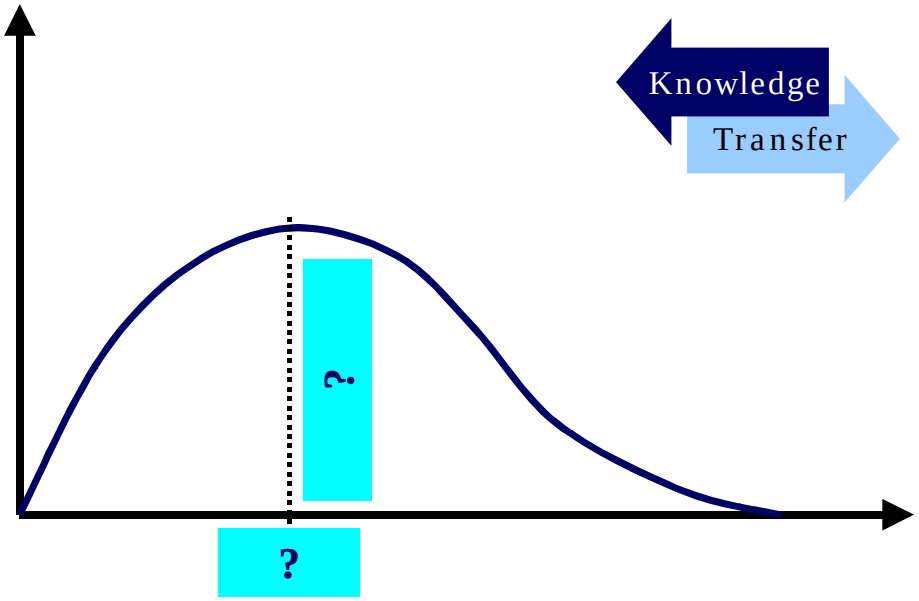

A Practical Approach to Enhance Knowledge Transfer

Diploma Thesis
Executive MBA HSG
Course No. 15
University of St. Gallen

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Advisor:	Prof. Andrea Back
Date:	25.10.2000

Contents

Figures

Tables

1 Management Summary

The objective of this diploma thesis is to identify Knowledge Transfer key indicators as part of overall Knowledge Management, and to apply them in practice within existing organisations.

Two key indicators are addressed (see figure below):

- What is the optimum time spent for Knowledge Transfer as a share of the overall working time?
- Which are the most relevant Knowledge Transfer activities at the optimum?

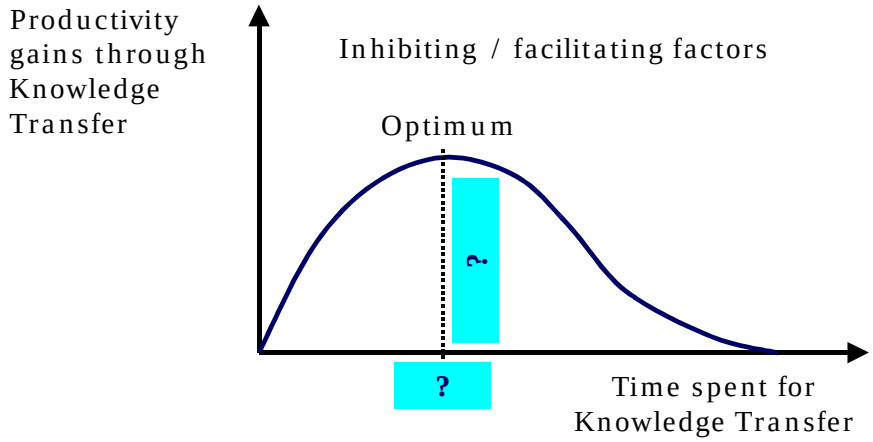

Figure 1: Knowledge Transfer Key Indicators

A pragmatic approach was chosen: First, a survey was set up to provide quantitative and qualitative data about optimal Knowledge Transfer. The existing KnowledgeSource model was chosen as the basis for the survey. The survey was then conducted in three different organisations:

- UBS Switzerland, IT Process Management (UBS)
- JDS Uniphase Switzerland (JDSU)
- Social Department Zurich (SD)

Beside the key indicators of Knowledge Transfer, other facilitating and inhibiting factors were addressed as well. The survey's findings are backed by interviews with members of the organisations.

To summarise, there is a general awareness about the importance of Knowledge Transfer. However, most participants have difficulties imagining how to apply Knowledge Transfer to their daily work. Interestingly, participants asked for less technical tools – specifically e-mail and intranet – but for more person-to-person contacts. Organisational culture and communication openness are considered important Knowledge Transfer success components. Different organisational forms encounter different challenges:

- In a large company (UBS), a high number of organisational barriers through hierarchical levels can inhibit Knowledge Transfer.
- A rapidly growing company (JDSU) has difficulties in establishing an effective organisation sufficiently, both mentally and organisationally.

- A civil service organisation (SD) which is not used to major changes can barely initiate them properly.

Second, Knowledge Transfer improvements must push for two aims:

- For short-term success, simple steps must be initiated quickly. The best way is a campaign that promotes small measures, which can be applied to daily work.
- Long lasting success requires cultural change. This is achieved by making Knowledge Transfer part of the strategy and the organisation. It is crucial to live the idea, not the letter; thus an active Knowledge Transfer community is much better than a central organisation.

To make Knowledge Transfer an ongoing success, it is highly recommended to continuously apply and measure the key indicators beyond this diploma thesis.

2 Introduction

2.1 Problem Definition

In today's economic world, change, and specifically an accelerating rate of change is becoming an important factor. Most corporations are not (yet) prepared to cope adequately with change. As part of the organisation, people involved in this constant change must be able to cope with the new, changing environment. One key component is to have the right skills at the right moment. To achieve this goal, it is important for an organisation to ensure that the right knowledge is at the right place in the right time.

Knowledge Transfer represents one aspect in the wide area of Knowledge Management. This diploma thesis aims to gain a better understanding of Knowledge Transfer in different organisations through investigations and comparison. The thesis addresses the situation of Knowledge Transfer within three company or administration environments, respectively:

- UBS Switzerland IT: An IT Process Management organisation within Switzerland's largest bank, which currently undergoes major changes after a merger and a reorganisation, where key skills must be kept within the organisation.
- JDS Uniphase: A very successful company, which produces laser systems, and which has to manage growth and fast learning.
- Social Department Zurich: Within the Social Department 2000 project, organisational transition needs to be managed by appropriately involving the people.

Within the Knowledge Transfer area, key indicator areas are addressed:

- It is assumed that a Knowledge Transfer optimum exists, i.e. a percentage of each individuals' working time used for overall knowledge capturing and knowledge distribution.
- Within the optimum, there is most probably an ideal allocation for different Knowledge Transfer activities.
- Beside the Knowledge Transfer activities proper there are facilitating and inhibiting factors.

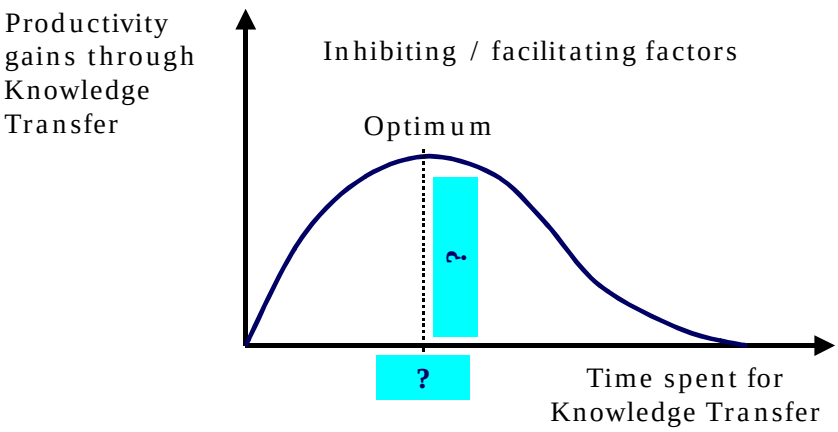

Figure 2: Principal Assumption – Knowledge Transfer Key Indicators

2.2 Objectives

This diploma thesis aims to identify a Knowledge Transfer optimum, both as part of an individual's overall working time and as activities thereof. Beside the Knowledge Transfer activities, factors that either facilitate or inhibit Knowledge Transfer are identified.

Knowledge Transfer and environmental factors identification is approached in three ways:

- Survey with quantitative and qualitative questions.
- Interviews with selected peers in the respective organisations.
- Comparison with the diploma thesis team's knowledge about the organisations.

Based on the established understanding, key indicators are identified to qualify Knowledge Transfer. Findings of the organisations are mapped to the KnowledgeSource model [KÖHNE et al.].

Using the model, recommendations are issued along two dimensions:

- Generic: Valid for all three organisations.
- Specific: Valid only for a single organisation.

2.3 Out of Scope

Due to the limited timeframe, the recommendations are not implemented as part of this diploma thesis. This is addressed outside the diploma thesis.

Since implementation is not covered, technical solutions and tools are not addressed on a practical basis, either.

2.4 Positioning

Knowledge Management is a wide field that is usually subdivided into smaller areas [EDVINSSON, L., MALONE, M.S., 11ff; STEWART, T.A.]:

- Human capital: Skills which leave a company when individuals leave the buildings, i.e. it reflects specific skills held by the people.

  It can be described through a skill map and in a next step by a task oriented competency map.
- Structural capital: Capital which stays with a company when their employees leave their offices, i.e. a company's ability to make skills accessible throughout the organisation, as defined and described by its processes, patents, trade marks, hardware, software, etc.

  The degree of formalism can vary: Are processes defined, known, applied, measured, and adapted to new situations? Some authors subdivide structural capital into organisation, innovation and process.
- Social capital: A company's culture, as it develops over time. This encompasses commonalties like history, background, experiences, language, explicit or implicit expectations, unwritten laws, etc.

The following table relates Knowledge Transfer to Knowledge Management:

	Human Capital	Structural Capital	Social Capital
Knowledge Transfer	Individual skills Ability to listen and teach Willingness to search for and use existing solutions Personal work organisation	Environment which supports structuring, documenting and communicating knowledge	Knowledge Transfer is known, supported and appreciated Social events Informal contacts
Facilitating and inhibiting factors	Learning Openness	Trust; open organisation, number of management levels Organisational barriers	Knowledge sharing culture: Openness of information exchange

Table 1: Positioning within Knowledge Management

In the practical part of this diploma thesis, the HSG KnowledgeSource model was adapted and a subset thereof was used [KÖHNE et al.].

2.5 Acknowledgements

The partners of the diploma thesis team, Sandra Brinkmann, Susanne Weidmann and Sinan Ünesen played the most important role for the success of this diploma thesis with their active support.

