grimson, Grimson et al., 2000) but that gap is narrowing all the time. However, despite several advantages, it is not always used as effectively as it might be and in some cases, the implementation has created even further problems. (Southon, Sauer et al., 1999). Therefore management of the use and development of ICT and areas where ICT is creating new possibilities in e.g. creating new processes is a key area in health care. (Kim and Michelman, 1990; Winter, Ammenwerth, Bott, Brigl, Buchauer, Gräber, Grant, Häber, Hasselbring, Haux, Heinrich, Janssen, Kock, Penger, Prokosch, Terstappen and Winter, 2001) In order to use technology in such a way that it creates a clear advantage and improves services thoroughly and not just on some basic operations levels, it needs to be understood which are the operational functions and strategic areas in which it can be included. By defining those functions and further defining areas where ICT can add value to them, ICT based core competencies can be found. (Mordue and Seeley, 1997; Prahalad and Hamel, 1990).

The organisational structures in health care are very traditional and hierarchical which can hamper development. Developing governance structures can give an organisation a way to manage the complex and turbulent environment. Governance structures will affect almost all functions in an organisation which has an exchange relationship either internally or externally with another organisation. Therefore managing governance structures can contribute to the use of resources and creation of core competencies.

Earlier discussion on resources has very often stressed internal resources and thus in this study, external resources are added to that discussion. Organisations in certain regions have various amounts and kinds of external resources which they use with different effectiveness and success. Organisations vary in terms of their potential to discover and exploit competitive capabilities through their networks (McEvily and Zaheer, 1999). E.g. IS as a resource has seldom a direct influence on sustained competitive advantage but primarily forms a part of a complex chain of assets and capabilities that may lead to sustained performance. This is done through a complementary relationship with an organisation's other assets and capabilities. (Wade and Hulland, 2004). IS resources are necessary but not sufficient alone (Clemons and Row, 1991). More effective integration both internally and externally might be one solution to ever increasing resource problems in health care.

A major reason why the resource based approach was chosen as a theory to discuss ICT management in a public health care environment in this paper is simply that scarce resources are the main problem for health care organizations in various parts of the world. (Jakubowski and Busse, 1998; Saltman and Figueras, 1997). To manage successfully with existing resources the organisation has to identify its most valuable resources and then have to possess enough knowledge and will to develop and improve the effect of them permanently. The ultimate goal does not have to be a sustained competitive advantage, but to define those resources, which might enable more effective and higher quality services.

The research questions are:

- which are the key resources in public health care which should be emphasized when trying to create core competencies?

- how do these key resources interact and what obstacles are there to their development?

In this article I first introduce the reader to the theory of resource based approach and core competencies and capabilities and the share of ICT in it, based on earlier research. Next, I describe four resources on the basis of earlier literature added to the findings from two empirical cases. Those resources are in an important position in health care as it is developing strategies and defining core competences. The effects of those resources on the two key resources which have a high potential to become core competencies in health care, namely ICT and governance structure, are examined. In each of the four resources there are some factors which seem to reduce the adoption of ICT in health care. These factors are also discussed.

The empirical part of the research is conducted in the Finnish public primary health care sector and thus characterises the features from one country. Different regions and countries have different problems from the resource viewpoint, but e.g. the main problems in the EU area are quite similar. (OECD, 2003)

THE THEORY OF RESOURCE BASED APPROACH IN IS RESEACH

IS research has a long tradition in adopting theories from other disciplines, such as economics, computer science, psychology and general management, and modifying them for its own purposes and also using them as its own. Because of this it has a wide selection of theories and conceptual foundations. (Wade and Hulland, 2004) This makes selecting the most appropriate theory or approach sometimes difficult but on the other hand gives lots of possibilities in choosing viewpoints to the phenomenon under study. When moving to new areas like health care, this is a clear advantage.

The resource based approach is based on the thinking that the most central resources should be the most stable part of an organisation and are changing only slowly. The approach encourages the organisation to identify those resources and develop them further. Health care has been basically operating by focusing on current demand, without having a strong requirement or need to identify those basic resources. When the organisation has operated with satisfactory results the need to specifically identify those resources has been low. The stability of e.g. organisational structures and features in health care has been traditionally high.

The resource based approach has not been very popular in IS discipline previously. However, lately the approach has gained publicity and discussion about it's usefulness in the IS field has increased. The resource based approach provides a way for information system researchers to understand the role of information systems within a firm. It is valuable for IS researchers to consider how IS relates to a firm's strategy and performance. It also provides guidance on how to differentiate between various types of IS and how to study their separate influences on performance. (Santhanam and Hartono, 2003). Once the role of IS resources has been studied and defined, it can be compared on equal terms with roles played by other organisational resources to eventually form an integrated understanding of long-term organisation competitiveness. Thus the theory also provides a basis for comparison between IS and non-IS resources and can thus facilitate cross-functional research. (Wade and Hulland, 2004)

There are several approaches which are valuable in the research of health care ICT. (Suomi, Tähkäpää and Holm, 2000). Approaches like stakeholder analysis, cost-benefit analysis, competitive advantage approach, resource-based approach, knowledge management approach, organizational learning approach, process analysis and sourcing decisions approach are created in environments other than ICT or health care but are very applicable to both. Health care as an area of management has indeed its own clear and complicated characteristics but the sectors of management, like economics, personnel and technology are pretty much the same as in any other area. E.g. in our second case, ICT sourcing decisions played a very important role as did cost-benefit analysis too.

