

Practical activities of the INKA project

INKA working report. IbisSoft, Stockholm, Sweden, October 2006.

Author: *Dr. Ilia Bider, Project leader*

Introduction

This paper is produced in the frame of the INKA research project, the details of which can be found on the project Web site: <http://www.ibissoft.se/projects/inka/inka.htm>. Most of the research results of the project has been presented at various academic events and published in academic periodicals and conference proceedings, all of which are listed on the project Web site. Other results are presented in MS thesis of the students studied at Royal Institute of Technology (KTH, Stockholm) and in technical reports some of which will be used as drafts for additional scientific publications. The list of the technical reports with the links to their texts is also presented on the project Web site. The aim of this paper is to describe practical activities completed in the frame of the Inka project. Under practical activities, we mean activities aimed at commercialization of the project results, such as system development, prototyping, investigation of potential markets, finding new customers, etc.

The report is structured according to the INKA project stages. Section 1 describes practical activities connected to the goal of investigation of the effects of the introduction of a support system in operational practice. Section 2 is devoted to activation of knowledge through automated planning. Section 3 is devoted to increasing the mobility of the system users. Where possible, we refer to the publications and technical reports that include description/results of our practical activities.

If you are interested in hearing more about our experience or would like us to demonstrate our prototypes, please contact us on info@ibissoft.se.

1. Introduction of Business Process Support/Knowledge Management Systems in Operational Practice

Investigation of effects of introduction of a system in operational practice presumes that the introduction process has been completed successfully. Though by the start of the project we already had positive experience of introducing process support at our main test site, our presumption that the next stage would go without major problems proved to be wrong. We experienced a lot of difficulties of introducing a system that was aimed at supporting cross-organizational business processes. A lot of practical work has been done to overcome the difficulties of introduction of our system in operational practice. A lot off lesson has been learned and a new research area has been added to the Inka project. The aim of this addition was to find out how to asses the ongoing introduction, and how to drive it forward. The result of this research are

partially presented in the following publications and technical reports listed on the project Web site:

1. Aligning people to business processes. Experience report (published research paper)
2. Accessing an ongoing introduction of an IT system in operational practice (technical report in Swedish)

In the rest of this section, we describe the activities that concern system introduction completed on the practical side.

One of the problems that made introduction difficult was the user interface of our system. Though it worked satisfactory for a one-department support system, it showed to be a problem for a system with a wider range of the end-users. To solve the problem we first investigated the user-interface of our system, and that of other systems on the market, and then totally redesigned our user interface. The investigation can be found in intermediate reports listed on the project Web site:

1. First experience of using ProBis (In Swedish)
2. Projektplatsen.se (In Swedish)

The new interface is presented in the evaluation version of our system *ProBis*, and a manual accompanied it. Both can be downloaded from http://www.ibissoft.se/english/download_main.htm.

After redesign, the technical problems that hindered the introduction of our system have been, more or less eliminated, but the human-related problems remained. The main human-related problem, dubbed as “aligning people to business processes”, is connected to the difficulties of learning a system that supports a way of working not known before. To solve the problem, we designed a strategy called reverse evolutionary system development, described in the paper “Aligning people to business processes”. The essence of this strategy is in that before designing a full-featured business process support system, a standard minimal system is tested in the operational practice of an organization. This strategy was successfully tested on a new customer site, mentioned in the “Aligning ...” paper. Though due to the changes in the management, the customer did not peruse the development of a new system, the test gave them full information of what introduction of a business process support system would mean for their organization.

As far as our main test-site, HGF, was concerned, the introduction task was aggravated by the lack of formal organization of the introduction project. To overcome this problem and convince the HGF management to pay more attention to the introduction process, a new assessment methodology has been created, which is described in the report “Assessing ongoing ...”. Beside approach to assessments, this methodology includes recommendations on how to continue an introduction process after an assessment has been made. The methodology was applied to the introduction of our system, *ProBis*, at HGF. A full assessment has been made, and presented to the HGF management. The HGF management accepted the assessment results and recommendations that were made based on these results. It helped to formalize the structure of the introduction process and moved it forward.

To make introduction at HGF, easier a lot of additional features were implemented in *ProBis*, e.g. support of protected processes.

Commercialization of a system requires an approach to marketing. As the system we propose is fairly complex, and comprise many functions found in other types of systems, several approaches can be used for marketing. The system can be marketed from the business process support point of view, knowledge and experience management point of view, etc. One approach, that we thought of as promising in the beginning, was to market the system as a means for internal communication/collaboration, along the lines set in the technical report listed on the INKA web site under name "Business Process Support System as a Tool for Communication/Collaboration". The idea was that the system could totally substitute email for internal communication/collaboration. To test the idea, we made a simple investigation whether this kind of marketing could be appropriate for a system of *ProBis* kind.