Prof. Andrea Back provided contributions to define a manageable scope. With their KnowledgeSource survey background, Ellen Enkel and Yvonne Wicki helped to make the questionnaire practicable.

Last, but not least, all UBS, JDSU and SD survey participants made the findings possible through their review, questionnaire and interview contributions (see the appendix for the full list of names).

3 KnowledgeSource Model

3.1 Introduction

This document is based on a model, which has been developed by the KnowledgeSource Research Center, a co-operation of the Institute for Information Management, led by Prof. Dr. Andrea Back, and the Institute of Management, led by Prof. Dr. Georg von Krogh, at the University of St. Gallen (HSG). In 1998 the Competence Center Knowledge Networks (CC KNN) was established in co-operation with selected companies [KÖHNE et al.]. It focuses on the integrated view of Knowledge Management and networking, whereas the reference model and the methodology are based mainly on academic research work. The main categories of knowledge work processes are defined as locating and capturing knowledge, transferring and sharing knowledge and knowledge creation. This diploma thesis focuses on Knowledge Transfer and concentrates on the specific aspects of the model relevant for this work.

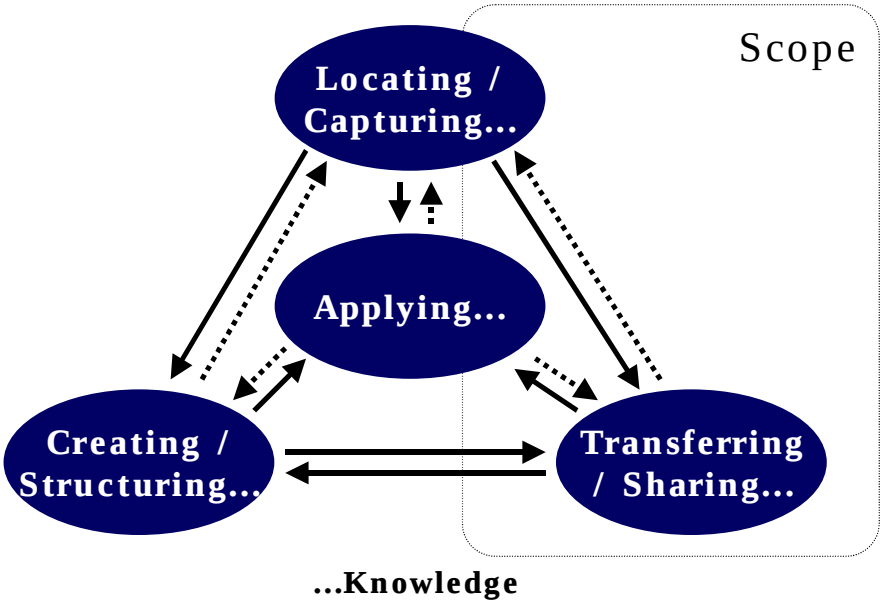

Figure 3: Knowledge Process Categories and Diploma Thesis Positioning

CC KNN defines the term “Knowledge Networks” as follows:

> “(...) to signify a number of people, resources and relationships among them, who are assembled in order to accumulate and use knowledge primarily by means of knowledge creation and transfer processes, for the purpose of creating value”. [KÖHNE et al., 20]

Knowledge sharing/transferring can be defined as:

> “the exchange of (tacit and/or explicit) knowledge between individuals, groups and departments (within a company when we talk of an internal knowledge sharing/transferring) and thereby as sharing/transferring cognitive frames of references and capabilities, which can be used for accomplishing a task and enables action as well as interpretation of information”. [KÖHNE et al., 27]

3.2 Knowledge Sharing / Transferring Process

CC KNN identifies three phases of knowledge sharing/transferring [KÖHNE et al., 27 ff].

Figure 4: Knowledge Transferring / Sharing Process Phases

During the initial phase, “initiation and co-ordination”, the emphasis lies on:

- Evaluating and identifying knowledge (by insiders or outsiders) which is relevant (and also different, as opposed to existing knowledge) for transfer and sharing.
- Examining the benefits of transferring/sharing.
- Identifying involved/right people or parts of a network.
- Identifying people and locations for co-ordination.

The focus in the second phase, “translation and negotiation”, is on:

- Making knowledge accessible to others.
- Using the network's own language, respectively translating knowledge into the languages of other networks in order to make the knowledge understandable and interpretable for those involved.
- Taking actions in order to meet the contexts of involved and other knowledge networks.
- Communicating and interacting.
- Relating the transferred/shared knowledge to the knowledge base of the own network.
- Reflecting upon the transferred/shared knowledge.
- Negotiating the meaning of the transferred/shared knowledge between members of the own network or of different knowledge networks.

In the final phase, “integration”, following issues become important:

- Identifying the transferred/shared knowledge (or parts of it) which seems to be useful for the network and adaptable to the existing knowledge base.
- Integrating this identified knowledge into the knowledge base of the network (in the core or in the peripheries).
- Applying transferred knowledge.
- Lessons learned.

These three phases are separate in theory. But in practical projects, of course, boundaries will be shifting.

3.3 Model Components

The various components of the model are derived from theory as well as from practical information.

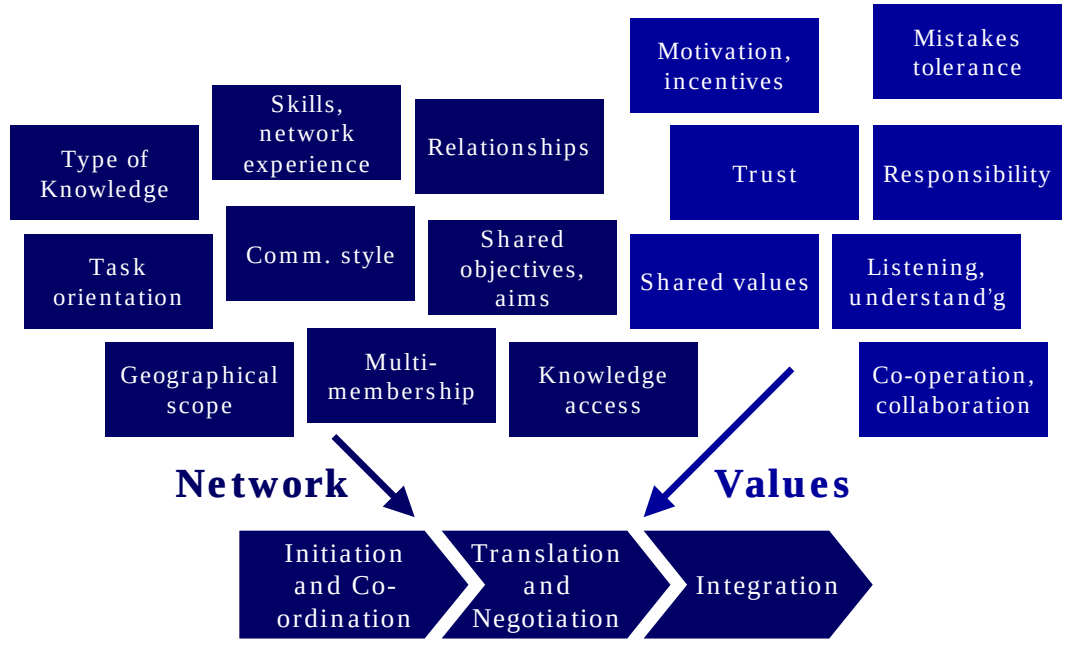

Figure 5: Overview – Model Components

Within the description of the model a discussion of the model components is important as well.

3.3.1 Aspects of Networks

It is essential to distinguish different types of knowledge for knowledge transferring/sharing. Explicit knowledge is more schematic and is easier to transfer systematically than implicit knowledge.

Existing skills, knowledge and experience correlate strongly with the ability to perceive and to assimilate transferred knowledge. Knowledge transfer/sharing works better within networks than between networks. As soon as knowledge transferring/sharing belongs to the roles and explicit tasks of the network members, such activities are facilitated. Positive relationships built on trust also favour such activities. Established relationships help understanding and learning about the needs and the behaviour of others.

Specific communications styles and sets of tools support communication and knowledge transfer/sharing. A similar understanding, similar norms and values as well as similar behaviour and communications patterns help to transfer/share knowledge. Similarly, a common language is most useful for knowledge transferring/sharing. Also the appeal of richness of available and used media has a positive impact on knowledge sharing/transferring.

Shared objectives, aims and interests in networks support knowledge sharing/transferring. To a certain degree the members' identification with and commitment towards the network enhances knowledge transferring/sharing.

Openness of networks and network members is a must for knowledge transferring/sharing. Strict boundaries dampen the interest in outside networks.

In larger networks more impersonal and more formalised communication tools are required. In smaller networks more personal and informal activities are possible. A geographically widespread network is probably reduced in its efficiency compared to a close local network.

3.3.2 Aspects of Values

Values work as filters in general and have an important effect on Knowledge Transfer. These filters enable us to make decisions.

Listening and understanding are important elements of successful communication. Communication is a precondition for co-operation and collaboration. Successful communication is important to establish further relevant values for Knowledge Transfer like trust, responsibility, etc. Common patterns of understanding are essential towards the integration of new information.

To recognise the needs regarding knowledge transferring/sharing, co-operation and collaboration are important values. A high level of co-operation and collaboration can establish a common ground for Knowledge Transfer.

An optimistic outlook during a mutual task in which the trusting party has a high stake but no control over the other party can be a definition of trust. In a situation of Knowledge Transfer a high level of trust enhances the activities.

To care about the issues of transferring knowledge and to care about new information is important. In general a high degree of personal responsibility towards one's own work as well as towards the whole company and the issues of Knowledge Transfer is an important value for supporting Knowledge Transfer.

A culture which allows mistakes and asking for help also supports Knowledge Transfer.

3.3.3 Aspects related to Values

Correctly defined company values combined with a clear business strategy are further important bases for Knowledge Transfer, as is the perception of the value of Knowledge Transfer by itself. Knowledge Transfer has a positive impact and there is a strong correlation with the success of the enterprise: An established knowledge culture with shared common values facilitates the transfer of knowledge.

The goal, the purpose and also the value of Knowledge Transfer have to be clear and must be communicated to the participants of the knowledge network in an adequate manner.

Knowledge Transfer is a time- and resource-consuming process. There must be enough time and resources allocated for Knowledge Transfer activities.

The management can serve as a role model for Knowledge Transfer activities and encourage the employees to participate. In general the management's activities to support Knowledge Transfer are of great importance.

The appraisal systems of the company have to consider Knowledge Transfer explicitly thus showing employees that Knowledge Transfer has a value for the company. Appraisal has positive impact on motivation. Incentives and motivation systems have to reward Knowledge Transfer activities. Knowledge Transfer has to be made attractive to encourage people to share knowledge.

