PES UNIVERSITY
100 feet Ring Road, BSK 3rd Stage, Bengaluru 560085

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Knowledge Management case study

Enabling the Intelligent, Connected Ecosystem for Healthcare

TEAM - 5

Sachetan Sabhahit	PES1201701597
Rashmi.B	PES1201700016
P A Bharath	PES1201700046
Tejas Verma	PES1201701129
D R Sai Praneeth	PES1201701094
Dhanush N	PES1201701777

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Introduction:

GE Healthcare is an American multinational conglomerate incorporated in New York and headquartered in Chicago, Illinois. As of 2017, the company is a manufacturer and distributor of **diagnostic imaging agents and pharmaceuticals for imaging modalities that are used in medical imaging** procedures. The company offers dyes that are used in magnetic-resonance-imaging procedures. GE Healthcare also manufactures medical diagnostic equipment including CT image machines. Further, it develops Health technology for medical imaging and information technologies, medical diagnostics, patient monitoring systems, disease research, drug discovery, and biopharmaceutical manufacturing. The company was incorporated in 1994 and operates in more than 100 countries. GE Healthcare operates as a subsidiary of General Electric.

Vision:

"At GE Healthcare, we strive to see life more clearly. Our purpose is to help healthcare providers predict, diagnose, inform, monitor and treat disease earlier so that every individual can live life to the fullest. Our vision for the future is to enable a new "early health" model of care focused on earlier diagnosis, pre-symptomatic disease detection and disease prevention."

Mission:

"At GE, we consider our culture to be among our innovations. Over decades our leaders have built GE's culture into what it is today - a place for creating and bringing big ideas to life. Today, that culture is the unifying force for our many business units around the world.

GE and Knowledge Management:

Knowledge management strategy focuses on the acquisition, communication and exploitation of knowledge through transformation and learning. Knowledge management systems therefore, should focus on improving the processes to transform tacit knowledge into explicit knowledge
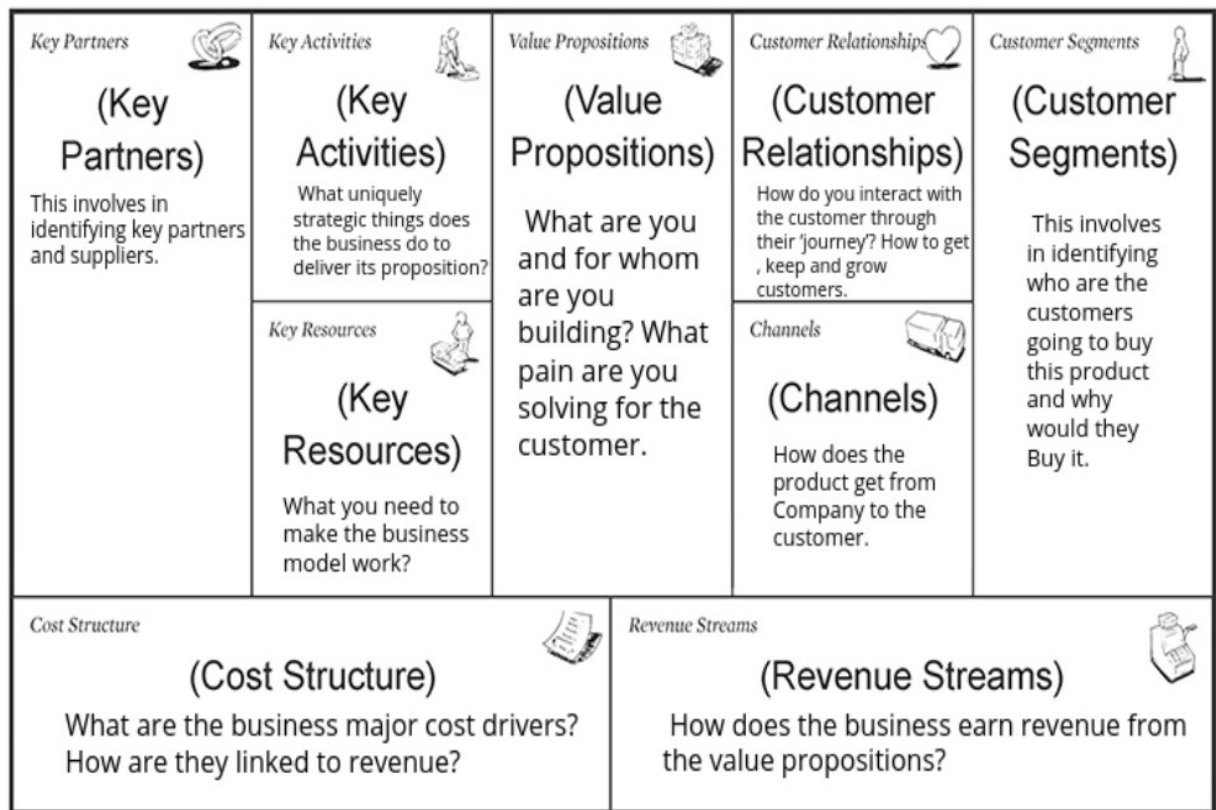
Reasons why knowledge management (also referred to as intellectual capital) is critical to an organization:
1. It is an organization's only appreciable asset.
2. Knowledge work continues to increase.
3. Employees with the most intellectual capital are also usually the most portable, so it is critical to retain their knowledge.
4. Many managers ignore the importance of intellectual capital and fail to capitalize on its benefits.
5. Reward and incentive programs need to be in place to recognize the employees who contribute the most intellectual capital.
6. Knowledge needs to be managed; as such it requires vision and strategy.