When considering the focus of the resource based approach which is sustained competitive advantage and a superior return on capital, the theory might be difficult to see in the public health care area. However, in many ways it is also suitable for a non-profit health care organisational environment to help in its attempt to increase effective use of resources. In health care it is essential to identify the core capabilities especially now, when new technology has been widely implemented and new work processes are in their early stages. In a non-profit area with only minimum competition the aim for competitive advantage can be replaced with an idea of superior customer service. The customers should get superior service with minimal usage of resources, which thus saves (taxpayers') money. (Suomi and Kastu-Häikiö, 1998). Another definition could be superior quality of care.

Short et.al. (2002) have a similar viewpoint in their article discussing the resource based view and the Strategic Groups Research (SGR) approach. In addition to the discussion about competitive advantage they also mention organisational and superior performance. (Short, Palmer et al., 2002) This conception as well as superior customer service is also easy to adopt in health care when superior service is the result of superior performance and superior quality.

Basically the resource based view focuses on how resources and capabilities can affect business strategy and provide a focus for strategy formulation (Andreu and Ciborra, 1996). Barney links the organisations strategy and performance so that the impact of a firm's strategies is evaluated on the basis of its performance. He explained the firm performance with two value criteria, namely the firm's actual value and expected value. The result shows that the more there were expectations the more the firm created value (Barney, 1996). This also seems to be the case in public health care. The relative performance of an organisation is increasing while the result expectations are higher. However, here relative means the decrease in resources such as labour and the number of beds while the performance should stay the same.

The internal viewpoint of resources emphasises that the resource based approach assumes that a firm's competitive advantage lies in the bundles of service-creating resources that can be exploited, rather than in the product market combinations chosen for the deployment of these resources. By focusing on the internal resources, the resource based approach is trying to combine the organisational resources analysis and capabilities with environmental opportunities and threats analysis. (Barney, 1994; Kangas, 2000). Though the definition stresses the internal resources it also brings forth the links of environmental factors.

McEvily and Zaheer define competitive capabilities as such that economic action is embedded in the firms' network of ties including non-market ones. They see that a firm's actions and outcomes are substantially influenced by the ongoing pattern of relationships maintained with other firms and nonmarket organisations. Firms vary in terms of their potential to discover and exploit competitive capabilities through their networks and therefore it is important for an organisation to find its own

links between competitive capabilities and external possibilities. The organisation should not only concentrate on the link between capabilities and performance-related outcome but also on the sources of capabilities. (McEvily and Zaheer, 1999).

The client aspect, which can be applied well in health care can be found in Penrose's (1959) definition as he said that, a resource can be viewed as a source for providing an array of services for the clientele of the company. Resources are usually obtainable in discrete amounts (Penrose, 1959). Barney (1991) explains that a firm's resources include all assets, capabilities, organizational processes, firm attributes, information, and knowledge that enable the firm to conceive and implement strategies that improve its efficiency and effectiveness. He classifies them into three categories: physical capital resources, human capital resources and organizational capital resources. (Barney, 1991).

Amit and Schoemaker (1993) present the owner viewpoint when they say that resources are "stocks of available factors that are owned and controlled by the firm." Resources can be changed to final products and services by using a wide range of other organisational assets and bonding mechanics. These are e.g. technology, management information system, trust between management and labour. Capabilities refer to the ability and capability to deploy resources. (Amit and Schoemaker, 1993).

 Also Ciborra emphasizes the importance of the combination of internal and external resources in creating firms' capabilities. Core capabilities are those that create a sustained competitive advantage to the firm. They differentiate a company in terms of beneficial behaviours that cannot be seen in its competitors The definition of Andreu and Ciborra (1996) about core capabilities is very comprehensive: *Core capabilities develop in organisations through a fundamental transformation process by which standard resources, available in open markets, are used and combined, within the organisational context of each firm, with organisational routines to produce capabilities, which in turn can become the core and the source of competitive advantage.* (Andreu and Ciborra, 1996).