It has to become a value that Knowledge Management and learning (on the job) can help to develop the personal market value of employees (employability). This can be seen as a form of intrinsic motivation.

Values can be mediated through education and training. Adequate education and training in knowledge working and thus mediation of the values of a knowledge culture have a positive impact on transferring knowledge.

4 Investigated Organisations

This chapter introduces the environments chosen for the investigations in two steps:

- Description of the current and planned future situation.
- Valuation.

4.1 UBS Switzerland IT Process Management

After its 1997 merger of Union Bank of Switzerland (Schweizerische Bankgesellschaft, SBG) and Swiss Bank Corporation (SBC), UBS went through several substantial organisational changes in a short period of time:

- 1997 four divisions were formed: Private and Corporate Clients (PCC), Warburg Dillon Read (WDR), Private Banking, UBS Brinson.
- 1998 all bank customers and products were migrated to the former SBG IT system, ABACUS, until mid 1999. Legacy applications were replaced with a SAP platform.
- 1998 the Strategic Solution Platform (SSP) initiative was started to implement the future IT platform, to be introduced from 2003 on.
- As of October 1999, UBS PCC's 5000 person IT organisation was fully reorganised to realise merger synergies. At the same time, a drastic budget cut had to be managed.
- In February 2000, the PCC and Private Banking divisions were joined to form UBS Switzerland.

To define the processes for the new organisation, two initiatives Business Excellence (BEX) and IT Excellence (ITX) were started. Both aimed to identify, streamline and improve processes through Process Management. The investigations resulted in a Process Map and in organisational responsibilities to continuously improve processes.

The rate of change was a new experience for most employees: Former SBG PCC was oriented towards stability and long running projects. In the merger situation, everything had to be done quickly. Different cultures from SBG and SBC clashed. Managers changed within weeks. Tasks were similar, but in a rapidly changing organisation. Employee satisfaction was one key factor during the merger and it was periodically measured. In the new organisation, employee satisfaction is part of the strategic objectives. However, the world had changed:

- The new culture is still in the process of being formed: New social capital is establishing.
- The rate of change might reduce, but not to the former level.
- Co-operation is not yet optimal due to a lack of mutual understanding caused by different backgrounds and ongoing organisational changes.

Due to the high rate of change, considerable knowledge was lost with new assignments, specifically if the knowledge was not adequately documented. This had a major impact for process knowledge, i.e. structural capital.

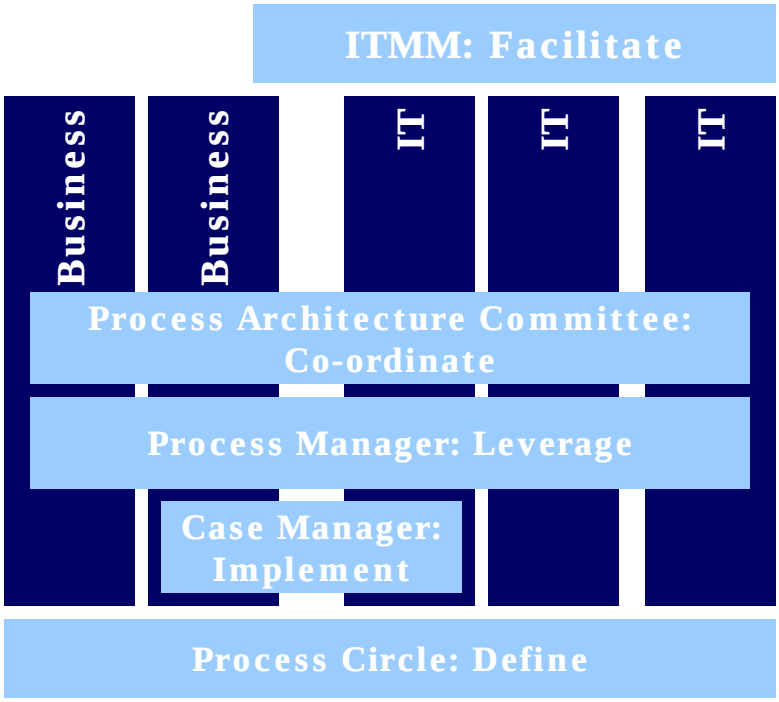

Figure 6: UBS Switzerland Process Management Organisation and Responsibilities

Organisational Body or Role	Representatives	Responsibilities
▪ IT Management Meeting (ITMM)	UBS Switzerland CIO and direct reports	Know, support and facilitate Process Management
▪ Process Architecture Committee	Process Management representatives from IT organisations, competence center Process Management	Define Process Management rules, process map, ensure cross organisation co-ordination
▪ Process Circle (Prozesszirkel)	Process Management specialists from IT organisations	Define and co-ordinate main processes
▪ Process Manager		Leverage Process Management with own process
▪ Case Manager		Define and implement one specific process

Table 2: UBS Switzerland Process Management Organisation and Responsibilities

4.2 JDS Uniphase AG

JDSU Switzerland is part of a 22'000 employees company called JDSU with headquarters in San Jose and Ottawa. JDSU is a high technology company that designs, develops, manufactures and distributes a comprehensive range of products for the growing fiber optic communications market. System manufacturers world-wide who develop advanced optical networks for the telecommunications and cable television industries use these products.

JDSU Switzerland faces the following challenges:

- Market demand is higher than production capacity: Capacity growth is needed to meet customer requirements and to keep or expand market share.
- Huge growth rate in employee base; November 1997: 60, March 2000: 250, planned for 2001: more than 600. Managing this rapid growth is crucial; learning capabilities are fundamental. Idea: Learn faster than the competition and create sustained competitive advantages.
- JDSU can rely on highly skilled employees.
- Transition from a laboratory to a high volume manufacturing company.

The required mindset shift associated with the transition from research to manufacturing is one of the key issues to be addressed in the near future (towards systematic, reproducibility, away from individuals to teams).

JDSU's efforts towards a comprehensive and systematic technical training program rely on the components of the figure below. It is one of the main goals to treat the knowledge (experience, skills) of the company as an important resource for the success on the market. Therefore it is a necessity to manage the training level of each employee and to tie up knowledge into the business strategy. Training has to be supported in order to enlarge the knowledge base of the company: Specific transfer of knowledge, and willingness/interest to share and absorb knowledge.

In conclusion the enhancement of Knowledge Transfer is indisputably of major interest for JDSU.

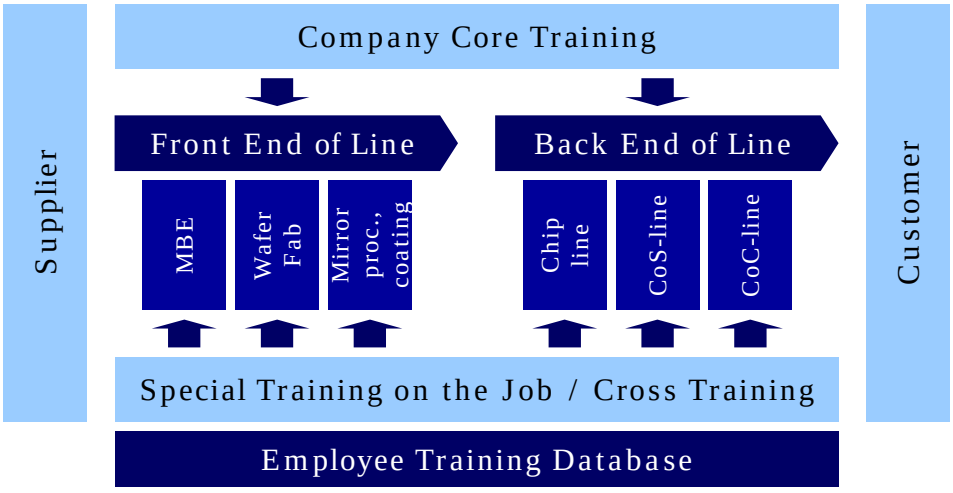

Figure 7: JDSU Training

4.3 Social Department Zurich

Social welfare was initiated and expanded during the seventies and eighties, but now faces adverse socio-demographic developments. Welfare policies lack coherence; what is required is a holistic view of the welfare burden and an attempt at finding stable and long-term solutions for the financing.

In Zurich, like in just about any other core city in Switzerland,

- the city budget produces a deficit;
- the increase of the Social Department's budget has slowed down;
- the unemployment figures decrease nominally, but this neglects the long-term unemployed who have become excempt from unemployment payments;
- recipients of welfare aid have continued to grow in numbers since 1991;
- although prevention is generally accepted as the prime target of the welfare policy, ever more of the scarce funds have to be spent to provide basic subsistence alone.

With the integration of the welfare recipients as the main aim, the political, economical and technological challenge will be to create entries into the expanding labour market, simultaneously generating new forms of work better suited to the clients' needs. Different means and methods must interlink and be aimed at groups and communities, rather than at individuals.

Presently, business processes differ between the service departments; Process Management is either missing or at least inconsistent and lacking in theoretical grounding. Yet, the effects of the present structure are crucial: Whoever approaches department X receives their services; those who drop in on department Y get that specific treatment or are simply shuffled on. Thus, resources and energies are wasted; competent and consequent activities are impeded. This is where the project Social Department 2000 engages.

In recent years, the administration of the City of Zurich has undergone numerous changes. Resource-oriented approaches are now favoured over deficit spending. Consequently, political year-plans have been formulated for 1997 and 1998, and the service areas have been set benchmarks, assigned strict budgets and their performance is being measured. On October 1, 1998, the project Social Department 2000 was launched. It is to combine and co-ordinate existing internal potential and know-how with respect to the following goals:

- A trend reversal, with the intention to invest 50% of the available resources into integration and socio-culture while maintaining sufficient subsistence aid;
- grounding the Social Department's activities on the principles of substitution, service for equivalent and co-operation of the clients;
- a reduction of process costs by 15-20%;
- a Process Management which is accepted by superior institutions and is perceived as a leading example by other municipalities;
- outsourcing those services which the municipality needs not provide itself for strategic reasons;

- improved transparency in the processes, maintain legal security as well as an information policy which is frank internally and externally and takes into consideration the differing requirements of the various addressees;
- subjective satisfaction of clients and employees.

This results in an encompassing need for change within the Social Department's Process Management. Each individual employee must be enticed to reconsider and possibly improve the processes and intended achievements as well as their own roles within the system. It is within this context that Knowledge Transfer and management become crucial.