GE illustrates the manner in which a global knowledge management system can be implemented, how effective it can be and how it was a major success due to organizational commitment. We describe the GE knowledge management system efforts next.

The Business Model Canvas:

The Canvas has 9 elements

Key Partners (Key Partners) This involves in identifying key partners and suppliers.	Key Activities (Key Activities) What uniquely strategic things does the business do to deliver its proposition?	Value Propositions (Value Propositions) What are you and for whom are you building? What pain are you solving for the customer.	Customer Relationships (Customer Relationships) How do you interact with the customer through their 'journey'? How to get , keep and grow customers.	Customer Segments (Customer Segments) This involves in identifying who are the customers going to buy this product and why would they Buy it.
	Key Resources (Key Resources) What you need to make the business model work?		Channels (Channels) How does the product get from Company to the customer.	

Cost Structure (Cost Structure) What are the business major cost drivers? How are they linked to revenue?	Revenue Streams (Revenue Streams) How does the business earn revenue from the value propositions?

Key Partners:
Wheaton Franciscan(A not-for-profit, Catholic health care sys   - tem)
NVIDIA(AI for CT scanners)
Intel corp(Xeon processors to build both on-premise and off-site data storage arrays for customers)

Value proposition:
"Outcomes-based solutions" is one of the firm's most defining value proposition.GE's purpose is to help healthcare providers predict, diagnose, inform, monitor and treat disease earlier so that every individual can live life to the fullest. GE's vision for the future is to enable a new "early health" model of care focused on earlier diagnosis, pre-symptomatic disease detection and disease prevention."

Channels:
- Internet
- Distributors
- Retailers
- Direct contracts
- Official comapany websites

Key Resources:
- Factories
- Employees
- Brand
- Distribution Network

Key Activities:
- Manufacturing
- Engineering/design
- Sales/Marketing
- Distribution service
- R & D
- Investment in start-ups(through five.eight programme)

Revenue Streams:
- Appliance sales: online sales and sales from distributors and retailers
- B2B(launched GE Healthcare Service Shop as a log-in portal for hospitals and others to order spare and replacement parts.Today GE Health sells mainly its own parts. But by expanding B2B ecommerce and adding on more website upgrades, GE Health aims to diversify and sell more parts online from other healthcare equipment manufacturers.)
- B2C (Business to consumer i.e indirect sales)

Cost Structure:
- People
- Manufacturing cost
- Distribution cost
- R & D cost
- Marketing cost

Customer segments:
- Home builder (contracts)
- Retailers
- Mass markets

GE Financial: Knowledge in Action

Support Central, GE's knowledge management system, is the implementation of retired CEO Jack Welch's vision to transform the organization into a superior knowledge network. It illustrates how a directed management strategy and willingness to transform an organizational culture can successfully enable knowledge sharing at all levels of an organization (Talmadge, 2002).

