SOME ASPECTS OF INFORMATION SYSTEM INTEGRATION/MIGRATION

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Abstract: This research deals with the significance   of the information system integration phase and the detection of some critical factors and circumstances that may significantly slow down or stop the process of modification/integration. Special emphasis is put on data migration that had been used in previous systems and their consolidation into a new common base. The results are based on the study of cause and consequence of such activities in the mentioned phase such as, for instance, the need to apply new information technologies, necessary alterations in the information system and its environment, alterations in the business system. The need for strategic planning of this phase is also considered in the range of the information system development strategic planning.

Key words: system integration, data migration, information system modification, information system life cycle, information system strategic development

1. INTRODUCTION

With strategic planning of the information system development or with planning of its modification it is necessary to foresee the possibilities of its integration with other information systems. Here it is assumed that there are risky activities and processes that may be generated in such circumstances. In the strategic plan,for instance, the data collection phase requires careful preparation and planning. This is often a phase with a high risk level and unpredictable influence on the required time period and executors, and therefore on the budget necessary for realization.

Creating the so-called service information   in the database(most often relational) that usually covers static data - various masters and similar is common for all parts of the information system. For example, data coverage during the modification process as a generic activity was not a problem in the „physical sense" as much as it was its adaptation to new conditions.

When an information system begins to use concrete application solutions, alterations of such solutions are possible, sometimes even frequent, having a corrective character and also the quality of being permanent, i.e. they last as long as there is a need for the information system. On the other hand, each business system will tend to keep its competitive position in the market and will try to keep its technical importance. Indirectly this means that the purchase of new equipment and new technological solutions will be reflected onto both business and information processes as well.

2. MIGRATION OR INTEGRATION?

The question arises as to what may provoke the information system migration/integration,when and why.Let us first define integration as: „a combination of two or more information systems that allow joint operation and joint information generation". Of course, this definition is reduced to the information systems level and it may be applied to business systems if we exchange the term information for the term

meaning business. We are stressing this point because, of course, an information system all by itself is pointless.

During its life cycle a business system may alter its technical and technological settings due to different reasons. Two reasons are the most prominent ones:

- Alterations in business operation
- Alterations in hardware and/or software (Morris, 2006)

Alterations in business operations may be provoked by internal reorganization, like for instance by significant extension of the range of products, its altering and alterations in carrying out business operations. Business operation alterations may also appear as a consequence of integration with other business systems, sale/purchase of a business system (Barton, 2003).

The integration process is started by, such systems that have existed until then in different circumstances. Figure 1 shows two most frequently evidenced possibilities where systems exist that might be candidates for integration. Theoretically there is a border possibility where an information (sub) system exists completely on its own.

a) Mediated interfacing

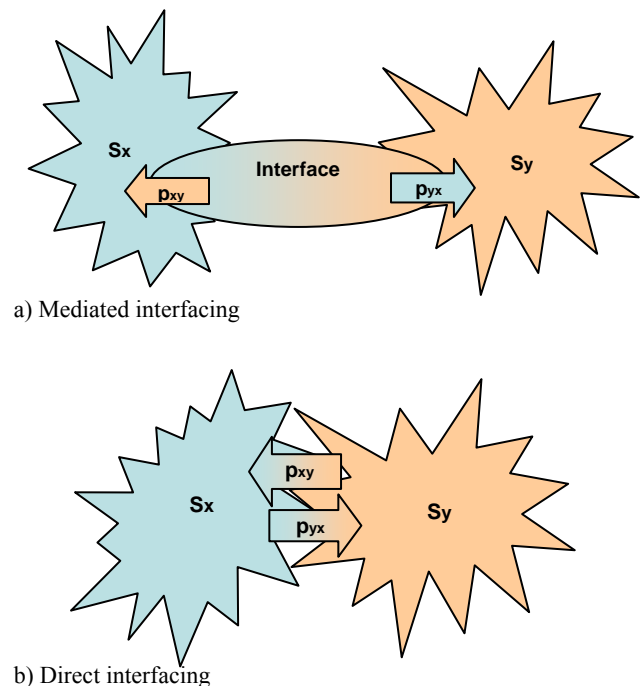
b) Direct interfacing

Fig. 1. A possible relation between two systems

Taking into consideration the given circumstances a business system is faced with planning requirements for all levels beginning from the operation level and continuing up to the strategical level. In integration/migration practice there have been system combinations as shown in Table 1. For the purpose of explanation, let us determine the information system as a set of information processes $\{p_{xi}\}$ that service processes in a certain system S_x. Of course, the given process set is in

accordance with minimalist conditions and the holistic approach supplementary.

