

# Assessing the Knowledge Sharing Environment Within a Multi-National Pharmaceutical Company

Steve Smith, Loughborough University, Holywell Park, Loughborough, Leicestershire, UK, LE11 3TU; E-mail: S.C.Smith@lboro.ac.uk

Thomas W. Jackson, Loughborough University, Holywell Park, Loughborough, Leicestershire, UK, LE11 3TU; E-mail: t.w.jackson@lboro.ac.uk

Tom Parsons, Loughborough University, Holywell Park, Loughborough, Leicestershire, UK, LE11 3TU; E-mail: T.W.Parsons@lboro.ac.uk

Holger Adelman, The Target Pharmaceutical Company, UK

## 1. ABSTRACT

*This paper has taken the key concepts taken from Andreas Riege's (Riege 2005) work to construct a questionnaire that was used within the drug development department of a large multi-national pharmaceutical organisation. The questionnaire assesses the department's culture to sharing knowledge which will aid in the development and deployment of a new Knowledge Management Decision Capturing Tool. The overall aim of the research is to increase the chance of the tool succeeding within the organisation by better understanding the cultural issues. This paper details how the questionnaire was formulated, analyses the results and draws conclusions from what can be learnt from such research projects.*

## 2. INTRODUCTION

Nowadays we live in a knowledge economy that relies on the knowledge of employees. This is particularly relevant to the Pharmaceutical industry that develops and sells drugs and medications. Yet what they are really purveying is the knowledge and creativity of the researchers who develop these products, obtain approval, and get them to market. Knowledge Management has emerged as a popular and important area of academic and practitioner research, the principal reason behind the rise in popularity, is that authors such as (Drucker 1993) have assigned a value to the knowledge within an organisation. The sharing of knowledge between employees in an organisation has been shown to be of great benefit and provide competitive advantage (Argote, Ingram 2000). Argote and Ingram (Argote, Ingram 2000) stated that 'The ability to transfer knowledge from one unit to another has been found to contribute to the organizational performance of firms in both the manufacturing and service sectors'. Due to these factors, organisations are becoming increasingly aware of the need to actively manage the knowledge of their employees and knowledge repositories, as their operating strategies are driven into distributed models by the advent of modern cross functional and cross team working practices (Argote, McEvily & Reagans 2003). For example, typically, only one out of 30 new projects results in marketable medication in the pharmaceutical industry (Myers 1991) and the knowledge the researchers carry from project to project therefore has a direct bearing on profits. A company that can improve the ratio to one in 28 through more rapid and efficient development has a competitive advantage (Myers 1991)

Attempts to address the issues of information and knowledge extraction within the initial discovery stages of drug development have met with mixed results. Scarce Knowledge Management based literature exists on the subject, indeed Schweizer (Schweizer 2005) questions the ability of the acquiring pharmaceutical company to 'absorb' the knowledge of the biotech company, concluding that in many cases the pharmaceutical company may prefer to outsource its R&D activities to these companies and instead concentrate upon its core competencies of late stage clinical trials, regulatory affairs and marketing activities.

The research detailed within this paper is part of a larger three year research programme into how the multi-national pharmaceutical company can increase their competitive advantage through the careful development, education, deployment

and training of staff around a specific Knowledge Management and Decision Capturing Tool (KM-DCT) that will aid their employees to:

- Record and structure their knowledge and decisions.
- Make informed decisions through interrogating the stored knowledge and decisions.
- Provide considered and concise strategic options for internal customers, thus saving them time and above all providing a higher level of scientific accuracy.
- Use a tool that is seamlessly part of their working habitat, integrated with their everyday process.

This paper details the results of stage one of the research which involves assessing the environment (employees and culture) within the drug development department of the pharmaceutical company with regards to knowledge sharing and capturing.

This research has been based on the paper "Three-dozen knowledge-sharing barriers managers must consider" (Riege 2005) which presents a number of barriers and problems that must be considered. The key concepts of that paper have been used to develop a questionnaire that was used within the drug development department of the multi-national pharmaceutical to assess the department's culture to sharing knowledge and determine how the suggestions fit this organisation. The results of the questionnaire will be used to feed into the development of the KM-DCT, with the overall aim of the research to increase the chance of KM-DCT succeeding.

