

University Services for Regional Development – The case of Knowledge Management of Change Competence in Gotland

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Abstract

One key element in organizational success should be the organization's capacity to change and to develop new knowledge – to be a learning organization. A good knowledge management system assures that all relevant knowledge is being acquired and used in all activities. The practical aspects of change management should form an important part of the knowledge that needs to be managed in any organization and Universities could be seen as centres for knowledge management within different areas of competence. Universities might also be able to support regional change with competence within change management.

The general purpose of the study is to see how universities could contribute to regional development. The specific research questions in this study are:

- How could knowledge management be described on the regional level?
- How could a university contribute to regional knowledge management?
- How could knowledge management of regional change management be described?

Knowledge management theory is reviewed with focus on knowledge management of change management. The process view can generally be used to describe organizations and it should therefore also be possible to view regions as process based systems. To do this, generic process models are used. A process model integrating knowledge management is presented and discussed. Based on the regional vision, change challenges are identified and these are translated into competence needs. These needs are compared with university competences

Results show that the process view can be used to describe regional knowledge management. Based on descriptions from ongoing processes it is possible to show how and to what extent universities contribute to regional needs. There are considerable improvement opportunities in improving the support of knowledge management of regional change management. The results indicate that universities should be able to contribute with important knowledge management components for regional development.

Keywords

Knowledge management; Learning organisation; Regional development; System processes;

Category

Research paper

Introduction

It is widely accepted that knowledge is a key economic resource, and one of the most important resources for development and competitiveness in organizations (Anantatmula, 2010; Lerro & Schiuma, 2009; Isaksson, 2004; du Plessis, 2004; Yakhlef, 2009). It has been largely recognized that knowledge resources play a fundamental role and have relevance for regional development (Lerro & Schiuma, 2009; Pike, Rodrigues-Pose & Tomaney, 2006). It is also stated that one key to organizational success is in the organization's capacity to develop new knowledge in a continuously learning process (Alvesson & Sveningsson, 2007; Anantatmula, 2010; Isaksson & Trönnadal, 2005; Yakhlef, 2009). To lead and control these knowledge issues and learning processes, you need knowledge management (KM) and an understandable knowledge management system which assures that all relevant knowledge is being used (Alvesson & Sveningsson, 2007; Anantatmula, 2010; Isaksson & Trönnadal, 2005). Binney (2001) states that KM in years to come, must be considered by all organizations in their strategic thinking and planning. So, with that in mind, KM should be important also in regional development. Visualizing KM on organizational change competence on a regional level could be a challenge.

Universities are working at the edge of new knowledge and could be seen as having an important role in identifying, refining, storing and dissemination knowledge for practical use. The question is how this could work to support regional development. Pike, et al. (2006:101) state that "the ability of development institutions to acquire, absorb and diffuse relevant information and knowledge is critical to local and regional prospects".

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Methodology

Knowledge management theory on change is reviewed and categorized. A region is viewed as a process based system with the identification of main processes, principal resources and Key Performance Indicators. A system model integrating KM is presented and used for categorizing elements of knowledge that need management. Based on the regional vision change challenges are identified and these are translated into competence needs. These needs are compared with university competences. We use knowledge on change competence as an example to study the relevance of regional KM and as an example of opportunities for university support to regional development. The area of change concerned is defined as change management competence for desired change. The interpretation of desired change is that it is change that maximizes the stakeholder value in relation to stakeholder harm while not causing any stakeholders undue harm. The structure of a possible university KM process is discussed based on theory and based on a case study of an existing KM process where the university plays an important role for the region and the nation. This is the case of knowledge on wind power management. Information on this is based on a web-site review and an interview of the person in charge.

Defining Knowledge Management

Knowledge management has many definitions. Maybe it is because KM often is seen as a hybrid discipline (Awad & Ghazari, 2004; Binney, 2001; Collison & Parcell, 2004; Pearson

& Saunders, 2006). Anantatmula (2010:241) says that: “Knowledge management is a systematic approach to utilizing information systems, business processes, best practices and culture, to develop and share knowledge within an organization, and connects those who possess knowledge to who’s to do not.” Pearlson and Saunders (2006:318) say about KM :“The most profound aspect of knowledge management is that, an organization’s only sustainable competitive advantage lies in what its employees know and how they apply that knowledge to business problems”. Functionally, KM can overlap the fields of learning and organizational development, human recourses and IT. This mix can be described as three (3) circles, see Figure 1, and KM is the area where these circles overlap (Awad & Ghazari, 2004; Collison & Parcell, 2004).