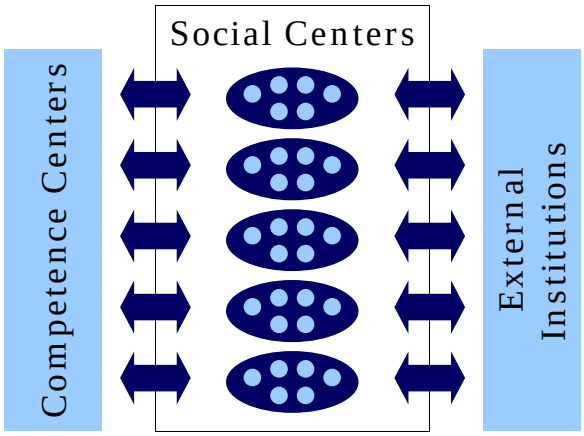

Figure 8: Social Department new Organisation

5 Findings

This chapter summarises the findings from the survey. Only trends with certain significance are discussed in this chapter. A detailed report of the survey is available in the appendix.

5.1 Survey: Set-up and Results

Questionnaire	▪ Preparation effort underestimated ▪ Results not always significant
Evaluation	▪ Data quality low ▪ Additional comments very valuable

The effort spent to create the questionnaire was considerably underestimated. The questionnaire must satisfy several requirements:

- Comprehensive to an audience without Knowledge Management background.
- To be filled in within 20 minutes.
- Provide significant results.
- Easy to evaluate.

Due to the small sample (about 20 returned questionnaires for both UBS and JDSU, 10 for SD), the survey is not representative, i.e. not statistically significant. The data quality of the returned questionnaires was rather low: Answers were partially incorrect or missing.

Initially, the survey aimed at a mostly quantitative evaluation. Given the incomplete quantitative data and the high number of comments, the focus was shifted towards a combination of quantitative and qualitative evaluation, backed by verification through known situations of the respective organisations.

For UBS as a large organisation, questionnaires were sent only to IT Process Management representatives to achieve a focussed view on one specific area.

For JDSU, questionnaires went to a selected sample of managers and employees. The selection was done in a way that all organisational units (general manager, human resources, marketing & sales, finance, quality management, research & development, and manufacturing – largest sample) and possibly all levels of company membership have been covered to get a general overview of the knowledge activities at JDSU Switzerland.

Lessons learnt in conducting a survey:

- Personal contacts have a positive impact on the questionnaire return rate.
- Questions must be very simple and clear – questionnaires are often completed in a hurry.
- For significant results, a maximum of three answers must be allowed per multiple choice question.
- Free form questions are essential in order to illustrate and confirm assumed tendencies and also to qualitatively enrich the purely

quantitative evaluations. This is only possible with small to medium samples.

- An electronic version of the survey – e.g. web-based – would allow for an online check to improve data quality and direct feedback. A pre-condition is that the technical infrastructure is available and participants are used to electronic media.

5.2 Responses Evaluation

This section summarises the findings from the survey. Some general rules apply:

- Questions are discussed in the order of their relevance, not in the order of the questionnaire.
- A compact overview with important findings is provided for every question; it is emphasised in blue.
- Only trends with certain significance are discussed, less obvious figures are not addressed– i.e. the sum of the percentage figures is typically less than 100%.
- Up/down trends refer to changes from current to target figures.
- The detailed and complete survey report is available in the appendix.

5.2.1 Knowledge Transfer Activities

Overall Knowledge Transfer (question 9): Please indicate how much time (in percent of your overall working time) you currently spend on Knowledge Transfer, separated by knowledge distribution and knowledge capturing. Indicate also your ideal (target) values.

Spread	▪ Wide due to different profiles
Knowledge distribution	▪ Currently spread mostly up to 30% ▪ Target at 31%
Knowledge capturing	▪ Current: Peak between 10% and 20% ▪ Target at 24%

This is the core question of the survey – targeted to identify an optimal Knowledge Transfer portion of the personal working time. The different profiles of the survey participants lead to a substantial spread.

Current knowledge distribution time is mostly below 30% except for persons who do it as their main activity. The target is more clearly recognisable at 30%. Knowledge capturing has a recognisable peak between 10% and 20%.

The averaged optimal target situation looks like this:

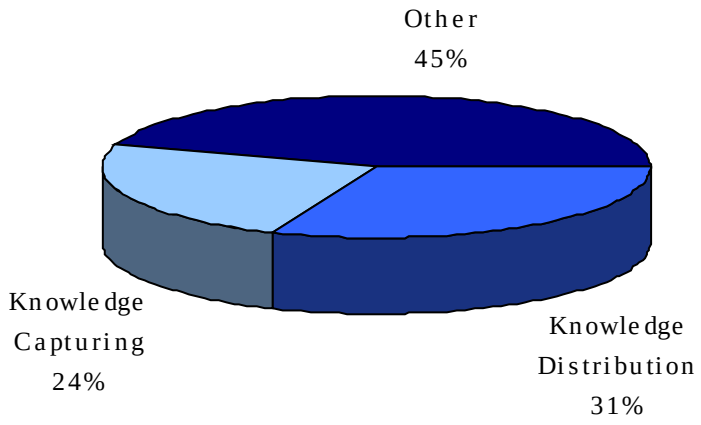

Figure 9: Knowledge Transfer Overall Target Time

From the responses it is not completely obvious if there is an overlap between knowledge distribution and knowledge capturing. Assuming a slight overlap, a total of 30%-50% of the personal working time is used for Knowledge Transfer. This is a significant figure, which makes Knowledge Transfer improvements a good investment.

Knowledge Distribution (question 10): Please indicate in which form you distribute knowledge (in percent of the overall knowledge distribution time, i.e. the sum should be 100%). Feel free to add your own categories.

Bilateral conversations	up	18%
Coaching	same	18%
Meetings	down	14%
Document preparation	same	12%
Training courses	up!	6%
E-Mail	down!	5%

Survey data is not complete: Not all participants filled in target scenarios. Reasons can range from “I don’t know” over “same as current” to “I didn’t think about it” – but are actually not known.

Thus not the level but rather the peaks of current versus target comparisons are compared. Only noticeable trends are considered to avoid over-interpretation. Some interesting target values stand out (see figures above).

- Bilateral conversations go up to 18% while e-mail looses from 10% to 5% – this is an important indication that person-to-person communication is important.
- Meetings go down to 14%. This doesn’t come as a surprise since most people feel there are enough meetings.
- Training courses indicate a considerable rise to 6%.

A noticeable remark came from an interview: The time spent for Knowledge Transfer is not necessarily proportional to the amount of knowledge transferred due to varying efficiency.

Knowledge Capturing (question 11): Please indicate in which form you capture knowledge (in percent of the overall knowledge capturing time).

Meetings	same	16%
Bilateral conversations	same	15%
Document studies	same	12%
Training	up	8%
E-Mail	down!	6%

Bilateral conversations are at 15%, and again e-mail looses substantially. Training courses indicate a rise.

Information capturing through management lines is around 6% – a rather low number. This indicates that there is a wide variety of other information channels which is used at the discretion of the employees. The attitude "information is power", which can lead to information filtering (and sometimes manipulation) is much less successful in an environment where information is widely available.

The second main question of this diploma thesis is outlined in the figure below: The top five Knowledge Transfer activities are summarised as an average of knowledge distribution and knowledge capturing:

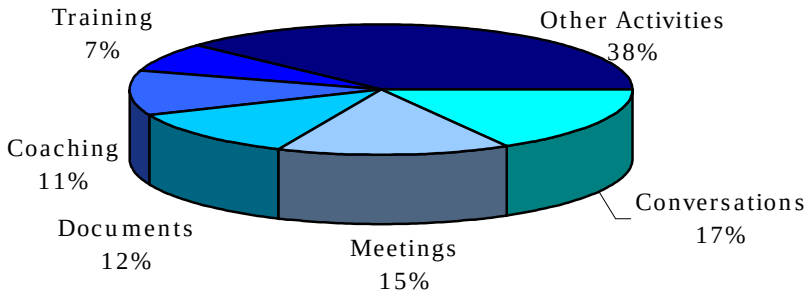

Figure 10: Top Knowledge Transfer Activities

Combining both Knowledge Transfer time and activity figures leads to the answers for the two main questions of the diploma thesis:

- Where is the Knowledge Transfer optimum?
- Which are the most important Knowledge Transfer activities?

The results are summarised in the figure below:

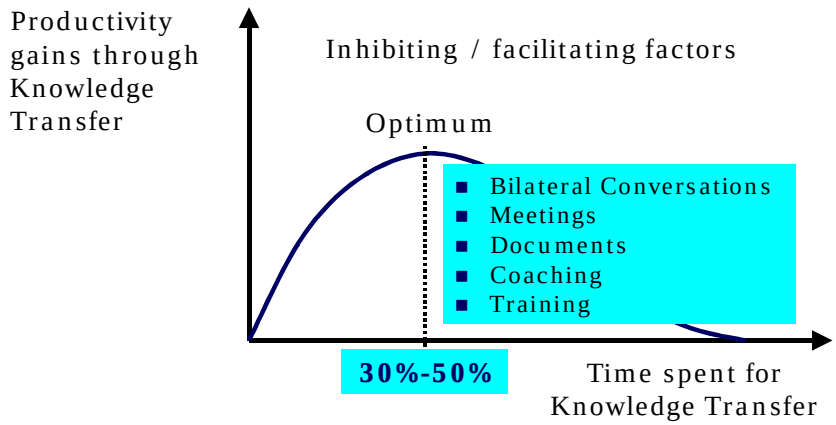

Figure 11: Knowledge Transfer Key Indicators

30% to 50% of the working time is spent for some form of Knowledge Transfer, both knowledge capturing and knowledge distribution. The most relevant activities are bilateral conversations, meetings, document studies or preparation, coaching and training. The findings tie in with the conclusions of Davenport [DAVENPORT, T.H., PRUSAK, L., 96 ff]. The result raises another question: What can be done to get the most out of this time? Practical recommendations are addressed in the next chapter.

5.2.2 Objectives

Knowledge Transfer Objectives (question 8): Please indicate in the list below the three most important objectives your organisation wants to achieve with Knowledge Transfer.

High	▪ Increase productivity
	▪ Increase service quality
Increase	▪ Creativity, ability to innovate

High marks were received for increased productivity and service quality. Cost and financial risks received very low ratings. Improvement potential was identified for creativity and ability to innovate.

If and when Knowledge Transfer can be brought to service for productivity and service quality, this will have a high impact for a company's employee motivation (internal) and reputation (external).

5.2.3 Facilitating and Inhibiting Conditions

Knowledge Transfer Support (question 2): In which form is Knowledge Transfer supported in your organisation (check all that apply)?

Increase	▪ Knowledge Transfer training! ▪ Knowledge structuring and organisation (JDSU) ▪ Culture (UBS) ▪ Empowerment, free room (SD)

Knowledge Transfer training is significantly perceived as an area which must be improved. Obviously people are not satisfied with the existing Knowledge Transfer situation and/or have a gut feeling that there is considerable potential for improvements. Training must address effective and efficient Knowledge Transfer, both on a Knowledge Transfer process level (techniques, tools) and on environmental level (culture, i.e. social capital).