Figure 1 presents a simple picture of the focus of the private and public sector organisations and how they see the use of the resources should affect their environment. It relates to the Barneys (1994) definition of the capability development process in private industries but does not include the learning aspect.
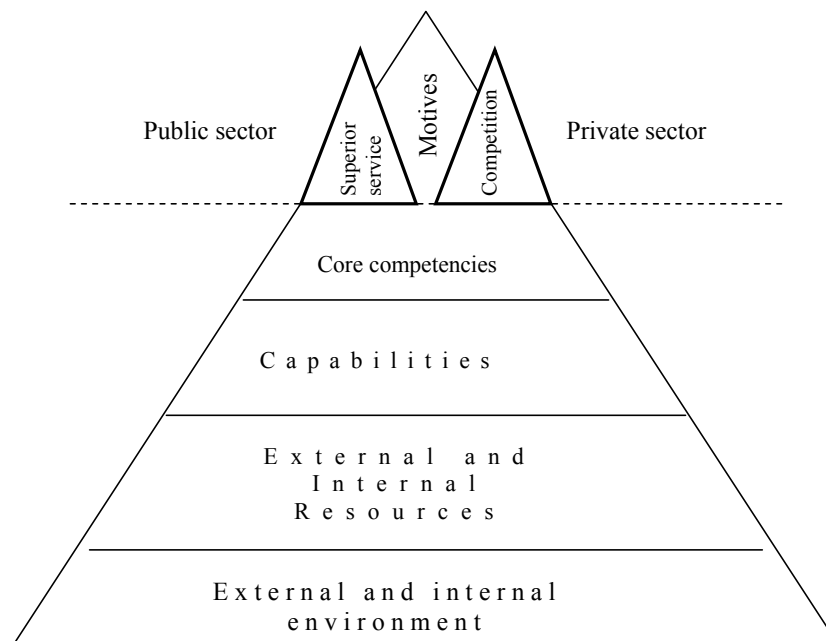
Figure 1. Focus of the resource based approach in the private and public sectors

The focus of the activities in private and public organisations is in many ways similar to the level of core competencies though there are also differences. It is important for private sector firms to find key resources and turn them into capabilities and core competencies and ultimately to sustained competitive advantage. In this way it can improve its position in the market and e.g. create barriers against the companies who are accessing the area.

Public sector organisations are in the situation where resources are scarce and therefore it is equally important to find key resources from the external and internal environment and turn them to core competencies. However, the goal is not to create competitive advantage but more to find the superior performance to offer a superior service to the customer. It is seeking the most effective way to operate and those resources which are the most essential in this effort. So both are seeking the core competencies but with different motives. One of the biggest differences in motives seems to be in the protection of their own environment.

CASES

Empirical evidence of this study comes from two extensive research cases in Finnish health care. In the first case an information management strategy was created for a medium sized health centre. The goal was to clarify the situation where the organisation had acquired new systems with an electronic patient record (EPR) system, data network and 50 workstations. After a short implementation period problems like management responsibilities, systems integration and communication problems emerged. An IS strategy was created to solve these problems. The biggest problems were how to set up responsibilities to manage ICT in the organisation and the rising discomfort of the staff towards scattered information systems. The first encompasses the creation of new governance structures to manage ICT in an organisation. The latter one included the possibility to create new processes as the strategy included suggestion to re-organise the software architecture. The previous architecture included numerous separate and incompatible systems which created lots ofl problems for the staff in conducting the care processes. The methods used were interviews (60) with staff, the management of the health centres, the management of the council and the systems supplier, weekly meetings with the project steering group and studying earlier written material.

The second case was an evaluation project of a large information systems implementation project in the fifth biggest city in Finland. The IS project included changing manual patient records to and the implementation of EPR, new IT infrastructure, process renewal and some minor projects. The goal of the research was to evaluate the project from two viewpoints: the project development process from a management viewpoint and the impact of the systems on the different interest groups. This case supported the results from the first case and added a new resource to the list of key resources, namely the customer resource. Methods used were interviews (70) with staff, the management (organisation, city and ministerial level), the project group and systems suppliers; questionnaires to staff and users; group interviews; monthly meetings with the project management and earlier written material. The cases are explained in more detail in e.g. (Suomi and Tähkäpää, 2001; Suomi and Tähkäpää, 2003; Tähkäpää, 2004; Tähkäpää, Turunen and Kangas, 1999)

KEY RESOURCES IN PUBLIC HEALTH CARE

There are numerous resources which can be considered key resources in health care. However, in this study I have chosen resources which seemed to be top priority in our cases and which have close relationship to each other and also which are more or less in relation to external resources. The resources are chosen on a basis of empirical findings from the two cases. The interviewees were chosen from different organisational levels and therefore it was possible to create a deep understanding of the organisation's key resources.

Figure 2 presents the key resources which are chosen for this study. The development and need for change of management and financial resources in health care are discussed quite richly and from different viewpoints in earlier research e.g. (Nikula, 1999; Schwartz and Cohn, 2002; White, 2000; Winter, Ammenwerth et al., 2001). Discomfort and customer resources have been less under discussion. Resources are interrelated so that each can contribute to other resources in a way that they can become key resources. Without this relation there is a possibility that they remain as regular resources without any impact on the core competencies.