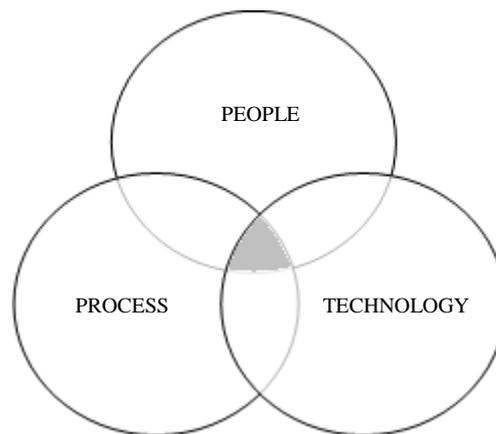


Figure 1. Knowledge management - the gray part - needs a balance of people, process and technology (Collison & Parcell, 2004:20).

Collison and Parcell (2004) claim that the messages from Figure 1 are powerful and indicate that the elements for successful KM include:

- A common reliable technology infrastructure to facilitate sharing,
- connecting the people who know, and
- the behaviours to ask, listen and share, and some
- processes to simplify sharing, validation, distillation.

Bhatt (2001) presents an interpretation similar to that of Collison and Parcell (2004) and Awad and Ghazari (2004) for knowledge management: “It is the interaction between technology, techniques and people that allow an organization to manage its knowledge effectively”, (Bhatt, 2001:68). No amount of accumulated knowledge has practical meaning until it is applied to human needs and concerns therefore an adaptive leadership competency is necessary to move knowledge into action, perhaps with help of a kind of system (Garrity, 2010).

A process based system view could be used to describe how KM is visualized (Anantatmula, 2010; Awad & Ghazari, 2004; Braf, 2004; Isaksson, 2004; Pearlson and Saunders, 2006). A Knowledge Management process can be described as collecting, filtering, storing, sharing, applying and refining knowledge for attaining higher levels of competence (Awad & Ghazari, 2004; Isaksson, 2004). In other words KM is about preserving and using existing knowledge and creating new knowledge for effective use (Awad & Ghazari, 2004; Anantatmula, 2010; Braf, 2000, Pearlson and Saunders, 2006).

Our interpretation based on above can be summarised using the one from Isaksson and Tröndal (2005). KM is described as the process of:

- 1) Identifying the knowledge that needs to be managed
- 2) Acquiring the identified knowledge
- 3) Refining and processing the acquired knowledge
- 4) Storing the processed knowledge
- 5) Sharing the knowledge
- 6) Applying the knowledge in processes and products

Braf (2000) separates KM into two strategies. The first strategy is the codified one with focus on IT. This is about software and systems for storing knowledge in different databases, where the co-worker can reach the knowledge. The personified strategy is the second one and is about how to transmit knowledge through contact between co-workers and where IT is used to communicate knowledge and not to codify and store it. Walsam (2001) states that the solutions to develop KM in organizations is not to create IT systems based on technology and technical solutions, rather it is about starting to identify the needs that co-workers have and to make the co-worker involved in the process. An effective and efficient KM process requires good resources such as relevant IT-systems and databases but also a culture that is aware of the needs of KM. Our interpretation is therefore that KM should be described with a model describing both “strategies” as described by Braf (2000).