Knowledge structuring and organisational measures are considered a significant area for improvement, mainly at JDSU. This is due to the rapid growth of the company and some specific effects:

- Independently grown infrastructure.
- Database un-culture: Everyone uses his own database.
- Organisational measures are not yet adapted to the expanded company.
- Informal knowledge exchange is no longer adequate.

A significant candidate is culture improvement, mainly at UBS. This does not come as a surprise since the merger is still only three years back (and there is wide agreement that the two banks had different cultures), while the last organisational change is less than a year back. According to interviews, a common culture must be addressed. This is best achieved by naming, accepting and addressing the differences. According to a recent UBS employee survey, the local culture is perceived to be good, while the company culture needs improvements. On a company level, only a few important key cultural elements must be defined to leave enough room for the local cultures [HILB, M., 45 f]. These company core values must be communicated with a very high credibility.

Knowledge Transfer Restrained (question 3): Please indicate the three most important factors which restrain efficient knowledge transfer.

Inhibitors	▪ Lingual and cultural difficulties (UBS) ▪ Lack of time (JDSU) ▪ Organisational barriers ▪ Information withheld (UBS) ▪ Lack of trust (SD)

As Knowledge Transfer inhibiting factors, lack of time appeared significantly, most often at JDSU. There are several possible explanations:

- Trying to achieve too much (at the same time).

- A consequence of a not optimal work organisation (spending a lot of time for troubleshooting instead of on stabilising and improving processes).
- Too much routine work.
- Subjective perception.

This can be addressed with improved (i.e. more realistic) planning.

Other significant inhibitors are organisational barriers. On the one hand, inter-departmental co-ordination is more complex; on the other hand, kingdoms do not support Knowledge Transfer (information withheld). One promising way to address this issue is by defining and transparently communicating consistent and simple processes across the organisation from customer to customer. The fact that information is withheld reflects the view information is power [HILB, M., 210]. This phenomenon common especially in uncertain change processes can only be attacked by a general and frank information culture.

Interestingly, UBS participants provided a high number of additional comments – this gives an indication that restraining factors are an issue within the company.

For SD, the lack of trust indicates a lack of adequate information leading to a general unease of the employees confronted with the change process.

Incentives (question 4): Which incentives are relevant for you to participate in knowledge transfer (check all that apply)?

High	▪ Work content ▪ Team incentives ▪ Decision participation (JDSU) ▪ Employability (UBS)
Increase	▪ Decision participation (UBS, JDSU) ▪ Non-monetary (UBS) ▪ Improvement of employability (UBS)

Work content, team, decision participation and employability incentives were rated highest (current and target). This re-confirms other surveys that work content and the environment are most important and can only partially be substituted by other incentives. Simply put: If the daily work is not satisfactory, money doesn't make happy.

The highest need for increase was noted for participation in decision-making, non-monetary incentives and improved employability, most significantly at UBS. This may be a consequence of the large organisation's anonymity and its frequent organisational changes: An individual employee might feel he has very limited influence – also concerning his own future in the organisation. This explains to a certain degree the often-mentioned employability, i.e. the personal value in the labour market (the employability concept was introduced during the SBG/SBC merger and was officially announced as a company goal).

Based on an UBS interview, in some cases monetary incentives are important for individuals since they seem to compensate for an unsatisfactory (real or perceived) environment. Motivation and therefore results are certainly not at a maximum in such cases.

Incentives for participation in Knowledge Transfer must be part of the Management by Objectives (MbO) to be effective.

Information and Communication Technology Tools (question 5): Which types of Information and Communication Technology tools do you use to support Knowledge Transfer in your organisation? Please indicate the three most important tools.

Decrease	▪ E-Mail ▪ Intranet
Increase	▪ Databases (JDSU) ▪ Groupware (UBS) ▪ Personal communication important!

The most significant and somewhat surprising finding is the decrease in e-mail's and intranet's perceived importance. Obviously, past over- and misuse lead the participants to media tiredness. Even more interestingly, additional comments emphasise the importance of various forms of direct contacts, most notable from JDSU's side (the organisation with the most technological environment: Databases and document management is heavily based on Lotus Notes, MS Access, etc.). This corresponds to findings of MIT researcher Tom Allen: In many studies he discovered that scientists and engineers exchange knowledge in direct proportion to their level of personal contact [DAVENPORT, T.H., PRUSAK, L.]. On the UBS side there is an additional benefit assumed with the use of groupware tools. As a conclusion, managers must very carefully think when to use electronic media instead of direct communication; there is a strong need for face time.

Organisational Tools (question 6): Which types of organisational tools do you use to support Knowledge Transfer in your organisation (check all that apply)?

High (large correspondence UBS and JDSU) **Increase** (UBS)	▪ Objectives definition and monitoring ▪ Organisational structure ▪ Communication ▪ Best practice ▪ Skill profiles ▪ HR tools ▪ Role definitions

An almost dramatic area for improvement recognised is best practice. A possible explanation is the desire to benefit much more than today from existing proven solutions – instead of re-inventing them repeatedly.

Another noticeable improvement area is skill profiles where nominations almost double from current to target (mostly from UBS). This can mean that participants want their skills to be evaluated as a basis for nominations for interesting projects and thus professional and career development.

At UBS, HR tools and role definitions represent another area of improvement. Possibly the wish to better understand what others have to do (job rotations) together with the need for clear definition of the own role within the merged company are behind this statement.

Reward systems are considered an area of improvement (especially at SD). This stands in some contrast to the incentives question, where work contents turns out to be the key motivation factor. As part of the reward systems, MbOs must be coupled. MbO is in place in UBS and SD, but not in JDSU.

From additional comments, training, tutorials, experience exchange and selection with new employees are considered important.

Culture, UBS (question 7): What are measures to promote a common culture (events, communication, contacts, etc.)?

UBS	▪ Managerial example ▪ More informal contacts, less electronic communication ▪ Common events: Teams, organisational units, forums, etc. ▪ Success stories ▪ Trust

Among the measures which promote a common culture the most significant ones are outlined below:

- Management credibility: Managerial example, “walk the talk”.
- More informal contacts instead of electronic communication. As pointed out, past overuse has decreased the acceptance of electronic media.
- All sorts of common events across all levels: Forums, common projects, etc. This is probably indeed one of the best measures to expedite the growth of a common culture. This must therefore actively be addressed and planned for on all management levels.
- An opportunity often missed are success stories: Lots of good things go without mentioning – the limited additional effort to let others know about a success (or just a lesson learned) must not be neglected.
- If things go wrong, this should be communicated honestly to maintain trust and credibility. Again, how far open communication is possible depends on the cultural environment.

Culture, JDSU (question 7)

JDSU	▪ Managerial example ▪ Keep everybody informed ▪ Team spirit ▪ Problem solving circles ▪ Common events ▪ Clear strategy ▪ Communication via personal contacts, not electronic media

One of the main issues seems to be to make information about strategy, goals, achievements and working knowledge available in a structured way. Due to the size of the company the esteemed monthly round table meetings are no longer held; this has a negative impact on the informa-

tion flow from management to the employees. New forms of communication must be established (preferably via personal contacts):

- Meetings cascade (management, groups, bilateral).
- Internal newspapers.
- Blackboard messages throughout the departments.

Common, informal events also play an important role. An initiative to implement a culture of problem solving circles (team spirit) is underway. Last but not least managerial examples are in great demand.

Culture, SD (question 7)

SD	▪ Open communication, transparency ▪ Open spaces, common events ▪ Networking

Quite obviously, a frank and open communications culture is perceived as one of the most important attributes facilitating Knowledge Transfer. This openness has to permeate hierarchies and intra-organisational boundaries. Transparency is requested across the hierarchies.

Common events establish bonds and facilitate formal and informal Knowledge Transfer. Regular team meetings and coffee breaks, sports activities or the after-work drink are occasions, where information and knowledge are perceived to flow freely. Open spaces facilitate the informal and often also coincidental gathering of individuals and initiate spontaneous communication.

Networking is taken to be very important, not only within one's own organisation, but even more so between different organisations, mainly networking is required to serve a clearly defined goal and be subject to a strict set of rules.

It is noteworthy that out of nine returned questionnaires, the question concerning culture has not been answered five times.

5.2.4 Organisational Environments

In Current Position: For how long have you been holding your current position?

UBS	▪ Most 6 to 12 months (merger and organisational changes)
JDSU	▪ Oldies and newbies
SD	▪ Newcomers (in given sample)

Considerable re-staffing of positions (by internal and external candidates) took place in all organisations for various reasons. High staff turnover bears a significant risk that experience and area specific knowledge is lost. Such knowledge is usually acquired over an extended period in one position. It is in high danger of being lost if no Knowledge Transfer is planned for. Knowledge is concentrated in the heads of few experienced employees, who are not trained in transferring their knowledge (including matters of course) – this indicates a very good area to improve the organisation's investments.

In Company: For how long have you been with your company / organisation?

Majority	▪ 3 to 5 years
SD	▪ 6 to 10 years

Interestingly, most people have been with the organisation for 3 to 5 years. This looks like an organisation independent pattern. In today's ever-faster working environment, this period will probably shorten.

A useful minimum might be at two years: Below this duration it is difficult to learn and understand a complex environment and therefore to provide a useful contribution which compensates for the initial learning curve.

Another approach is to avoid complexity, i.e. to keep the organisation small, or, for large organisations, aim for smaller units with a high degree of independence.

Understanding, UBS (question 1): What is your understanding of Knowledge Transfer? Please describe this understanding in your own words.

UBS	▪ Knowledge structuring and distribution ▪ Identification of existing and required knowledge ▪ Efficiency and effectivity ▪ Lack of knowledge sharing and re-use ▪ Long term activity: Investment

Due to the SBC/SBG merger and several organisational changes considerable knowledge was lost. Short termed re-invention instead of re-use of (already paid for) solutions is both frustrating for the employees and expensive for the company. A certain amount of knowledge loss cannot be avoided with mergers, however, every effort must be made to keep this loss to a minimum. Considering knowledge build-up as a long term investment has a high cost saving potential through re-use and employee satisfaction.

Since information is power, not all employees are willing to share their knowledge. It is perceived that kingdoms exist which could and should co-operate more actively.

Understanding, JDSU (question 1)

JDSU	▪ In the heads of experienced people ▪ Explicit transfer of knowledge and skills: Who knows what? ▪ Relevant information is accurate, updated and accessible ▪ Team performance ▪ Company improvement ▪ Related to company goals

Considerable amounts of knowledge are perceived to be insufficiently documented and not readily accessible. This is most probably a consequence of the company's rapid growth.