Organizational culture has a direct and immediate effect upon the participant's willingness to share and use organizational knowledge. Cultures that promote openness and teamwork will accept knowledge management systems readily. Organizations that reward a "knowledge is power" culture need to radically transform to embrace a knowledge sharing culture. At GE, Jack Welch had built a knowledge sharing culture, so the leap to utilizing KM technologies was viewed as a step forward in the organization's evolution.

In the financial services industry, knowledge can be an organization's most valuable asset. It is essential that financial analysts accurately assess market trends, economic conditions, political and legal implications. When knowledge is a vital asset it becomes critical that the organization can effectively create, retain, maintain, access, and disseminate it throughout the entire organization. In 1999, Jack Welch announced that GE's corporate strategy would embrace e-business as one of its official corporate initiatives. As tactical plans began to emerge, it became apparent that merely using the Internet as a means to enable supply chain management was not enough. They need to go further, linking all employees together to maximize the intellectual capital of the organization.

Welch purported that excellent organizations exhibited two characteristics: boundarylessness and a learning culture. Knowledge sharing was considered to be essential because of the vast network of distributed organizations that comprise the GE Corporation. This was not a new concept for GE. In the early 1980's, Welch promoted integrated diversity; sharing of knowledge across business units. His vision was for business units to share their core competencies to increase profitability.

At GE, the result was Support Central, a portal application designed to enable knowledge sharing across the organization. Prior to the construction of Support Central, eight critical success factors were identified to enable the successful development of a knowledge sharing application for the organization. These included to:

1. Identify the types of knowledge required to support the corporate strategy.
2. Identify individual employee's skills and expertise.
3. Store existing knowledge in a structured manner.
4. Collect and retain external knowledge and information.
5. Store all knowledge in indexed and inter-linked knowledge repositories.
6. Implement a knowledge sharing network.
7. Integrate the knowledge network into the decision-making process.
8. Create new knowledge promoting research and development.

In the design of Support Central, they evaluated two strategies to knowledge management systems implementation: codification and personalization. In a codification strategy, knowledge is encoded and indexed for ease of access. In a personalization strategy knowledge and expertise are identified throughout the organization and a network is established to enable one-on-one contact. Many organizations utilize an 80/20 or 20/80 split in these strategies based upon their orientation (Aronson, Turban, and Liang, 2005). On the other hand, certain, highly skilled, research-oriented industries may exhibit traits that require approximately equal efforts with both approaches. For example, Koenig (2001) argues that the pharmaceutical firms in which he has worked indeed requires about a 50/50 split. Turban, Aronson, & Liang (2004) suspect that industries that require both major engineering effort and major research effort fits the 50/50 hybrid category. GE is such a firm.

GE decided that they must answer three questions prior to determining the proportion of each strategy to pursue:

1. Does GE offer customized or standardized products and services?
2. Are the products and services at GE mature or innovative?
3. Do they rely on tacit or explicit knowledge to resolve issues and support their products and services?

In each case there is no clear cut answer. GE is one of the largest corporations in the world, with products ranging from high tech medical equipment to light bulbs. Their corporate culture encourages research and development leading to mature products. They are constantly in search of new and innovative products and services. As a result, they determined that they needed a hybrid corporate strategy that would support both codification and personalization. They recognized that there are advantages and disadvantages to both approaches. Codification into explicit knowledge makes it readily available to all employees at any time. However, codification requires interpretation and presents the challenge of keeping knowledge current. The personalization model is premised on the assumption that an expert can be easily identified and is readily available.

Support Central was designed to support both strategies. It is a single entry portal designed to give all employees 24x7 access to a large array of knowledge repositories and a directory of topic experts. This includes access to reports, white papers, cases, forums and chats. Users can personalize their homepage to fit their individual needs. It is available via the corporate intranet and is accessible by employees, contractors, vendors, and suppliers. The objectives of Support Central are to:
   • Gather frequently used information and make it available to every employee.
   • Offer interactive multi-media training.
   • Provide each business with the ability to manage and maintain unique knowledge repositories.
   • Save employee time and money when searching for information.
   • Gain competitive advantage by capitalizing on existing knowledge within the corporation.
   • Achieve cost savings for all GE businesses.

This was further refined by establishing a short-term and long-term strategy. In the short term, GE sought to:
   1. Implement Support Central across all GE businesses worldwide.
   2. Create useful communities (often called communities of practice) to handle specific business processes.
   3. Develop customized Support Centrals to meet local needs, particularly in regards to language and culture.
   4. Accommodate third party experts into island communities.