ICT and governance structures that interplay with others are those which I think that health care organisations should focus on to create superior performance. Medical and care resources are naturally those which health care should ultimately develop, but they should be served with accurate information and governance. Both serve as a base for other, more health service oriented areas. As mentioned earlier health care is highly information dependent and therefore ICT should be one of

the core competencies. Governance structures again are those which give the organisation's exchange relationships their meaning and rules. The meaning and rules are organisation dependent and thus core competencies. Governance structures also have the effect of developing many resources, such as ICT.

In both ICT and governance structures attention should be paid especially to those intangible benefits which they can offer since they are the ones which are not used very effectively in health care. Traditionally public basic health care is al practice oriented area where intangible resources and resources, which are not directly connected to the care, receive only minor attention. Similarly the developments and research in ICT follow practical problems and create practical technical solutions (Checkland and Holwell, 1998). Therefore one of the most valuable unused resources at the moment lie probably in the intangible and hidden factors of ICT and governance structure. However, there are many obstacles in finding those factors and transforming them into core competencies. In the next chapter I discuss these factors on the basis of resources presented in Figure 2.
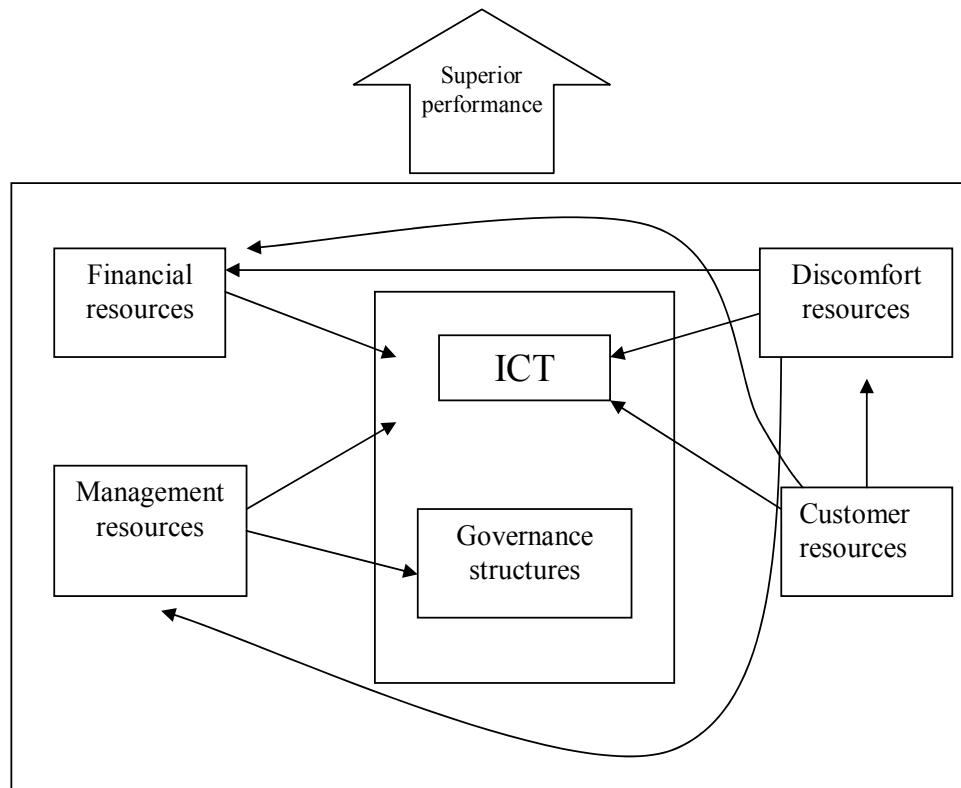

Figure 2.   Key resources and core competencies in health care

USE OF THE RESOURCES

Financial resources

Financial resources are usually scarce in health care. In a simplified way it can be said that as long as there are unintended queues for health care, there is a lack of money. Of course, when thinking about the effectiveness of the organisation reasonable queues are natural. However, even if there is an increase in finance for public health care, the increase in demand will probably decrease the substantial economical increase to zero.

The scarce economical resource affects decisions as to where investments are focused. So in a way the lack of money forces the organisation to consider its key resources. But such decisions are made under pressure, when there is not usually room for rational and strategic consideration. There is also a rule of opportunism present in the public sector. (Cf. (Conner and Prahalad, 1996). The decisions in this kind of environment are hardly rational.

ICT is one of those areas in health care where reasoning the need is difficult. Despite many advantages, ICT is very often still seen as a supportive tool that does not have yet a clear effect on the core services. ICT professionals are not "insiders" in a health care organisation yet, but are seen more or less as supportive staff. Though the attitude is changing rapidly at least among younger clinicians and nurses there are still a lot of prejudices and mistrust and each problem, no matter which industry it happens in, will feed those prejudices.

The increased use of ICT by customers might help the ICT investments. Customers have access to computers at home, at work, at school etc. so they are better aware of the advantages of ICT. Customers have a strong pressing influence and can thus provide strong support for those who support ICT in health care.