According to the comments, knowledge structuring is an urgent issue. So, first results must be made available quickly. This has a high potential to improve team and company performance. Improvements can be made over time. Therefore, the process of capturing, structuring, documenting and updating knowledge is iterative.

Understanding, SD (question 1)

SD	▪ Learning ▪ Coaching, explaining ▪ Getting relevant information without asking ▪ Written or spoken form

During the survey, SD reported a higher than average personnel turnover due to imminent organisational changes. To integrate new employees quickly, communication of general news is crucial.

5.2.5 Additional Comments

Comments, UBS (question 12): Are there further possibilities to improve Knowledge Transfer?

UBS	▪ Increase awareness ▪ Enhance personal Knowledge Transfer capabilities ▪ Learn to handle information flood ▪ Divisional Knowledge Management – too early? ▪ Concentration on few (3) areas ▪ Infrastructure

First, there is a recognised need to raise the awareness of Knowledge Transfer. As a next step, personal Knowledge Transfer capabilities must be improved. Divisional Knowledge Management is considered beneficial – however time might not (yet) be ready. Last, but not least, an appropriate infrastructure is required; document management is a candidate to improve access.

Comments suggest that with most participants, the Knowledge Transfer potential and the need for actions are recognised. This is emphasised by the fact that considerable knowledge was lost in the course of the merger

and subsequent organisational changes. Limitation on a few areas is recommended.

Comments, JDSU (question 12)

JDSU	▪ Increased motivation leads to increased Knowledge Transfer ▪ Knowledge structuring and access ▪ Active Knowledge Transfer planning ▪ Company wide strategy (communication) ▪ Enough time ▪ More efficient tools

An interesting statement is that increased motivation automatically leads to better Knowledge Transfer (e.g. increased readiness to share and acquire knowledge).

Once again, the need for knowledge structuring and access is stipulated.

It is emphasised that Knowledge Transfer has to be actively planned for and the respective time must be granted. Efficient tools are important.

Knowledge Transfer has to be a company-wide strategy based on openness and personal communication skills (learning culture). Especially great importance must be attached to the introduction and training of new employees.

Comments, SD (question 12)

SD	▪ Communication culture ▪ More official channels ▪ Flexible handling of hierarchies ▪ More time

SD employees perceive it as essential to establish a culture of communication and learning. It must become the employees desire to exchange knowledge of all kinds, and thus also of failures. The culture must become tolerant of mistakes – as long as they serve to teach a lesson and the lesson is learnt. Further, the exchange of information needs to become more structured and less purely informal.

Teams must be set up with the purpose of achieving a goal. Team members will contribute their best expertise, regardless of status. Upon completion of the task, the team will be disbanded and team members are freed to join new task forces.

More time must be dedicated to information exchange, time specifically allocated to Knowledge Transfer. Employees in SD seem bogged down by their daily business, too busy to even fill in the questionnaire of this survey.

5.3 Comparison

One of the initial objectives of the survey was to identify properties common to all three organisations or specific to one organisation. This section concentrates on this comparison. The key findings are summarised in the figure below:

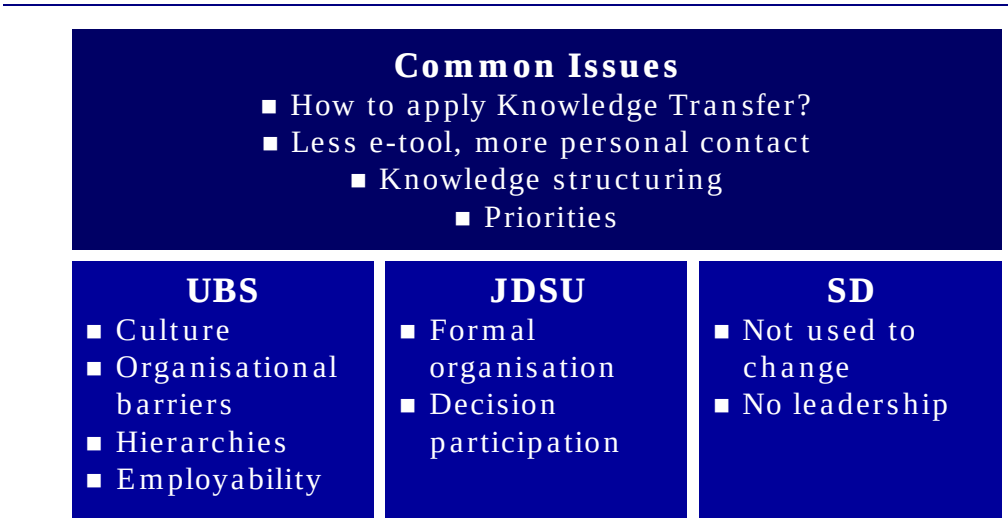

Figure 12: Common Issues and Differences

5.3.1 Common Issues

Common	▪ Knowledge Transfer awareness exists – But: How to start? ▪ Less e-mail and intranet, more person-to-person contacts ▪ Knowledge structuring ▪ Priorities: Too much other things going on, not enough time for Knowledge Transfer

The persons concerned must be properly introduced to Knowledge Transfer, its purpose and benefits. Periodically, surveys must be conducted to maintain a high level of awareness of the importance the employer or organisation attaches to knowledge and the sharing thereof. A first step must be to collect initial, positive experiences with or due to Knowledge Transfer (success stories). Mid term: Initiation of Knowledge Transfer projects.

Ostensibly easy and efficient tools such as e-mail and intranet applications need to be revisited. Reflection is required as to whether the non-verbal information attached to a personal contact is required in the context of a specific instance of Knowledge Transfer or not. For purely factual information exchange, e-mail or telephone contacts may suffice. Other, more encompassing or sensitive exchanges may well require physical meeting.

Knowledge structuring is seen as an urgent issue across the three organisations. A large gap appears between the need for structuring and the current state. High attention – based on a common and transparent strategy – must be given to the quality and reach of information technology systems with comprehensive search capabilities, organisational concepts, and documentation.

Priorities need to be set and communicated clearly: Short-term urgencies may well be second to other mid-term considerations, which appear less urgent at the moment. Again: Time and space must be allotted by the organisation specifically for the transfer and exchange of knowledge.

The challenge is to create a corporate knowledge structure that combines the best of existing hierarchical organisation and new, network-based forms of online information and human project teams.

5.3.2 Specific Issues

UBS	▪ Culture (information actively withheld) ▪ Organisational barriers: Many hierarchical levels ▪ Employability
JDSU	▪ More formal organisation ▪ More participation in decision making
SD	▪ Not used to major and rapid changes ▪ Lack of leadership

UBS as a large organisation, which still reconciles merger implications, has the main challenge to define and establish a common culture (social capital). To a certain degree, blending different cultures into one new culture is a normal affair in such a situation. The main difficulty is to identify the best level of granularity: While it is not possible to achieve one completely unified culture globally, some very unique core values must be defined and communicated throughout the organisation – with enough room to live a variety of local cultures [HILB, M., 45 f]. According to participants, this process must be pushed much more actively.

JDSU is in a very different situation: Due to its extremely successful products the organisation has to handle an almost unmanageable growth. While teams used to work very informally until a few months ago, the rapidly growing organisation mandates more formal, more organised, and more hierarchical structures – to which most employees are not used. Comments explicitly ask for more organised approaches; specifically for Knowledge Transfer, and generally for organisational issues.

SD: The reputation of public service organisations, the butt end of so many a lame joke, is well known, but as obviously not completely amiss. The attempt of changing existing structures, organisations and processes may well meet above average resistance in such a culture. Still, changes are imperative. Therefore, to help the organisation and especially its members welcome and support the inevitable changes, the visions, ambitions and goals of the directorate must be communicated downward through all levels in all clearness. Every single employee and civil servant must know where her organisation is heading and understand what her contribution must and can be toward this goal. Leaders of any organisation must be visible, recognised and accessible. No single individual leads an organisation – the management of SD must leave the shadows. For high profile changes such as the full reorganisation, a dedicated owner who takes responsibility for and co-ordinates all issues is absolutely key. This task cannot be solved as a side activity of the department leader.

6 Conclusions

6.1 General

6.1.1 Introduction

Due to its timely limited nature, this diploma thesis could only address a one-time activity, structured into three steps:

- Survey
- Evaluation
- Recommendations

The table below provides an overview of the recommendations, structured by levels. In practice, the boundaries between levels will not be as clearly as defined in theory. Subsequent sections explain recommendations in more detail.

Level	Measure
Normative	Vision ▪ Identify core values ▪ Define if and how much Knowledge Transfer is a competitive advantage
Strategy	Identify Knowledge Transfer business objectives ▪ Efficiency ▪ Innovation ▪ Risk management Cross organisational projects Personal responsibility for knowledge capturing and distribution
Process, method	Communication; raise of awareness KnowledgeSource model ▪ Initiation and co-ordination ▪ Translation and negotiation ▪ Integration Measurement, actions, improvement
Organisation	Knowledge Transfer culture ▪ Ownership: Facilitator ▪ Open hierarchies ▪ Room for contacts: Time, space, virtual
Tool	▪ Campaign ▪ Seminars ▪ Coaching ▪ Knowledge and skills accessibility (storage)

Table 3: Recommendations Overview

Often, processes are perpendicular to the organisation:

- Processes provide end-to-end customer services by bundling different expertise through sub-processes or activities.
- Organisations implement line hierarchies along areas of expertise.

This situation bears a risk of friction at organisational barriers, as can be seen from the figure below.

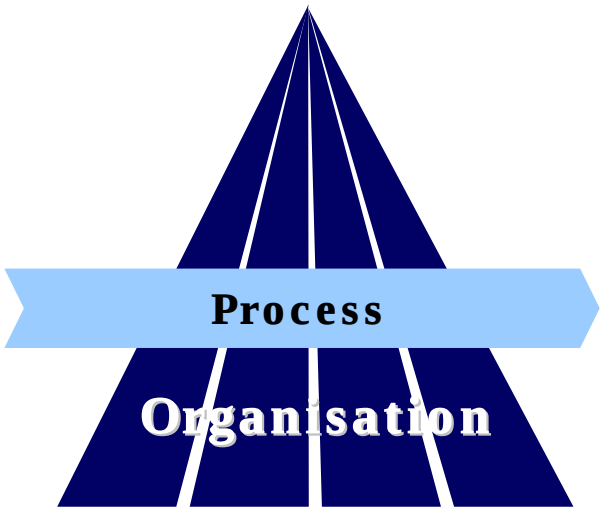

Figure 13: Processes and Organisation

6.1.2 Normative and Strategic

Top management must define its vision with respect to Knowledge Transfer. This vision must reflect perceived core values and initiate the striving for core competencies.