Knowledge management as a process and as part of a system

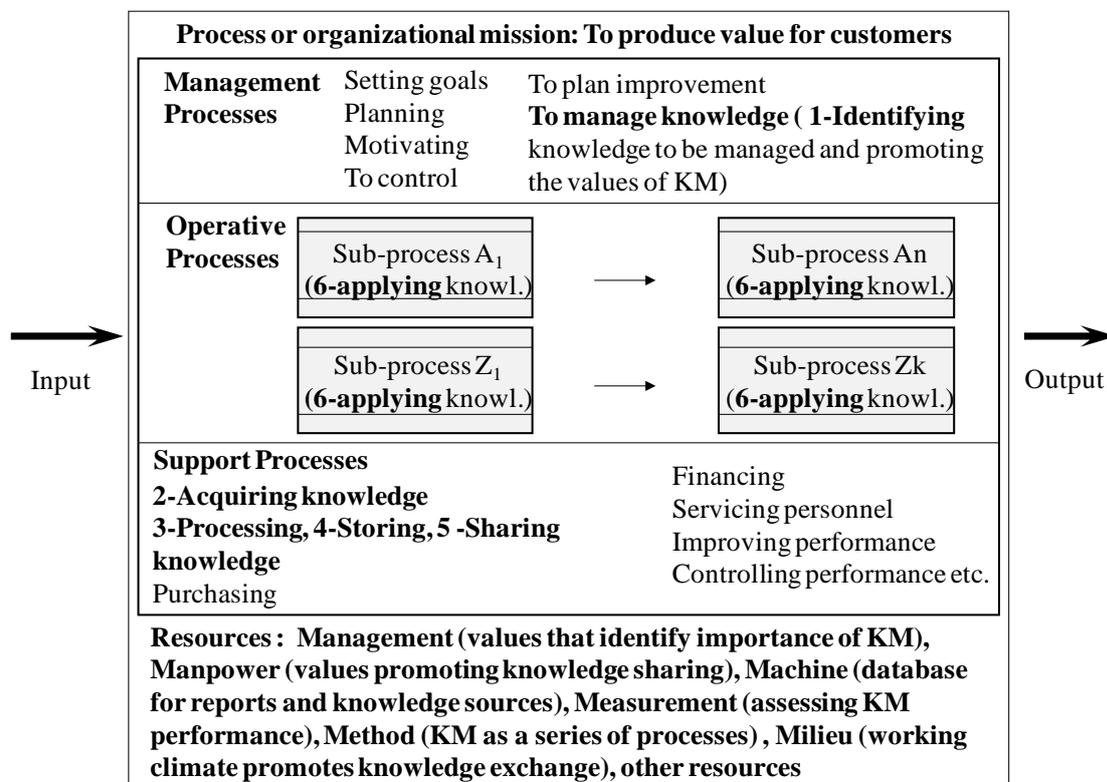


Figure 2. A process based system model proposing how knowledge management could be included in management and support processes as well as in resources. The model also describes some generic processes as examples. Adapted from Isaksson and Tröndal (2005).

Viewing knowledge management as a process is based on work from Isaksson and Tröndahl (2005) and process based system models are originating from Isaksson (2006) and Isaksson, Hallencreutz and Garvare (2008), Ljungblom, Hallencreutz and Isaksson (2010).

KM is often seen as an abstract concept which goes unnoticed in many organizations (Awad & Ghazari, 2004; Binney, 2001; Braf, 2000; Isaksson & Tröndahl, 2005). To make KM more visible in organizations and to recognize relations between the KM processes, the required resources and the organization, one way could be to include KM in the organizational process chart (Anantatmula, 2010; Awad & Ghazari, 2004; Isaksson & Tröndahl, 2005). Isaksson and Tröndahl (2005) propose an organization wide process that describes KM both as a management and as a support process, see Figure 2. The proposed six step process above has been placed into the process model with the sixth step “Applying the knowledge” ending up in the Operative or Main Process. This is to demonstrate that the KM process is complete only when the knowledge is used for adding value to the external customers. The six KM steps are tested for the process of managing change management knowledge, see Table I.

Table I. Six step knowledge management process applied to change management on the regional level. Adapted from Isaksson & Tröndahl (2005). The steps follow the numbering in Figure 2.

Process step	In	Out
1) Identifying and selecting knowledge to be managed	A need to know more about Change Management in order to be able to manage sustainable change in a region	A defined area within Change Management that is relevant and that is needed for successful change
2) Acquiring the selected knowledge	Defined needs for Change Management knowledge	Existing state of the art competence on Change Management has been collected and further needs of refining have been identified
3) Processing the acquired knowledge	Needs for refining knowledge	Refined and usable knowledge
4) Storing the processed knowledge	Usable knowledge	Usable and accessible knowledge and interest to use it in a workable technical solution (database as Machine resource – see Figure 2)
5) Sharing the knowledge	Interest to use knowledge from shared resources	Use of relevant knowledge which requires easy technical access to knowledge
6) Applying the knowledge	Relevant knowledge	Successful application of knowledge to improve processes