A practitioner aims to create an environment conducive to knowledge sharing and is largely reliant upon the implementation of technology to support such knowledge interaction (Richardson 2001). On the other hand, the academic arena approaches Knowledge Management from a conceptual angle, seeking to analyse the underlying basis of knowledge and create an environment conducive to knowledge sharing without the emphasis upon technology (Sullivan 2000)(Nomura 2002).

In order to gain a competitive advantage through the development, education, deployment and training of staff on the KM-DCT, three main areas will be addressed to ensure that the three year research programme is successful. Research will address the following three main areas as a holistic approach:

- Employees (culture)
- Process integration
- Technology

Employees, because only human beings can generate knowledge from information and re-use it in a different context. Processes, because the transmission of knowledge from person to person requires rules and procedures in order to make use of knowledge or take action on it. Technology is necessary to store, retrieve, and organise vast quantities of information and make it digestible by human beings so that new knowledge can be discovered. Note that technology was not first on this list. Without detailed consideration of the employees and processes technological systems will undoubtedly fail.

### 3. METHODOLOGY

#### 3.1. Research Methods

It was decided that the most efficient way to capture the information required would be to use a questionnaire. The ability to distribute the questionnaires to a wide geographical area was vital as a number of employees were based at different locations throughout the United Kingdom. Surveys also allow a greater number of variables to be studied than some other experimental methods (Galliers 1992).

It was also important to be aware of some of the pitfalls related to using questionnaires. Using a questionnaire takes a snapshot of the persons view at a particular point in time. They may also allow bias to be introduced because the person completing the survey chooses the answer they give. This may of course not reflect their true belief or their true state. Questions are also open to interpretation of the respondent. They may also not show the full picture as to why the respondent gives the answer they do. These are all issues to bear in mind whilst analysing and interpreting the results.

#### 3.2. Questionnaire Sections

Three key areas of knowledge management have been addressed within the questionnaire and are namely:

- Technology
- Culture
- Process

Whilst technology and culture can be addressed by questions in the questionnaire, the daily process of an employee must also be taken into consideration. For this reason a number of questions were asked surrounding the user's daily process. It was important to see if we could establish a way of introducing the toolset into their work whilst minimising disruption to their daily process and causing unnecessary stress or complication.

In addition to these widely recognised areas another section was created. This focused on reward. In preliminary discussions it was apparent that many employees felt that they couldn't make time to focus on knowledge sharing because of the lack of reward that would be received and perhaps even the negative impact it would have on their job. They felt that there was no system to reward them for knowledge sharing or encourage them to share. Any knowledge sharing was being done 'off their own backs' in the hope that it would improve their skills and job performance. There was also no way to record the fact they had spent time sharing knowledge in their time-sheets leading to unexplainable holes in their work schedule. Given the preliminary discussions it was important to discover if these feelings were shared throughout the organisation.

#### 3.3. Question Types

A number of questions were presented as multiple choice answers. In the majority of these scenarios they were in answer to a question that asked about the frequency something occurred. Most of these multiple choice questions were presented with an even scale, meaning that they had an even number of possible answers. There were generally 4 or 6 options. This was done to prevent employees from giving just a neutral answer and forced them to make a clear decision about the side of the argument they agreed with.

There were also a number of open text fields available. It was felt that although no statistical analysis can be easily achieved with these fields they would provide an excellent insight into the views of those questioned and enables them to expand on the answers that they give. This allows a greater view into their thoughts and hopefully leads to less interpretation being required to alleviate some of the issues mentioned previously.

#### 3.4. Deployment

The questionnaire was delivered as an online survey within the target organisation. This was done for a number of reasons.

The first and foremost reason was that anonymity was required. The questionnaire asks a number of questions which may be considered quite sensitive and their answers may be perceived by the employees as a threat to their job security should they offend anyone. It is also obviously important that truthful answers were received. In order to ensure that a unique reference to the employee was available without compromising their privacy, windows login id's were first en-

rypted using a cryptographic hashing algorithm which is very difficult to reverse (the system actually uses the SHA-1 algorithm).

Secondly, to ensure that recipients answered within their normal working environments to minimise the disruption caused and maximise the probability that responses would be received. It also increased the benefits of the questionnaire technique for obtaining results from highly geographically dispersed recipients.

The questionnaire contained many questions that related to IT and systems that the IT department delivers, thus it was important to get their agreement. The Human Resources department also ensured that they were acceptable to the members of staff.