System/relationship	Sx	Sy	Integration (result)	Note
Independent and incomparable	{pxi}	{pyi}	{pxi}U{pyi}	Senseless
Independent but supplementary	{pxi}	{pyi}	{pxi}U{pyi}	Business function supplement
Independent with partly the same processes	{pxi}	{pyi}	({pxi}U{pyi})/ ({pxi}∩{pyi})	Business function supplement with reduction of repetition

Table. 1. Integration of two systems

During integration, in times of accelerated ICT advance as well as rapid market requirement alterations, there is the question of the possibility/necessity for strategic planning.

Namely, the emphasis in planning is shifted towards tactical planning and opens the necessity for transactional planning or the planning of each business/use case respectively. Business system status change following the sale and intergration to a larger consortium leads to the situation where both migration and integration took place at the same time. Software alteration was necessary due to the business system integration and the merging of software solutions on the consortium level. Thereby the informatics process modification and data migration together with their adaptation took place in several phases. The final goal is the intergration of the information system into the consortium information system.

3. PROBLEMS AND CHALLANGES

Working for twenty years on information system design and the integration/migration through three significant modifications the same amount of time was needed for Data Take Over phase, and for instance, for software testing. However, the problems were regularly linked with the user's readiness and capabilities to get involved.. When changes do take place, the overall business system segments change as well. The most frequent reason for introducing new applicative solutions or for the modification/upgrading of old applications is the increase of the requirement for delivering new functions necessary for business operation improvement.

An especially risky integration effect is the situation where the informatics system modification causes significant business process modifications, after which the business system functions may be disturbed to such extent that functioning is threatened. In such circumstances it is necessary to carefully plan activities such as:

- Engaging additional lifeware resources such as independent external consultants and experts for various fields
- Checking and understanding systems that are integrated, requiring a whole group of certain specialized skills
- Controlling whether the documentation is complete and authentic; some important documents may be missing
- Finding solutions for some possibly incomplete segments in processes
- Eliminating data redundancy

- Avoiding and eliminating all unprofessional activities (unorganized approach or intuitive approach)
- Avoiding all actions that may provoke delay in the integration realization

4. SOME EXPERIENCE BASED FACTS

The user and especially the management need to be aware of the fact that the existing informatics system is no longer adequate (due to any cause whatsoever), and that a system was in the preparation stage, most often in the testing phase (Chatterjee, 2002). The necessity to transfer data into a qualitatively new environment assumes the possibility to comprise the correct data in the right place and the right time. Impossibility to transfer data objectively, i.e. matching or compressing are necessary on one hand or decomposition and separation on the other hand. There is need for very complex programmer preparation and engaging and for creating custom programs-interfaces and scripts that translate data automatically. High quality preparation is necessary for all this, of course (Morris, 2006).

During the integrated system stabilization process it is necessary to perform the following:

- Perform testing on the new system
- Provide parallel operation during the new system stabilization period,
- Solve the problem of historical data,
- Solve the problem of informing in circumstance of double system data storage,
- Predict the time period for the system interfacing.

5. CONCLUSION

The integration migration from one technological application into another technological application system is not by all means a harmless situation in the life cycle of a business informatics system. As it is caused by different impulses and circumstances, it may have far-reaching consequences for the informatics business system functioning if it is not carefully executed. The most frequent negative effects are breaking of deadlines and increase of expenses, as well as indirect crossing of budget means limits. Recently there have been many business system activities excluded from the business system and used as outsourcing services. For instance: Application Outsourcing, Business Process Outsourcing, Credit Services, Customer Relationship Management, Enterprise Solutions, Hosting Services, IT Infrastructure Outsourcing , Knowledge Management etc. .From the user's point of view it would be ideal if the user's standards could be defined in advance and if the users could be warned as to possible alterations. However, it is evident that on the market as a part of the possible solutions there are quite specific use cases behind general methodologies, making this problem area specific and very sensitive. Therefore, there is a very frequent dilemma in the integration/migration area: to buy or to do it yourself. Hence the decisions on the manner of executing the described integration/migration activities should be brought with great care.

6. REFERENCES

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