Organizational change

As mentioned knowledge management has many definitions and can be seen as a hybrid discipline. The same could be said about the field of organizational change management. Here we focus on knowledge management and define change management broadly as:

“The coordination of a structured period of transition from situation A to situation B in order to achieve lasting change within an organization.”
(BNET Business Dictionary)

The relation between change and knowledge management could be described using the customer and process perspectives. The process delivers value to customers. A perfect process can be described as effective (doing the right thing), efficient (doing the thing right without errors) and flexible (changing shape quickly without losing effectiveness or efficiency). A perfect change management process identifies the right thing to change and does this efficiently. It relies on having the latest knowledge on what customers require (the right product design) and it relies on the relevant knowledge of how to carry out change in the best way. In Figure 2 there is a support process called Improving performance which could be seen as the organizational change management process with additional support from the management process to plan improvement.

The content of what constitutes best change management will vary from organization to organization and will change over time. The important thing here is to identify that a core indicator for good KM of change management is how the people component is managed (Pearson & Saunders, 2006). Every organization needs competent change managers (Kotter, 2006). Change competence could probably be expressed as an indicator for managers. This could for example be based on to what extent managers have an additional education in leadership for change and to which extent they have experience of leading change. This means that an organization that has knowledge management of its change management competence needs to have a KM process that continuously identifies change competence required and then sees that this is shared and used by managers. The importance to handle KM as a manager and also to understand the complexity of change is the reason for us to study this area.

Knowledge Management Needs in the Region of Gotland

The region of Gotland has a number of challenges which are defined in the Vision 2025 document. We describe shortly the content of the document and identify areas and processes where change management knowledge is needed. This gives us a base for checking the current situation and to what extent it could be improved with the help of Gotland University.

Region Gotland has the municipal cooperative business responsibility for regional development on the island. In accordance with the missions a regional development program, Vision Gotland 2025, where the objectives of Gotland are described. Region Gotland is also responsible for development analysis and monitoring of performance. Linked to Vision 2025, Region Gotland has a number of specific programs for growth, environment, public health, transportation, comprehensive planning and international work (Lindskog, 2011).

Vision Gotland 2025 is a collective development program for all of Gotland with the purpose to create better conditions for sustainable growth in region Gotland. The definition of regional development its objectives and its priorities is ultimately a political issue. The proposal has been circulated for comments and open consultation. The vision was adopted by the City Council in June 2008 (Lindskog, 2011). Vision Gotland 2025 is not just a vision and a development program. There is also a policy for the whole of Gotland and all stakeholders.

Regional Partnership on Gotland provides a platform for information sharing, idea development, collaboration and allows wide decision support for the policy-making. Gotland University is included in this partnership. Vision Gotland 2025 states: "Gotland University is an engine for development". (Region Gotland, 2008).

- Collaboration between The University, society and commercial part will further increase.
- The University and the business sector in Gotland will collaborate for developing new products and services (Region Gotland, 2008:17).

The University collaborates with Region Gotland to integrate students into the society. One step is to create deeper contacts with the surrounding society. Further, the University education and research is more and more aligned to the environment of Gotland and to the unique prerequisites of community, nature and culture. Basic education, further training and research contribute to developing the society and the business sector in Gotland, (Region Gotland, 2008). The vision 2025 also states: It is also important to promote creative processes and new perspectives (permitting that something new, which is unique for Gotland is created in the future). The business and public sector and the University have to collaborate to create new environments that support this.

The University of Gotland has several fields where education and research are performed. Abrahamsson et al. (2011) have made a matrix with five areas of importance for regional development - Economy, Environment, Education, Health and Care. This has been interpreted from the regional view of the Triple Bottom Line with the dimensions of Economy, Environment and Social Responsibility. The social responsibility has been divided in Education, Health and Care. Additionally management has also been identified as a key area. The connection between the University topics and the relevance for with the identified core areas (from Vision 2025) are rated from 1 to 5 with 1 as low connection and 5 as strong connection. The conclusion is that Quality technology and Business Administration are the fields with the strongest connection to the core areas identified for regional development. The same relevance is assessed to exist with the goals and work with Vision 2025 (Abrahamsson et al., 2011).