The survey contained 60 questions divided into the previously discussed categories and was distributed to employees in one geographically dispersed department. Employees were asked to participate via email and of the 100 asked to participate, at the time of writing, 65 responses had been received.

### 4. RESULTS AND ANALYSIS

Like the questionnaire the results have been divided into four sections, Technology, Culture, Daily Process and Reward and Recognition Schemes.

#### 4.1. Technology

The first key indicator area has been used to determine the ability of the employees to use technology and to understand their current concerns with the existing systems that they use.

It is interesting to note that two thirds of the participants stated they were experienced as a computer user. Whilst 20% said that they had some experience and 12% said that they were experts. Only one person rated themselves as a novice. The employees' opinions of their experience with technology in general, followed a similar pattern. However slightly more employees felt they only had some experience.

Reluctance to use IT systems due to a lack of familiarity or experience with them is an issue for some employers, however, in a company where the majority of employees feel that they have experience with computers one might expect that this would not be a problem. What is quite positive is that 50% of the participants actually became excited about the prospect of something new.

Employees were also generally happy with the amount of training they had received to perform tasks associated with their daily work. However, over 50% felt training is inadequate. What this may indicate is that a system of clear communication is necessary to allow those who are perhaps slower at picking up the new technology or do not feel comfortable with the training, to obtain more references or training, whilst allowing those who are content to bypass this.

Another key issue mentioned by Riege (Riege 2005) is that not demonstrating all of the advantages of a new system over an old can cause negativity towards a system. This has also been identified as a problem within the target organization with 6% saying that benefits are rarely explained and 66% saying that they are only sometimes made clear.

Almost two-thirds of employees felt that sufficient technical support was available which is a positive outcome. It is worth investigating the reasons behind why one-third did not feel that technical support is available.

There was also a feeling that IS tools and business processes are not very well integrated with 61% saying that only sometimes are they well integrated. This lack of perceived integration will obviously impair sharing and coupled with the previous point shows an area that must be investigated.

#### 4.2. Daily Process

As mentioned earlier in the paper, for a new system to be a success it needs to be embedded within current daily processes, which includes the systems they use on a regular basis. The second key indicator determines the applications the employees use on a daily basis and what activities they undertake. Through understanding these it will be possible to determine the most suitable place for the KM-DCT to be embedded.

One of the most obvious options is to make the tool a web based system on the company intranet. When asked how often employees made use of the internet for work, 30% said all the time and 17% said hourly, this left 39% saying they

used it once or twice per day. Only seven employees said they used it just once or twice per week. This reinforces the fact that the web is a great location for a new system.

Several questions were asked about the sites that were frequently visited. When asked how often employees read the company portal, 47% said sometimes and 27% often, this indicates a logical place to put the tool. However, this may not signify a prominent enough position and more questions may need to be asked in order to determine how the tool could be promoted more successfully than simply making it available from the corporate portal.

It is also interesting to note that 81% of employees said that they received 25 or more emails per day and 92% stated that they left Microsoft Outlook running all the time. This represents a definite option for further investigation and research into possibilities of integrating the tool into emails will be worthwhile. Being able to automatically advise based on the outcome of previous decisions whilst working within Outlook could be a positive step.

Microsoft Word and Excel were also often used with 26% of employees stating they used Word always and 60% stating they used it often. Excel was used slightly less but still had over 60% saying they used it always, often or sometimes.

#### 4.3. Culture

It has been said (Riege 2005) employees can take 'ownership of intellectual property because they do not feel they are given sufficient credit when sharing knowledge'. This will obviously cause employees to be reluctant to share knowledge in future and cause them to keep knowledge to themselves, and only sharing what is truly necessary. Almost 50% of employees said they sometimes receive credit and 25% said that they rarely receive credit. This is obviously a very negative thing. Methods for giving credit are often difficult. It is important that employees still feel an emotional attachment to their information even though it is being used by the team. What is quite surprising is although there was a lack of credit for knowledge sharing, 85% of participants stated this did not make them reluctant to share knowledge in the future.

A lack of time to share knowledge is also an issue, 12% of employees said that they rarely received enough time to share knowledge and 56% said that only sometimes did they get enough time to share knowledge. Only two employees felt that they always had enough time to share knowledge.

Actually identifying employees to share knowledge with and employees who need your knowledge is also important. Fifty-three percent of employees said that they did not have time to identify employees who have knowledge that they require. A slightly higher 61% said that they did not have time to identify employees who may require their knowledge.