Core values must be concisely formulated and communicated. Core values must entail a kind of speciality. Core competencies required to achieve the goals are then derived. Gaps in any core competency must be filled; acquired competencies and know how must be perpetuated and sustainably maintained. The management, maintenance and transfer of knowledge in this context are crucial; the way a culture of knowledge exchange is lived will make or break the competitive edge of an enterprise. Companies with clearly communicated core values are polarising: Their employees must either subscribe to these core values or change employers.

Knowledge exchange in itself must be efficient – resources must not be wasted in this context, nor should existing potential be relinquished. This is especially important in the situation where persons stay in the same position for an ever-shorter period of time – currently around a few months. Knowledge is a good, which can be exchanged not only between individuals but also between organisations; knowledge cannot only be exchanged, it can also and must be traded. Top management must support this perception and handling of knowledge.

Adequate knowledge will help maintaining efficiency in business processes. As an example, the increased efficiency resulting from a merger may constitute a business goal. Formal Knowledge Transfer in this setting will positively affect operating efficiency.

Knowledge will foster curiosity, Knowledge Transfer thus generate innovation. Sufficient amounts of curiosity and innovative spirit lead to leaps in development rather than mere steps. To enable such quantum leaps, open spaces and freedom are required in order to allow for informal contacts and exchange.

Managing an enterprise's risks requires intimate knowledge of its workings. What are the major influencing factors externally and internally; how can the work processes be shielded against adverse developments, what can be done to hedge against the unexpected? Knowing one's business helps finding the answer. Sharing and transferring this knowledge across all tiers of the staff will create the sensitivity and awareness of the importance of each individual. Risk management also extends to the realms of human capital: Organisations are subject to ever faster change and with it increased personnel turnover – in the average three years for an individual employee. Experienced and qualified staff will leave, but on the other hand new and skilled personnel can be hired. To face these effects of change, staff back up should be about 10%-15%, and this new staff requires rapid and concise training, i.e. Knowledge Transfer.

Cross-organisational projects rely on knowledge capturing and distribution for success. Knowledge Transfer has to be an on-going process.

Each individual must perceive her personal responsibility with respect to Knowledge Transfer; seeking, capturing and distributing knowledge must become part of one's daily routine.

6.1.3 Process

Knowledge is not finite; knowledge continuously evolves. Awareness must be raised as to the importance of knowledge. All members of an organisation must be trained to recognise knowledge but not take it for granted.

Reference can be made to the three steps of the KnowledgeSource model outlining the required procedures: Initiation and co-ordination, translation and negotiation, integration.

The exchange and transfer of knowledge requires a culture of openness and reflection: Many pieces of (tacit) knowledge are not considered noteworthy by those in the know – they seem too evident. It is important to create the awareness that no piece of tacit knowledge per se evident and thus superfluous but should as a principle be shared, be made explicit. It can be left to the seeker or recipient of knowledge to judge whether this specific piece of knowledge is of value to her or not.

The process of knowledge generating and disseminating is facilitated by a variety of properties: On the one hand there are the physical tools, skills and interest profiles, knowledge catalogues and databases. On the other hand the people will have to be trained not only for their immediate job but also in Knowledge Transfer techniques.

To facilitate the exchange and transfer of knowledge, rules and stages for such an exchange process need to be defined and periodically improved [OESTERLE, H., 23]. This may be addressed through regular meetings. But Knowledge Transfer should never become a means for itself – the quality of Knowledge Transfer must be monitored. Knowledge Transfer is never more than just one of the – possibly most important – tools towards entrepreneurial success and competitive advantage.

Knowledge exists, is exchanged, and is amassed. Is there a way to measure how much knowledge has been gathered and created, or can one at least assess the quality of this knowledge? In practice, it proves very difficult to measure knowledge. It would be impractical to subject the entire staff of an enterprise to regular tests; nevertheless, periodical surveys may prove beneficial. The key to assessing quality and quantity of existing knowledge lies in the points raised earlier: Efficiency and innovation. Although also efficiency and innovation are difficult to measure in absolute terms, their quality can more easily be assessed. Increasing efficiency and ongoing innovation are a sign of actively used and exchanged, thus transferred knowledge.

6.1.4 Organisation

A culture aware of knowledge will set up an organisation, which will through different means support and facilitate communication and thus the exchange of knowledge and information.

Some conditions must apply: The top down approach is that the management must be committed to Knowledge Transfer; it is important that the management live their creed as an example.

In an open culture of trust and credibility, where information is exchanged freely, there is also an unofficial, or bottom up, approach to Knowledge Transfer, usually driven by small cells which propagate the idea through supportive participants. Over time, such cells grow and start to combine. For such activities, unsupervised, unhierarchical room, physical, time-wise, but also virtual, must be established.

The most promising approach is considered to be a network of facilitators: Those who are interested are welcome to join and to contribute. Nevertheless, management again must be convinced and committed.

The above mentioned cells as well as the network of facilitators require open hierarchies, or at least open individuals across all hierarchical tiers. Besides, unofficial room for informal contacts is strongly required. Within the sample of the interviewees, time allotted for such informal contacts is about 15%.

Although Knowledge Transfer must be part of the organisation, a centralised Knowledge Department is not considered beneficial for several reasons: Knowledge tends to be administrated rather than administered; knowledge may regress to its role as a status symbol; ultimately, such a department would constitute another kingdom with its negative effects.

To make Knowledge Transfer an official part of the organisation, it must be part of the MbO and incentive process. To reduce organisational barriers, tasks must be solved from a process point of view. This is best achieved through cross-organisational task forces and working groups.

6.1.5 Tools

A wealth of tools exists to facilitate the transfer and exchange of knowledge. We may differentiate between two types of tools:

- Organisational tools: Seminars, coaching, teaching sessions, etc.
- Technical tools: Knowledge maps and skills profiles, information databases, document management, etc.

Knowledge Transfer is more than just a set of tools and their usage. Tools may serve to store, map and spread information. But only if the information is used, does it turn into knowledge. Who knows where and how information is used – in combination with the tools themselves: This will establish a system of Knowledge Transfer.

Hardly any amount of highly sophisticated IT and telecommunications tools can ever fully replace person to person contacts. Knowledge obtained from someone memorable will be more sustained than information retrieved from a rather anonymous database. Evangelists who are interested and willing to tell the story over and over again should take on the communication role.

The survey shows that technical tools should be used carefully: In all three organisations the participants feel flooded by an abundance of information. The more tools and technology become available and was used, the more people appreciate direct person to person contact. The art consists of using the right amount of existing and new tools for the right purpose. Good candidates to facilitate Knowledge Transfer are: E-mail, intra-/internet, document management (often in combination with workflow management), chat.

To maximise their benefit, they must only be used where they make sense, not just for their own sake. For example, only up-to-date information must reside on an Intranet, plus the information must be organised in a way that allows immediate access.

6.2 Organisation Specific Recommendations

The next sections apply the key indicators from the survey to the specific issues of the respective organisations. The figure below re-iterates the survey findings:

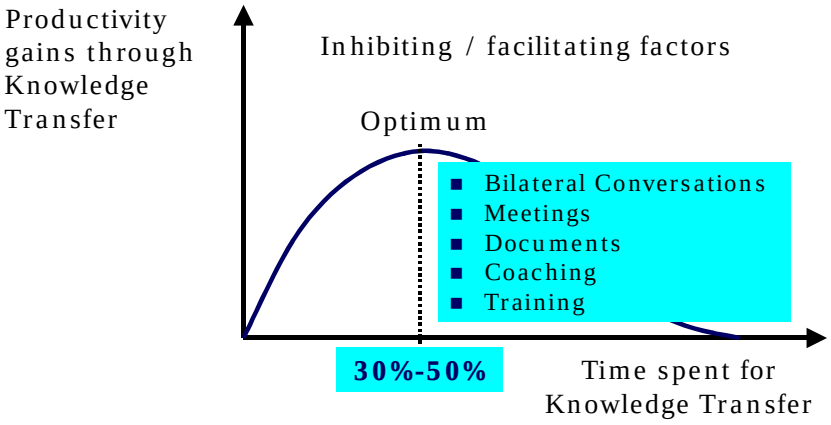

Figure 14: Knowledge Transfer Key Indicators

Some recommendations may sound like common sense. However, very often, the simplest measures are not (yet) implemented. Further solutions are provided by Davenport [DAVENPORT, T.H., PRUSAK, L., 96 ff].

6.2.1 UBS Switzerland Process Management

Bilateral Conversations	▪ Communicate Process Management concept ▪ Ensure mutual understanding – establish common Process Management culture
Meetings	▪ Communicate Process Management concept
Documents	▪ Describe Process Management concept in a simple and comprehensive way – visualise where possible ▪ Demonstrate value and prioritise through business case
Coaching	▪ Identify optimal Process Management partners – seniority is appreciated ▪ Communicate continuously a comprehensive message: Plan 40% Knowledge Transfer
Training	▪ Process Management leverage through partner education
Others	▪ Reduce organisational barriers: Power to process owner ▪ Cross-organisational projects: Success stories fuel further activities

UBS Switzerland Process Management struggled with considerable difficulties. As the survey revealed, major restraining factors – compared with other the organisations – were information withheld, organisational barriers, cultural differences, and lack of trust. To improve Process Management Knowledge Transfer, these restraining factors must be addressed with highest priority.

As a first step, a common culture must be established. This is only possible through person-to-person contacts – even the best Intranet pages are of little help in this stage. This means that the Process Management concept must be continuously communicated through presentations, meetings, bilateral conversations, training courses and coaching to convey its idea and benefits. About 40 percent of the overall time must be invested in these communication and marketing activities! Some actions in this direction are in progress, others need to be addressed – for example the findings of the ITX investigation. For a successful communication, the concept must be in a comprehensive form. Documents are relevant, but they must be simple.

Another challenge is the resource limitation of the Process Management team. Therefore, as an important next step, partners from various parts of the organisation must be identified to facilitate and leverage the Process Management concept. The best partners are not always obvious from the organisation; it is crucial to choose partners who are able and willing to dedicate time and effort to achieve the desired result. For Process Management consulting and support, seniority is a valuable asset. These are tough requirements for good partners! Once they are identified, common cross-organisational projects can be initiated. Partners are best convinced of a project value by a business case. To allow for quick wins, these projects must be small, i.e. completed within a few months' time. This facilitates success stories, which add momentum to the Process Management initiative.

Organisational barriers are addressed next: Since processes are most often perpendicular to the organisation, a process typically crosses several organisational borders – sometimes with adverse effects on the process. The ideal situation is if the process, not the organisational structure is the driver. For this to happen, organisation owners must be converted to become process owners – this naturally increases their interest in process success – from the survey's comments, this measure bears the highest potential for improvement. Activities are in progress to define and implement the value chain. This is best achieved through an evolutionary approach, taking small and controlled steps.