Knowledge Management Maturity

When we view the Knowledge Management as a process it means we can assess its maturity based on a suitable maturity model. One way to assess the organizations Knowledge Management-maturity could be by using a maturity scale inspired by the ISO 9004 process maturity model, see Table II.

Table II. Proposed Knowledge Management Maturity model, adapted from ISO 9004:2000.

Maturity level	Performance level	Guidance
1	No formal approach to KM	No systematic approach to knowledge management in place, no results, poor or unpredictable results.
2	Reactive approach to KM	Problem- or corrective-based systematic approach to knowledge management; minimum data on improvement results available.
3	Stable formal system approach to KM	Systematic process-based approach to knowledge management, early stage of systematic improvements; data available on conformance to KM objectives and existence of improvement trends.
4	Continual KM-improvement approach	Improvement process in use; good results and sustained improvement trends in KM processes.
5	Best-in-class KM performance	Strongly integrated improvement process; best-in-class benchmarked results demonstrated in KM processes.

The proposed model in Table II is tested in assessing the current maturity of regional and university knowledge management processes.

Knowledge Management in Gotland University

Gotland University hosts a centre for wind power information that actively collects relevant information which is stored on the web-site (CVI) for common use (Aldén, 2011). This could be seen as a typical example of knowledge management. Below the process has been studied and interpreted using the six step process from Table I. Every stage has been commented and assessed individually using the maturity model in Table II.

Table III. Six step Knowledge Management process used at Wind Power department (Aldén, 2011).

Process step	What WP do	Comments
1) Identifying and selecting knowledge to be managed	Continuous contacts with industry, governments, stake holders, networks, researchers', journals and public gives WP relevant input what's needed and necessary in the wind power arena. WP is also active in the media debate to find information what's new.	No systems that secure that the whole market has been scanned. Each of the teachers takes care of their contacts. Maturity - 3
2) Acquiring the selected knowledge	<ul style="list-style-type: none"> • Experiences from real projects • Research • Compilation of knowledge • Reports, investigations from industry and governments 	As above. Maturity - 3
3) Processing the acquired knowledge	Two types – education and information to CVI. For education each teacher picks out the relevant part for their course. However almost all of the acquired knowledge is presented in the CVI database.	More collaboration between lecturers is needed. Maturity - 3
4) Storing the processed knowledge	WP uses the university's website for education to store courses. They also use a shared drive in the Gotland University IT system to archive evaluation results, comments, old stuff to each course. There is still a lot of information in file folders in the teacher's offices.	Not all usable knowledge is accessible Maturity - 2
5) Sharing the knowledge	<ul style="list-style-type: none"> • Databases in university • Courses • In-house seminars • Web site CVI 	Unclear how the use of knowledge is. However there are statistics for how the website is used. Maturity - 2
6) Applying the knowledge	Applying relevant knowledge in work with Wind Power	Unclear how much is applied to improve processes Maturity – 1

Results from Table III show a reasonable well functioning Knowledge Management process with an average maturity of 2.3. With corrections based on comments this process could be used as a benchmark.

Knowledge Management of Change Management – Analysing Gotland University

With the KM process of the centre of wind power information as a model including identified improvements it becomes possible to visualize how a similar process for change management could look like. In Table IV we used the six step process model to look at how KM of change management is currently carried out in Gotland University using the topic of Quality Management as an example. In Gotland University Quality Management also handles leadership education and change management courses. We also assess the maturity of the different steps.

Table IV. Six step knowledge management process applied on change management competence within the topic of Quality Management (that includes courses in leadership and Change Management). Assessment of maturity is includes based on the model in Table II.

Process step	What Quality Management does	Comments
1) Identifying and selecting knowledge to be managed	No university directives and no directives within the topic. Some ad hoc contacts with industry, researchers, professional networks and relevant journals. Few contacts with the public sector other stakeholders and the general public- Participating in conferences gives some relevant input of what is needed and what is essential necessary in the area of change management arena.	No systems that secure that the whole market has been scanned. Which knowledge is included is depending on the view and interest of each lecturer. Maturity – 1
2) Acquiring the selected knowledge	No directives as above. No dedicated budget. General research funds or funds for personal development have to be used. Ad hoc input from research done, course development, books read and conferences visited.	Each lecturer takes care of their own acquisition of knowledge based on availability of time and priority. Maturity – 1
3) Processing the acquired knowledge	No identified approach. Acquired knowledge is not systematically discussed. Processing is mostly done within the student education when several lecturers co-operate in the same program or course. Some processing of knowledge is done in the form of action research. Course evaluations are studied and changes proposed according to directives.	More collaboration between teachers is needed. A deeper analysis of student feedback would be needed including alumni feedback. Maturity - 1
4) Storing the processed knowledge	QM uses the university website for education to store course and program information. There is still a lot of information in file folders in the teacher's offices. A shared drive in the Gotland University IT system to archive evaluation results, comments, old stuff to each course. Research results are stored in a common database DIVA.	Not all usable knowledge is accessible. The information is mainly accessible for those who have worked as teachers on the courses. DIVA is still not fully used Maturity – 2