The long term strategy included to:

1. Create a user-friendly central library that will improve the way GE does business.

2. Integrate all documents and applications to streamline information access.

3. Increase service to vendors, suppliers and customers and ultimately achieve cost savings.

Knowledge Sharing Model

The results of the GE Support Central implementation illustrate a model for knowledge sharing throughout a multi-business multi-national corporation (Figure 1). The portal's login screen indicates the culture it is reinforcing, Share Knowledge, Find Answers. It incorporates internal communities with island communities to enable an unencumbered exchange of information and ideas.

Figure 1. The General Electric Support Central Community Framework
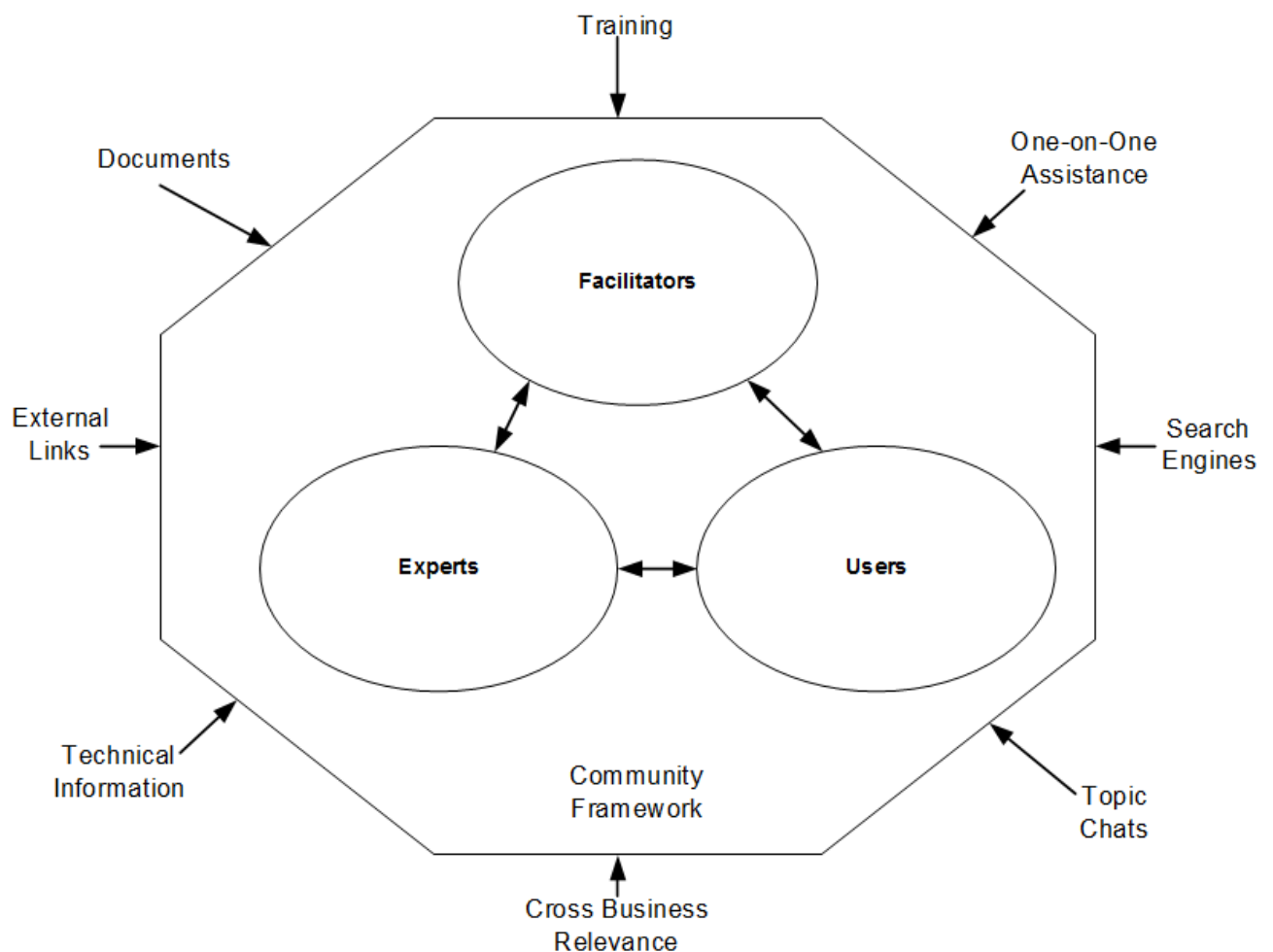
Support Central is a self-managed set of communities; therefore facilitators, users and experts are responsible for content management. Content management is recognized as a critical activity to keep knowledge up to date. To create a community within Support Central, six steps are required:

1. Pre-registration – users are defined to the system.
2. Plug-ins – three plug-ins are required to index Word documents.
3. Brainstorm community ideas/assign contacts.
4. Assign roles – each business unit is required to assign a facilitator, co-facilitator and   experts (a minimum of three experts are required to form and maintain a community).
5. Create an on-line community – the facilitator is responsible for posting relevant documents and links   for the community.
6. Launch the community.

Security is managed at the community level, with users defined as direct users or island communities (remote access users). Three levels of security exist: community level, document level and case level. At the document level, facilitators control who has access to what document through the user's profile. Cases can be secured by facilitators, experts or users. Cases are issues, questions, or areas of analysis initiated by users. Support Central consists of a series of Oracle databases and an application server running Websphere Enterprise Edition. Thunderstone was selected as the search engine due to ability to manage over 100 different document types. Support Central is accessed via Internet browsers and does not require special software (other than common plug-ins).

Support Central supports a multi-language training environment to facilitate the delivery of on-line training worldwide. It supports training for business units and information technology support teams. Some of the training supported includes:

• Employee Reinsurance Corporation Digitization Certification
• GE e-Business training
• Virtual Master Black Belt for GE appliance repair
• Unigraphics for Manufacturing

There are over 165,000 registered users, defined within more than 1,300 communities. Thus far it has met with wide-spread acceptance.

Discussion

GE is a multi-billion dollar corporation that has embraced knowledge management implementation through the use of portals as a means to support a continuous process improvement culture. Support Central utilizes a hybrid strategy of personalization and codification to effectively support the needs of over 160,000 users. It has proven to be an effective implementation of Jack Welch's vision to embrace Internet technologies as the means to transact business. In addition to cost savings, it has supported the transformation of a corporate culture into a knowledge sharing organization.

Knowledge management as a concept has been defined in several ways using numerous technologies. Dynamic organizations find methods to effectively support their tasks in a manner that is embraced by the vast majority of the employee population. Support Central has had dynamic growth since its initial implementation, demonstrating its widespread acceptance within GE. Additionally, one of the significant challenges of managing a knowledge management system is to ensure that there are processes and procedures in place to keep knowledge current.

The implementation of Support Central has resulted in the definition of a model for supporting a knowledge management community framework. It defines the tacit and explicit components needed to effectively implement a knowledge management strategy that consists of personalization and codification components. The community framework is significant because it represents a large-scale knowledge management implementation that provides up to date answers to a vast array of questions and links knowledge experts to specific user cases directly and immediately.

Summary and Conclusions

Knowledge management promises to have major impacts on how organizations function. This is evident from the GE case described here. GE leverages its knowledge, in a global sense, to create major returns. Depending upon the field, such returns on investment ranges from 5 to 25, approximately annually. Mitre Corporation conducted an audit of the effectiveness of their KMS. Mitre invested about (U.S.) $8 million for a two year return of over $60 million (Turban, et al., 2001). These impacts are available to astute firms, governments and international agencies. The technology for transferring knowledge is readily available, and affordable. If an organization's or a country's culture is ready to share, such systems and methodologies can have deep impacts. Care must be taken. Sometimes limits are imposed by law, based upon culture. For example, the People's Republic of China has an "Information Law" that, roughly stated, indicates that each agency must buy information from each other agency, regardless of the consequences for not having shared information. Such information recovery laws will inhibit the development and use of knowledge management systems, and restrain nations economically for years to come. It is critical for countries, as for organizations, to reach a state of readiness before a successful KM effort can be begun.

GE has demonstrated that knowledge management systems can have an immediate impact, and financial benefit to international organizations that have a willingness to embrace a knowledge sharing culture. It is our hope that countries do the same to promote strong economic development.

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