And of course, ICT should increase the effectiveness of the organisation and free staff to concentrate on core services. However, it is quite difficult to show how much it has really increased effectiveness so far since in larger scale ICT, like electronic patient records and other administrative systems, have been implemented a relatively short time compared to e.g. the manufacturing industry.

Management resources

Managers in health care organisations have usually been health care or medical professionals. This is quite natural since the management needs have included mostly operational issues. The need for strategic management has been low.

Scarce economical resources, increasing competition in the area, developments in ICT and a complicated environment are some factors which will increase the need for more professional management in health care. There is no doubt that the management must have a wider and businesslike view of the area and, under several pressures, they must continually seek those areas of the organisation which will provide the best outcome. ICT is one of those new areas which will have widely positive effects on the organisation if managed well.

As a resource, strategic management in health care can be considered somewhat unused so far and should be increased. This does not mean that health care professionals are not good managers in clinical areas but management has not been a top priority in medical education. After all, management is one of those intangible areas which can be considered to produce core competencies and sustained competitive advantage in private industries. Also in health care the long range planning of resource use will most likely intensify the investments and development targets and thus develop core competencies.

The atmosphere in health care organisations is not necessarily very warm to a manager coming from the outside and not being a health care professional. Business managers especially are still regarded as something that will destroy the traditions and quality. This is probably one of the biggest hindrances to increasing strategic professional management in the area.

Discomfort resources

Discomfort resources mean here that the staff in health care do not feel that the quality of their work is satisfactory. The discomfort causes the need for change and greatly affects the visions of health care staff as to how the organisation should be developed. Health care staff has usually very strong views of how the work should be done. The discomfort has not been discussed as a resource previously but it can have various effects to organisation and is likely to cause lots of changes even unintentionally. So those changes can be uncontrolled and have negative effects but with good management it can be turned into a resource and even a core capability. This refers to the previous item of management resource.

There are several reasons for the generation of discomfort. One reason is the change in customers' knowledge and attitudes. Previously clinicians were in the position where they held all the knowledge about the patients, their diseases and cures. Patients' role was more to listen to the diagnosis humbly and not to question it. This has changed during last decade since today there is more easily accessible health information and the interest towards own health has increased substantially. You just have to look at the commercials on TV or in magazines where piles of information about health and diseases are available. There are also more alternatives as to where to go to get a cure and better possibilities for "a second opinion" In a way clinicians and health care staff have lost part of the control they had before and this has happened without their permission

Another and a clearer reason is customer dissatisfaction with the services. The hospitals are overcrowded, there is a lack of staff and equipment, tiredness causes impolite service etc. Customers usually understand that the decrease in service level is not the staff's fault but the staff are usually the only contact between the health care and the patient so they also have to listen to the complaints.

Discomfort affects both management resources and financial resources. The management should be able to make such decisions which improve the work conditions of the staff but scarce financial resources are an obstacle. It is the management's duty to develop an organisation so that it can use scarce financial resources as effectively as possible. The development of ICT is expected to be one solution to the lack of staff and money but controversially is also at least in the beginning of its use one of the origins of discomfort.

Customer resources

The customer as a resource is probably even more unused than discomfort. This is probably mainly because, although the organisation is created for the customer, he/she is not considered an internal part of the organisation. Health care organisations are closed hierarchical systems where there are clear lines between different activities and individual groups. As curious as it might sound customers are not always an integral part of this internal system. In addition clinicians are quite reluctant to let customer participate in the diagnosis or the treatments more than as a patient. All the information and authority should remain with the clinician though the patient is the owner of hers/his information..

However, as health care information is increasing, customers have sometimes a lot of information about their diseases and treatments even before they go to the doctor. Based on that information the customer can explain the symptoms in more detail than before. This does not exclude the clinician from having to make the same questions and same tests as before since he is ultimately responsible for the diagnosis. However, he might be able to drop some alternatives from the diagnosis and also avoid some unnecessary treatments. After all, the clinician always has the ultimate expertise.

A special feature of modern health care is that it is there only for curing diseases. Great attention is not paid to preventive health care although many die due to lack of financial resources. Preventive health care is after all one of the most effective ways to decrease the number of people who use the health services. Although the Internet is full of information about health it is mostly reaching those people who are interested in health anyway and therefore are already in good condition. In these cases the Internet acts as a passive media in information distribution, but it should be made into a more active and communicative way. E.g. access to one's own health information might awake interest in one's own state of health and increase people's interest in preventive health care.

ICT

There is no question about the importance of accurate information in health care. The amount of information required has always been huge and the more information is created the more difficulties there will be in managing it. In addition to pure health and medical information, the need for other information types such as economic and statistical information is increasing. Information is a key resource in any area but especially in health care and its management is a core competence for it. Despite clear needs to increase the management of ever increasing amounts of health care information, the adoption of ICT has not always been obvious.