Being able to actually record knowledge sharing in their time sheets presents an issue for most employees as 76% of the respondents felt that they couldn't record their knowledge sharing activities. While this should not be an issue for the use of the tool, as the tool will mostly be used within meetings where the activity can be recorded without problems, this is still an interesting finding.

Twenty-five percent of those questioned said they always benefit from sharing knowledge and 50% often do, with 21% saying that they benefit sometimes. This demonstrates there is a culture that realises the benefits of knowledge sharing.

Questions were also asked relating more to the organisational culture and encouragement and availability of knowledge sharing practices. When asked if knowledge was shared outside a participant's team 81% said that it was and over half felt that sharing knowledge outside their team was part of their work process. Only 47% were aware of the company wide goals for knowledge sharing. Often the 'Integration of km strategy and sharing initiatives into the company's goals and strategic approach is missing or unclear' (Riege 2005). With almost half of the employees unaware of the company's knowledge sharing goals and objectives, it may be difficult for a unified approach to succeed.

Whilst 40% of employees stated that they are often encouraged to share knowledge by their superiors and 13% always encouraged, this still leaves 32% who are only sometimes encouraged and 14% who felt that they rarely received encouragement to share knowledge.

Sixty-five percent said that they found sharing knowledge easy. Almost 60% felt that there were an adequate number of places to interact formally and informally to share knowledge with colleagues, for example within meetings and coffee

rooms respectively. Only one-third of respondents felt that they were given the opportunity to interact with colleagues outside their immediate job, for example at conferences.

#### 4.4. Reward Schemes and Recognition

The final key indicator area has been used to determine the mindset of employees within the department to whether they require a reward and recognition system, or if they currently use one how it affects their work. It is clear that the majority (90%) of employees do not know of any reward schemes that currently run within the organisation, yet the small minority that do (10%) feel that the scheme offers sufficient reward for knowledge sharing.

Interestingly only a small percentage of employees (35%) felt that they were in competition with employees both within and outside their department. This indicates that 65% do not feel they are in competition which is a good factor for knowledge sharing, although competition can be useful to motivate employees.

Also only Nine employees felt that their organisational structure prevented them from knowledge sharing. For example they felt that knowledge was only shared between themselves and their direct manager. Whilst this is not necessarily a real problem for the company as a whole, for those individuals the sharing of knowledge is being suppressed.

Finally, almost 50% of employees stated they would be encouraged to share knowledge if it were incorporated into their yearly review process.

### 5. CONCLUSIONS

This paper has detailed the results of stage one of the research which involved assessing the environment (employees and culture) within the drug development department of the pharmaceutical company with regards to knowledge sharing and capturing.

In the Technology section of the questionnaire the results indicate that the majority of employees are comfortable with using IT, but what was clear is that the benefits of any new system need to be made explicit to the employees. In the Process section, the majority of employees use Microsoft tools on a daily basis followed by the organisations intranet. When a new tool is developed it is important that it can be embedded into existing frequently used tools to aid in its use. In the Culture section employees indicated that knowledge sharing should be recognised as bonafide activity and to aid this they should be allowed to list it on their timesheets. Finally in the Reward and Recognition section, employees indicated that they would be encouraged to share knowledge if it was incorporated into their annual review process.

The four key findings from this research are listed below:

1. Enable knowledge sharing to be recorded in its own right and as a valued activity (timesheets).
2. Benefits of the new system need to be explicit.
3. Build new tools into existing applications.
4. Make knowledge sharing part of the employee's job by including it in their yearly review process.

The results from the cultural side of this study show that employees are willing to share knowledge if it is made explicit that it is part of their job and that they can record their knowledge sharing activities to projects. From a technological viewpoint any new system should be embedded within frequently used existing systems, and the benefits must be made clear to employees.

The sorts of problems highlighted in this study are not thought to be unique to this organisation and other organisations could benefit from repeating such a study before introducing new tools to aid in decision capturing and knowledge sharing.

### 6. BIBLIOGRAPHY

- Argote, L. & Ingram, P. 2000, "Knowledge transfer: A basis for competitive advantage in firms", *Organizational behavior and human decision processes*, vol. 82, no. 1, pp. 150-169.
- Argote, L., McEvily, B. & Reagans, R. 2003, "Introduction to the Special Issue on Managing Knowledge in Organizations: Creating, Retaining, and Transferring Knowledge", *Management Science*, vol. 49, no. 4, pp. 5-8.
- Drucker, P.F. 1993, *Post-capitalist society*, Butterworth-Heinemann Oxford.