5) Sharing the knowledge	There is no approach on how to share the information internally in the university or externally. Data bases are partly available to lecturers. Presentations on conferences and publication of articles. Courses on demand organised for external organisations.	There is no identified approach for identifying existing competencies that lecturers have. External stakeholders have not been identified and they have little possibility to share existing knowledge. Maturity – 1
6) Applying the knowledge	The university vision mentions regional development as an important area. The Swedish university mission includes co-operation with society within education and research. There are no directives at the level of the topics. QM has an approach in the education of using a pedagogy that combines theory and practise in real world cases.	Some research has been carried out on to what extent knowledge is being applied. However, this is not systematic. Maturity – 2

Results from Table IV show that the KM process for Change Management exemplified with courses within the topic of Quality Management in Gotland University has a low maturity. The KM processes are driven by individuals without any clear directives. There does not seem to be any systematic process based approach to knowledge management of change management. This can be seen as an indication of the fact that KM has not been identified by the university management as an issue. The first step in the six step process has not been activated, see Figure 2. With focus on the vision statement that mentions the region as a focus area it should be relatively easy to create approaches for improving the flow of change management competence to the region. Documented and adopted procedures for systematically sharing of knowledge among scholars and the use of data available on conformance to KM objectives and improvement trends could improve the KM process maturity. This should form a good starting point for supporting regional change management with an improved KM process.

Currently Gotland University and the region of Gotland only have limited benefits from the existing knowledge of change management. This exists mostly as isolated competences with individuals and among work groups. To make full use of the globally existing knowledge of change management the KM process needs to be thoroughly improved. Abrahamsson et al. (2011) find that Quality technology is one of the fields with the strongest connection to the core areas identified for regional development including the contribution to improved management practises. In Figure 3 regional key processes have been identified.

To develop good knowledge management strategies in Gotland University and in the topic of QM it is necessary to start with a review of stakeholder needs in the region. For this the proposed system model in Figure 3 could form a base that is successively developed. What is needed in the region related to change management competence? At the same time the Knowledge management maturity in Gotland University should be developed having a systematic approach to find new research and knowledge on change management.