In addition to difficulties in managing the complicated information pile, the continual pressure and demands from patients have lead to a situation where even the staff cannot always be satisfied with the quality of their work. The increase in demand has lead to discomfort among clinicians and other staff. Health care is a professional area where the staff are able to notice the decrease in quality and also that poor quality leads to even more pressure. It is also clear that it is very difficult to increase staff because of lack of economic resources. Therefore discomfort has increased the will to seek solutions to the problem from other, even less used sources, such as strategic management and ICT.

It is obvious that part of the pressures to increase the use of ICT is because of its fast development and new solutions, but without the demands from patients and discomfort of the staff, the adoption would have been even more difficult. Health care is traditional in its development and sometimes also prejudiced against things that come from outside its own area. Thus when the need does not come internally it is difficult to convince people of the advantages.

However, ICT has gradually been accepted to the health care environment, although there is still a lot of suspicion about it. There are some areas where it has been proved to have clear advantages over manual systems, e.g. speed and accuracy of information and automatic improvements in some processes such as appointments to the doctor. Despite these improvements, larger effects on the area are still waiting to be realised and there is a need for a rethink of the whole area. While ICT has had its advantages, it has also created one more area which needs strategic thinking and attention in the creation of governance structures.

Governance structure

The concept of a governance structure is by no means established or well defined. Suomi and Tähkäpää (2003) have defined a governance structure as *"a structure giving meaning and rules to an exchange relationship"*. (Suomi and Tähkäpää, 2003). Like core competencies, governance structures are long lasting are stable. Without stability, the governance structures would not be able to gain those advantages that it can through stable development, where in the long run routines and activities develop as organisation specific. When governance structures reach this point some parts of them can became a core competence to the organisation.

Although the concept of a governance structure is not well settled the term is by no means new in the health care sector. Pelletier-Fleury and Fargeon have used the concept in connection with the process of diffusion of telemedicine (Pelletier-Fleury and Fargeon, 1997). Spanjers et.al. have studied the general networking or governance structure strategies of hospitals (Spanjers, Smiths and Hasselbring, 2001). Donaldson and Gray discuss how quality can be maintained through the smart design of governance structures (Donaldson and Gray, 1998). Suomi has studied the new opportunities modern ICT offers for health care organisation (Suomi, 2001).

In many ways the governance structures are intangible and therefore difficult to imitate. The structures are of course visible from how the organisation behaves but the creation of them takes place gradually, sometimes even without intention and in an organisation specific way. According to the principles of the resource based approach intangible resources are important in creating a sustained competitive advantage. The area of governance structures in organisations is however very wide and an organisation should find those expertise areas which are essential to its own development.

An example of one very popular area where governance structure should be emphasized is outsourcing. Outsourcing of marginal areas has gained a lot of favour in private and public organisations where it is almost impossible to increase the amount of staff. ICT is often seen as one of these marginal areas. Without going any deeper into the rationality of this solution, the management of information systems in information intensive organisation needs more attention than it is necessarily understood. Managing ICT outsourcing contracts is therefore in a position where it can became a key resource or key obstacle to the organisation.

One extremely important dimension in the discussion about the management of health care ICT is learning. Whether ICT is insourced or outsourced, in an environment where such projects and technical solutions are unknown, the learning dimension will become a key capability. Those organisations which can learn the fastest will also gain the most benefit. Established but advanced governance structures around ICT will improve the learning aspect.

 ICT also offers many new possibilities to build governance structures and in itself, ICT is a resource and exchange relationship field that needs governing. ICT also has three roles in its relationship to governance structures:

1. Emphasizer and visualiser of pressures towards governance structures in an industry, e.g. health care

2. Facilitator of new governance structures to handle exchange relationships

3. An exchange relationship field to be governed.

(Suomi and Tähkäpää, 2003)

In Table 1. there are summarized the resources discussed in this chapter. Internal and external dimension is included since it is important to understand the origins of the resource to develop wider scope for available resources. From external resources the organisation should find such factors and networks which remain relatively stable. By linking the organisation's internal resources with external networks the latter can also develop as a core capability. Those networks of course should use the best organisational knowledge and capabilities to become something more than just an average co-operation relationship.

It is clear that resources vary in their extent. An organisation cannot create a competitive advantage on something which is unstable and the amount of which is difficult to predict. Public sector is relatively slow in changing its directions and therefore most resources are stable. The status of the resource in an organisation should be emphasized.

There are several factors which hinder the effect of resources. Those factors should be identified and their effect on the resource should be evaluated. If the obstacle is permanent or difficult to remove, the resource cannot develop as a core competence and should remain an average resource.

Resource	Internal/external	Status in health care	Obstacles in resource development
Financial	External	Scarce, not expected to increase	• scarce resource and not expected to increase • opportunism controls and creates unrationality • ICT not a key resource in financial perspective • ICT benefits difficult to prove → not financed
Management	Internal	Scarce, should and can be increased substantially	• no traditions about strategic management • turbulent environment and difficult to create clear focus - opportunism • environment not very open to external, non-medically related ideas
Customers	External	Abundant but unexploited	• hierarchy between patient and clinician strong • customers do not get access to own information • disease centric approach – not preventive care • ICT lock between clinicians and customers
Discomfort	Internal	Abundant but decrease is intended	• not identified as a resource • causes uncontrolled negative changes • if too strong, total lock in communication
ICT	Internal/external	Implementation and effects increasing substantially.	• ICT is not considered a key resource yet • not an internal part of health care • not a top priority among investments • lack of management expertise
Governance structure	Internal	Not internalized, should be increased	• intangible and therefore difficult to implement in practical health care • difficult to find focus • no traditions in defining governance structures

Table1. Summary of the resources.