## 814 2007 IRMA International Conference

- Galliers, R. 1992, *Information Systems Research: Issues, Methods, and Practical Guidelines*, Blackwell Scientific.
- Myers, M. 1991, "Knowledge Management: How Do You Know What You Know? - Industry Trend or Event", *Computer Technology Review*, [Online], , pp. 02/06/06. Available from: [http://www.findarticles.com/p/articles/mi\\_m0BRZ/is\\_4\\_21/ai\\_77058294](http://www.findarticles.com/p/articles/mi_m0BRZ/is_4_21/ai_77058294).
- Nomura, T. 2002, "Design of 'Ba' for successful Knowledge Management—how enterprises should design the places of interaction to gain competitive advantage", *Journal of Network and Computer Applications*, vol. 25, no. 4, pp. 263-278.
- Richardson, D. 2001, "The Practical Reality of Knowledge Management within Development Initiatives", *International Fund for Agricultural Development's Electronic Networking for Rural Asia/Pacific Projects (ENRAP) 2nd Comprehensive Workshop*.
- Riege, A. 2005, "Three-dozen knowledge-sharing barriers managers must consider", *Journal of Knowledge Management*, vol. 9, no. 3, pp. 18-35.
- Schweizer, L. 2005, "Knowledge transfer and R&D in pharmaceutical companies: a case study", *Journal of Engineering and Technology Management*, vol. 26, no. 3, pp. 315-331.
- Sullivan, P.H. 2000, *Value-driven intellectual capital: how to convert intangible corporate assets into market value*, Wiley.

0 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: [www.igi-global.com/proceeding-paper/assessing-knowledge-sharing-environment-within/33191](http://www.igi-global.com/proceeding-paper/assessing-knowledge-sharing-environment-within/33191)

## Related Content

---

### Teaching Media and Information Literacy in the 21st Century

Sarah Gretter and Aman Yadav (2018). *Encyclopedia of Information Science and Technology, Fourth Edition* (pp. 2292-2302).

[www.irma-international.org/chapter/teaching-media-and-information-literacy-in-the-21st-century/183941](http://www.irma-international.org/chapter/teaching-media-and-information-literacy-in-the-21st-century/183941)

### Hybrid Data Mining Approach for Image Segmentation Based Classification

Mrutyunjaya Panda, Aboul Ella Hassanien and Ajith Abraham (2016). *International Journal of Rough Sets and Data Analysis* (pp. 65-81).

[www.irma-international.org/article/hybrid-data-mining-approach-for-image-segmentation-based-classification/150465](http://www.irma-international.org/article/hybrid-data-mining-approach-for-image-segmentation-based-classification/150465)

### An Efficient Intra-Server and Inter-Server Load Balancing Algorithm for Internet Distributed Systems

Sanjaya Kumar Panda, Swati Mishra and Satyabrata Das (2017). *International Journal of Rough Sets and Data Analysis* (pp. 1-18).

[www.irma-international.org/article/an-efficient-intra-server-and-inter-server-load-balancing-algorithm-for-internet-distributed-systems/169171](http://www.irma-international.org/article/an-efficient-intra-server-and-inter-server-load-balancing-algorithm-for-internet-distributed-systems/169171)

### From On-Premise ERP to Cloud ERP

Karim Mezghani (2018). *Encyclopedia of Information Science and Technology, Fourth Edition* (pp. 2965-2974).

[www.irma-international.org/chapter/from-on-premise-erp-to-cloud-erp/184008](http://www.irma-international.org/chapter/from-on-premise-erp-to-cloud-erp/184008)

### A Particle Swarm Optimization Approach to Fuzzy Case-based Reasoning in the Framework of Collaborative Filtering

Shweta Tyagi and Kamal K. Bharadwaj (2014). *International Journal of Rough Sets and Data Analysis* (pp. 48-64).

[www.irma-international.org/article/a-particle-swarm-optimization-approach-to-fuzzy-case-based-reasoning-in-the-framework-of-collaborative-filtering/111312](http://www.irma-international.org/article/a-particle-swarm-optimization-approach-to-fuzzy-case-based-reasoning-in-the-framework-of-collaborative-filtering/111312)