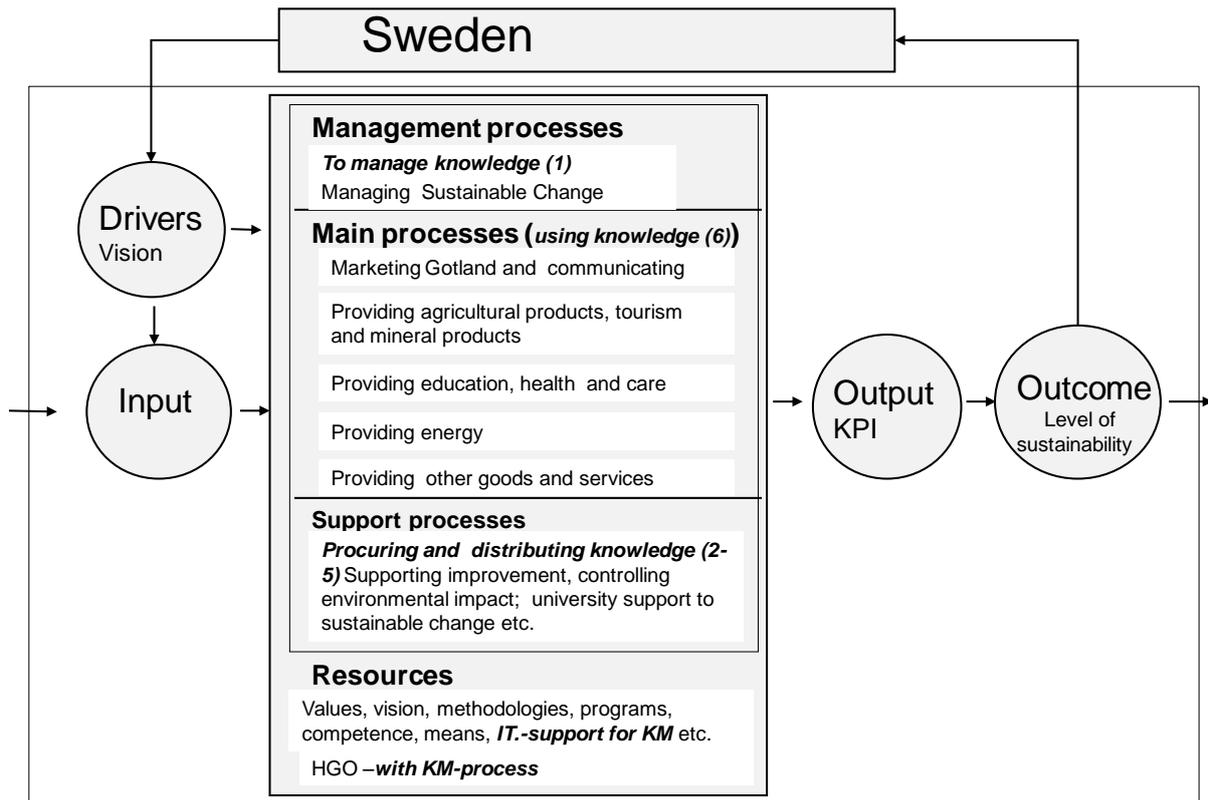


Figure 3. The region of Gotland described as a system of processes where key processes and resources have been identified. Knowledge management elements based on Figure 2 have been introduced. Adapted from Isaksson et al. (2008) and Abrahamsson et al. (2011).

Conclusion

The proposed answer to the research questions – “How could knowledge management be described on the regional level?” – is to use a system based process model in combination with the six step process of Knowledge Management described in Table II and introduced in Figure 3. The model only provides an overview. However, with focus on a particular topic like change management it should be possible to describe the activities in more detail and also to assess the current performance using the proposed maturity model in Table II

The answer for the second research question – “How could a university contribute to regional knowledge management?” could be seen as two separate activities. The first is to strengthen and to better define the University internal knowledge management process. The second activity would be to study the regional knowledge management processes and to support regional stakeholders in improving them.

The answer for the third research question – “How could knowledge management of regional change management be described?” – is to see it as a subset of Knowledge Management as described in Figure 3.

Discussion

The work has covered many areas superficially and is based on a number of working hypotheses, which still need to be validated. An example of this is the proposed maturity model in Table II and the process based system model presented in Figure 3. Also, the identification of key processes as proposed by Abrahamsson et al. (2011), only presents a proposal that needs to be validated. However, the model interpretations present a solution for

describing Knowledge Management including both an IT component and a component for how to deal with knowledge as described by Braf (2000). It forms an interesting platform for further research.

In the regional context we have identified the main regional management processes which could be further studied. As an example the political and the public servant based management of an area like Health Care could be taken as an example and studied using the models. The validation could be done by assessing the effect on sense making that the models create and the areas of improvement that they reveal. As Region Gotland seems to be interested in increased collaboration between the University and developing new products and services (Region Gotland, 2008), this presents an opportunity.

Future research could also deal with the leading strategies of the Region studied. There are a number of goals and indexes in Vision 2025. The Region managers have also identified measurable goals. But there is no strategy that deals with how the goals will be decided and measured. For example; In vision 2025 there is a goal that says 65000 citizens in the Region 2025. The last three years the total population number increased with 30 persons each year – and we could not find any visible evaluation or plan to cope with this.

The results show that we ourselves working within the topic of Quality Management should improve our KM processes. One important issue is how to share our knowledge in change management and Quality Management. Possibilities are such as setting up a web site open for public. We could also blog, presenting results from research, thoughts from conferences, education and so on. The challenge is to find out who the main stakeholders are, what they would be interested in and need and how they could be motivated to take in new knowledge.

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