Of course, an organisational change is not possible in one step. Again, this is best achieved through the evolutionary approach on a process by process basis: One process at a time is assigned to existing organisation owners until owners are found for all processes. This automatically bestows the power to the processes instead of the organisations (of course, some common ground rules beyond processes still do apply).

Last, but not least, lessons learned from individual projects must be brought together to profit from synergies. This is achieved by periodical cross-organisational Knowledge Transfer.

6.2.2 JDS Uniphase AG

Bilateral Conversations	▪ Plan personal contacts
Meetings	▪ Formalise communication ▪ Periodical Knowledge Transfer process reviews
Documents	▪ Knowledge structuring and documentation
Coaching	▪ Information campaign and facilitators ▪ Knowledge Transfer included in MbO ▪ 30%-50% time to be allocated for Knowledge Transfer
Training	▪ Knowledge sharing training (seniors) ▪ Continuous training of successors

A lot of knowledge at JDSU is concentrated in the heads of a few experienced employees – instead of being widely accessible in a structured form. These employees are not always used to transferring their knowledge. Therefore, training in knowledge sharing techniques is crucial. It is the responsibility of every employee to make implicit knowledge (i.e. skills, experience) available through Knowledge Transfer. This has three dimensions:

- Continuous training of sufficient or even a redundant number of successors in order to secure against staff turnover. This training must be a actively planned and structured hand-over: Who knows and needs to know what.
- Knowledge structuring and documentation: Descriptions, procedures, instructions, checklists, etc. Help to access and update knowledge: What knowledge is accessible where.
- Periodical review of the effectiveness and efficiency of the knowledge documentation and hand-over process.

Knowledge Transfer has to be seen as an explicit task, and consequently the required time has to be allocated for this kind of activities. Priorities will help to stabilise the processes. Individual and team Knowledge Transfer tasks must be included in the MbOs and thus in the performance appraisals. Managerial examples are key.

These efforts shall be accompanied by a company-wide campaign demonstrating the necessity and benefits of Knowledge Management and Knowledge Transfer. Facilitators throughout the organisation help spreading the principle. It is crucial to share strategy, goals and achievements in order to support Knowledge Transfer. More formalised communication is required to cope with the growth of the company (structured meetings, newspapers, etc.). Communication is a precondition for co-operation and collaboration. A high level of co-operation and collaboration is required to establish a common ground for Knowledge Transfer, and these also will help to improve decision making participation. Not only more formalised communication is needed, but also personal, i.e. bilateral, contacts remain important.

Knowledge Transfer has a positive impact and there is a strong correlation with the further success of JDSU. Knowledge Transfer activities will after all help increase productivity and efficiency as well as increasing the quality of the products and services.

6.2.3 Social Department Zurich

Knowledge Transfer – Culture Management:

Bilateral Conversations	▪ Abolish information as an insignia of power
Meetings	▪ Create platforms for success and failure stories
Documents	▪ Map existing knowledge and competencies
Coaching	▪ Create an open culture advocating Knowledge Transfer ▪ Create career linked incentives for Knowledge Transfer
Training	▪ Allow for mistakes and learn from them

According to the survey, the more junior employees of project Social Department 2000 have a strong sense of the importance of Knowledge Transfer. Yet, they find their urge to acquire knowledge obstructed by hierarchical boundaries and a somewhat antiquated culture characteristic of civil services. Thus the need to advocate the benefits of Knowledge Transfer across all strata of the organisation, the need also to create an open culture of approachability and frankness. These latter are especially missed in the current period of change within SD – the lack of tangible, concise information leaves many employees in a limbo of insecurity.

Quite clearly, and perhaps also expectedly, SD employees place great importance on personal contacts rather than on electronic media. There is a strong call for open rooms, face to face contact of formal (regular meetings) and informal nature (coffee breaks, after hours activities). Still, it is also mentioned that formal Knowledge Transfer should not be overdone. Meetings, for instance, should be as few as possible, but as many

as necessary: Much trust is placed in informal, coincidental and spontaneous Knowledge Transfer activities, the benefits of which should be recognised and rewarded by the organisation.

Despite the emphasis on and trust in informal approaches for Knowledge Transfer, it is perceived that these work best where embedded in a formalised substrate. With the present high staff turnover, what is strongly required are two types of knowledge records: First, the collected factual knowledge, and second the meta-knowledge: Knowledge about who knows what. These knowledge maps must be kept up to date, concise and readily available to everyone in the organisation.

7 About this Project

The project team decided to choose a Knowledge Management topic as a new learning experience. Therefore, little initial know-how on the subject was available.

At an early stage in the project, a project plan was defined to identify main activities and estimated effort. Therefore due to the limited subject know-how, the initial plan was amended several times based on lessons learned during the project. The list below summarises the main changes and their reasons:

- Narrow scope: Knowledge Transfer instead of Knowledge Management. A narrow scope allows more specific investigation and findings within the limited diploma thesis timeframe. The revised scope was defined in tight co-operation with the advisor and took considerably more time than anticipated.
- Practical survey instead of literature oriented work: Given the nature of the MBA study, the focus was laid on a practical investigation in the project team's organisations instead of a scientific literature study. In addition, the advisor was interested in practical results. To expedite familiarisation, the KnowledgeSource model was directly adopted.
- Investigation through questionnaires: While initially only interviews with key people were foreseen, a questionnaire allowed a more structured approach and a wider audience. Development of a simple, easily understood questionnaire turned out to be much more complex than expected. While initially two questionnaire series were envisaged to measure progress through before / after comparisons, this idea was soon abandoned to meet the diploma thesis deadline.
- Questionnaire evaluation approach: Initially, a quantitative evaluation was planned. Due to the small sample and limited data quality, survey participant's comments were very helpful as additional information and were weighted more than initially planned.

The table below compares the initial project plan with the actual hours logged during the project. New activities were added as the work organisation required it. To be more specific, separate meetings were assigned to appropriate activities for the actual efforts. Thus, direct comparison is not always possible.

The survey was planned based on the main idea of a Knowledge Transfer optimum. A tool pilot project was removed from the scope due to the hard deadline and potential dependencies from company internal project delays.

For the evaluation, all data was collected in an MS Access database. The lack of experience with statistics tools led to a significant learning curve. After an increasing number of software problems with the Axum statistics tool, the decision was made to produce all reports and graphs directly from the MS Access database.

		Initial [hours]	Actual [hours]	Actual Mile-stones
Initiation	Document studies	90	90	02/2000
	Scope definition	20	40	03/2000
	Presentation slides, proposal	20	40	
	Report structure	20	10	
Survey preparation	Contents and target audience defined	0	50	05/2000
	Questionnaire preparation	0	50	
Survey	Interviews	60	40	07/2000
	Questionnaire results structuring (database)	0	120	
Evaluation	Findings: Key indicators	30	40	08/2000
	Scenarios, recommendations	30	30	
Report	First cut	90	60	
	Review	60	60	09/2000
	Final version	60	80	
Pilot	Preparation, evaluation	0	0	
Meetings	Team: Co-ordination, review	150	0	ongoing
	Advisor, other teams	60	0	
Total		**690**	**710**	

Table 4: Initial versus Actual Project Plan

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9 Abbreviations

ABACUS	UBS host IT system
BEX	Business excellence
CC KNN	Competence Center Knowledge Networks
CIO	Chief Information Offices
HSG	Universität St. Gallen
ITMM	IT Management Meeting
ITX	IT Excellence
JDSU	JDS Uniphase
MBA	Master of Business Administration
MbO	Management by Objectives
MIT	Massachusetts Institute of Technology
PCC	Private and Corporate Clients
SAP	Software for finance and production
SBC	Swiss Bank Corporation
SBG	Schweizerische Bankgesellschaft
SD	Social Department
SSP	Strategic Solution Platform
WDR	Warburg Dillon Read

10 Appendices

10.1 Survey Participants and Interview Partners

UBS	JDSU	SD
Luis von Achenbach	Allen Frederick	Patrizia Pedone
Nicholas Anastasi	Jörg Baumgartner	Karaca
Catherine Beuret	Holger Bazali	Tanja Rodriguez
Thomas Estermann	Urs Deutsch	Meinrad Schade
René Freiburghaus	Matthew East	Edita Schmid
Beat Gasser	Markus Eberhard	Genia Stangelberger
Dieter Goerdten	Teresa Eichholzer	Andrea Tischhauser
Walter Häberling	Norbert Galster	3 anonymous participants
Stephan Haberstich	Chris Harder	
Markus Hug	Mammen Jacob	
Helmut Kaufmann	Isabella Jung	
Daniel Kobel	Eberhard Latta	
Franz Kühne	David Moser	
Markus Langenegger	Kurt Müller	
Thomas Mahl	Stephan Oberli	
Arion Meier	Albertus Oosenbrug	
Claudia Müller	William Patrick	
Urs Ramer	Peter Roentgen	
Lukas Relly	Harald Schmittele	
Roland Ryser	Niklaus Sonderer	
Hans Peter Sieber	Samuel Strite	
Peter Simonis		
Daniel Steiger		
Daniel Stieger		
Werner Tonazzi		
Georg Weidmann		

10.2 Survey Evaluation Legend

10.2.1 Introduction

This appendix provides the survey information:

- Introductory letter
- Questionnaire
- Raw data figures, texts and graphs

Data is provided in two forms:

- Counts and comments
- Percent values

Survey data is stored in an MS Access database. Reports and visualisations are produced through MS Access features; some technical limitations apply. The next sections provide guidance to interpret the results. Figures are distinguished by organisation (i.e. UBS, JDSU, SD), where appropriate.

10.2.2 Counts and Comments

The report is ordered by question. Every question consists of multiple components:

- Question text.
- A list of all choices of the question with their text and the number of selections. Two lists are displayed for current and target selections, where applicable. Text questions have one single pseudo choice “Text”. Note that counts apply also for percent questions; percentages are evaluated in a separate report.
- A bar chart of the above choice lists. Short texts are used for the choices. Technical limitations:
  - Current (C) and target (T) entries are combined into the same graph, where applicable.
  - In charts with many bars, not all choices are marked on the axis.
- Ranking of same current/target choices by number of persons to identify a tendency what should be changed.
- Additional comments as marked on the questionnaires, ordered by choices.

10.2.3 Percent Values

The report is ordered by question; only questions with percent values are listed. Again, every question has several components:

- Question text.
- For every choice of the question:
  - Percent average values for current and target selections.
  - A scatter chart to show the number of answers for every percent value.
- For every question:
  - A summary bar chart with current and target percent average values for every choice.