SUMMARY AND CONCLUSIONS

This research has used the resource based approach in health care environment to better understand the situation in the area. Special focus has been on defining key resources in health care and their contribution to two unused key resources, namely ICT and governance structures. The essential part of this contribution is to understand the effect of the integration of different resources. A very rare resource can become essential independently but needs the support from other resources and development of organisational skills. ICT and governance structures can develop as core competencies but although they are not new phenomena in the industry, they are not used as effectively as they could be. Both have suffered from the lack of interest since they are areas outside the core areas of medicine and care.

The basic feature of the public sector in most part of the world is the lack of various resources due to increase in demand. Therefore the effective use of resources should be the primary interest of the management. In the private sector strategic management has offered a tool to manage competition and to find those key resources which have to be developed. In the public sector this strategic development has been missing. However, the interest against strategic management is growing also in the public sector and this research is trying to proof that the resource based approach is a sufficient strategic tool to use also in the public health care.

Four key resources were indicated: management, finance discomfort and customer. The first two present traditional resources which have been the target of attention for sometime. Financial resources in particular have been highlighted for decades. Management and especially strategic management has been raised to one of the key issues during the last two decades. Discomfort and customer resources have not gained as much attention so far. However they are extremely underused resources which should be more focused upon.

Finally these resources were divided into internal and external resources to better understand the needs for their development. Though the resource based approach emphasises internal resources, there is also some discussion about linking internal

resources with external. This is important in the public sector where connections to both private and public sectors are complicated. The organisation should find the most valuable links and integrate them into internal capabilities.

This research attempts to answer also the question which kind of obstacles there are in developing the chosen resources. The list in Table 1 is by no means complete but gives an idea of the difficulty of development. It seems that obstacles are not technical but more intangible in people's thinking and attitudes. Those are the most difficult ones to change but if successful, can give an organisation a superior position and quality in the area.

But there has also been plenty of progress since new systems like EPRs have been implemented. New systems have enabled new views and solutions in health care. However, implementation usually follows a development curve which goes first up and after a while makes a little move downwards and rises again to meet the next problems. It seems that at the moment health care is in its first small fall. Therefore it is a perfect time to introduce new approaches to find those resources which can be used to boost the next rise and to smoothen the next fall. According to this research the resource based approach is a promising approach to use in health care.

REFERENCES

1   Amit, R., and Schoemaker, P.J.H. "Strategic Assets and Organizational Rent," *Strategic Management Journal* (14) 1993, pp 33-46.

2   Andreu, R., and Ciborra, C. "Organizational Learning and Core Capabilities Development: The Role of IT," *Journal of Strategic Information Systems* (5) 1996, pp 111-127.

3   Barney, J. "Firm resources and sustained competitive advantage," *Human Resource Management* (36:1) 1991, pp 39-47.

4   Barney, J.B. "Bringing Managers Back In: A Resource-based Analysis of Managers in Creating and Sustaining Competitive Advantage," in: *Does Management Matter? On Competencies and Competitive Advantage,* J.B. Barney, Spender and Reve (eds.), Lund University Press, Mälmö, 1994.

5   Barney, J.B. "The resource-based theory of the firm," *Organization Science* (7:5) 1996, pp 469-469.

6   Checkland, P., and Holwell, S. *Information, Systems and Information Systems.* John Wiley & Sons, Chichester, 1998.

7   Clemons, E.K., and Row, M.C. "Sustaining IT Advantage: The Role of Structural Differences," *MIS Quarterly* (15:3), September 1991 1991, pp 275-292.

8   Conner, K.R., and Prahalad, C.K. "A resource-based theory of the firm: Knowledge versus opportunism," *Organization Science* (7:5) 1996, pp 477-501.

9   Donaldson, E.J., and Gray, J. "Clinical governance as a quality duty for health organizations," *Quality in Health Care*:7) 1998, pp 37-44.

10   Grimson, J., Grimson, W., and Hasselbring, W. "The SI challenge in health care," *Communication of the ACM* (43:6) 2000, pp 48-55.

11   Jakubowski, E., and Busse, R. *Health Care Systems in the EU: a Comparative Study. European Parliament Directorate General for Research: working paper* European Parliament, Luxembourg, 1998.

12   Kangas, K. *Five Stories on IT and Russian Trade; a Resource-Based View to Information Resources Management in Finland-Based Multinational Conglomerates* Turku School of Economics and Business Administration, Turku, 2000, p. 199.

13   Kim, K.K., and Michelman, J.E. "An examination of factors for the strategic use of information systems in the healthcare industry," *MIS Quarterly* (14:2) 1990, pp 200-215.

14   McEvily, B., and Zaheer, A. "Bridging ties: A source of firm heterogeneity in competitive capabilities," *Strategic Management Journal* (20:12) 1999, pp 1133-1156.

15   Mordue, A., and Seeley, M.E. "The development of an approach to evaluate NHS manager's competence in medical informatics," *Computer Methods and Programs in Biomedicine* (54) 1997, pp 39-47.

16   Nikula, R.E. "Organisational learning within health care organisations," *International journal of Medical Informatics* (56) 1999, pp 61-66.

17   OECD "Communication on the development of Public Health policy,",, OECD, 2003.

18   Pelletier-Fleury, N., and Fargeon, V. "Transaction cost economics as a conceptual framework for the analysis of barriers to the diffusion of telemedicine," *Health Policy* (42:1) 1997, pp 1-14.

19   Penrose, E.T. *The Theory of the Growth of the Firm* Basil Blackwell, Oxford, 1959.

20   Prahalad, C.K., and Hamel, G. "The Core Competence of the Corporation," *Harvard Business Review [HBR]* (68:3), May-June 1990, pp 79-91.

21   Ragupathi, W. "Health Care Information Systems," *Communications of the ACM* (40:8) 1997, pp 81-82.

22   Saltman, R.B., and Figueras, J. "European Health Care Reform: Analysis of Current Strategies,".

23   Santhanam, R., and Hartono, E. "Issues in Linking Information Technology Capability to Firm Performance," *MIS Quarterly* (27:1) 2003, pp 125-153.

24   Schwartz, R.W., and Cohn, K.H. "The necessity for physician involvement in strategic planning in healthcare organizations," *The American Journal of Surgery* (184) 2002, pp 269-278.

25   Short, J.C., Palmer, T.B., and Ketchen, D.J. "Resource-Based and Strategic Group Influences on Hospital Performance.," *Health Care Management Review* (27:4) 2002, pp 7-17.

26   Southon, G., Sauer, C., and Dampney, K. "Lessons from a failed information systems inititative: issues for complex organisation," *International Journal of Medical Informatics* (55) 1999, pp 33-46.

27   Spanjers, R., Smiths, M., and Hasselbring, W. "Exploring ICT-Enabled Networking in Hospital Organizations," in: *Strategies for Healthcare Information Systems,* R.A. Stegwee and T.A. Spil (eds.), Idea Group Publisher, Hershey, 2001, pp. 164-180.

28   Suomi, R. "Streamlining Operations in Health Care with ICT," in: *Strategies for Healthcare Information Systems,* T.A. Spil and R.A. Stegwee (eds.), Idea Group Publishing, Hershey, PA, 2001, pp. 31-44.

29   Suomi, R., and Kastu-Häikiö, M. "Cost- and service effective solutions for local administration - the Finnish case," *Total Quality Management* (9:2-3) 1998, pp 335-346.

30   Suomi, R., and Tähkäpää, J. "Assessment of the Health-Care Project Primus - Methodological Issues Learned," The 8th European Conference on Information Technology Evaluation (ECITE), Oxford, UK, 2001.

31   Suomi, R., and Tähkäpää, J. "Governance Structure for IT in Health Care," in: *Strategies for Information Technology Governance,* W. Van Grembergen (ed.), Idea Group Publishing, Hershey, 2003.

32   Suomi, R., Tähkäpää, J., and Holm, J. "Multidimensional evaluation of a health care network solution," Seventh European Conference on Information Technology Evaluation, MCIL, Trinity College, Dublin,Ireland, 2000.

33   Tähkäpää, J. "Increasing Role of Information Systems in Public Health Care - Challenge to the Management," Hawaii International Conference on System Sciences (HICSS), IEEE, Big Island, Hawaii, 2004.

34   Tähkäpää, J., Turunen, P., and Kangas, K. "Information Management in public Healthcare; A Case of Small Municipality Federation," IRMA (Information Resources Management Association), Information Resources Management Association, Hershey,Pennsylvania, USA, 1999.

35   Wade, M., and Hulland, J. "The Resource-Based View and Information Systems Research:Review,Extension, and Suggestion for Future Research," *MIS Quarterly* (28:1) 2004, pp 107-142.

36   White, L. "Changing the Whole System in the Public Sector," *Journal of Organizational Change Management* (13:2) 2000, pp 162-177.

37   Winter, A.F., Ammenwerth, E., Bott, O.J., Brigl, B., Buchauer, A., Gräber, S., Grant, A., Häber, A., Hasselbring, W., Haux, R., Heinrich, A., Janssen, H., Kock, I., Penger, O.-S., Prokosch, H.-U., Terstappen, A., and Winter, A. "Strategic information management plans: the basis for systematic information management in hospitals," *International Journal of Medical Informatics* (64) 2001, pp 99-109.