Investigation was based upon a short questionnaire listed on the project WEB site under name "Short questionnaire to analyze needs and means for internal communication." The aim of the questionnaire was to see whether the companies and organizations consider their current tools of communication/collaboration as problematic or not. The questionnaire was send to a number of SMI's (Small and Medium size Enterprises). The replies were processed and presented in the report listed under name: "Result of processing for short questionnaire" The results showed that on the whole SMI's were satisfied with the existing tools. Thus marketing of *ProBis* as a tool for communication/collaboration for this class of customers was considered as non-starter. It does not mean that this strategy will not work for other types of potential customers, e.g. large enterprises. An additional investigation is needed to test other groups of customers.

2. Activation on knowledge through rules of planning

Two prototypes have been built to test the theoretical suggestions on how the knowledge can be activated through rules of planning. The theoretical suggestions and the first prototype are covered in two research papers listed on the project WEB site under names:

1. Controlling the level of business process instance flexibility via rules of planning.
2. Activation of Knowledge in an Integrated Business Process Support / Knowledge Management System.

The first prototype introduces an automated planning system that concerns all processes of the given type. The rules of planning in this system has a general scope and can be introduced and maintained only by a trained person who is responsible for a given process type.

To give some possibilities of automated planning to the end-users, a prototype of yet another planning system has been built. This system allows to introduce planning rules on the level of business process instances. The rules can be set and removed by any end-user. He/she can ask to plan a certain action when a process instance reaches

some special state, or a particular task has been executed or not executed by a particular date. A typical action is planning a notification to the user him/herself, but any other action to any other user can be planned as well.

Both prototypes are implemented as add-ons to the current version of *ProBis*. They can be set into operational practice as soon as a customer is mature enough, as far as *ProBis* is concerned, to understand the importance of having these features implemented.

3. Mobility

The research part of this theme has been conducted in the frame of several MS thesis completed by master students of Royal Institute of Technology (KTH, Stockholm) under the guidance of Erik Perjons, who can be contacted via perjons@dsv.su.se.

The following practical activities have been completed to investigate possibilities of extending the use of *ProBis* beyond the local office.

The use of mobile devices has been tested in the recruiting process at our main test site HGF. Instead of using paper-based information when doing recruiting tours, the recruiters were supplied with mobile devices with the same information. Special import/export routines were added to the support system to enable the exchange between it and the mobile devices. The idea was to save a lot of paper and working time for inputting information back from the paper forms. Though the idea was good, and worked well as far as technique was concerned, the field results proved to be negative. The recruiters were not satisfied with the possibilities of the mobile devices to show information. They lacked the wide overview of information that they had in the paper form. Therefore, the implementation of mobile devices in operational practice was postponed until the time when better mobile devices became available. The protocol of this project is listed on the INKA Web site under the name: "Testing of mobile devices in operational practice"

A prototype of WEB-based user interface for external customers has been built for *ProBis*. The aim of the project and its implementation details are described in the technical report listed on the project WEB-site under the name "External User Access to Internal Business Processes".

An extensive investigation has been made to choose a development platform for porting the whole system to the WEB environment. We decided to use Open-source platform consisting of the following components:

1. Web-client development – JavaScript based on open source libraries. A number of such libraries are under test right now.
2. Communication between WEB-client and Web-server – Ajax (Asynchronous JavaScript)
3. Web-server development platform - Ruby On Rails
4. Web-server development language - Ruby
5. Middleware platform – SOAP
6. Tool for wrapping legacy applications – gSOAP

7. Tool for manipulating complex database objects – Prolifics (open source under Linux) wrapped by gSOAP interface.

The porting project is ongoing at the time of writing this report.

A VPN (Virtual Private Network) solution of running *ProBis* from the remote machine has been successfully tested on the DSV, and IbisSoft sites. Installing this solution at our test site, HGF, is already planned for the nearest future. Beside VPN, a solution of running *ProBis* through the remote desktop connection has been successfully tested. This option is preferable for work from an arbitrary remote machine, as it does not require any preinstalled software on the remote machine.

4. Other activities

To investigate the possibility of commercialization of results a number of market analyses has been completed, including:

- PEST (Political, Economic, Social and Technological factors) analysis
- Technology/Market matrix that shows the level of risks involves
- SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis that shows chances for success

These analyses are included in the internal document:

Iliia Bider. From Rigid Bureaucracy to Efficient Lean Administration. Revising and automating administration based on the mathematical systems theory. Internal Memo, IbisSoft 2005, Materials for presentation of a business idea.

The content was discussed in a meeting arranged by the network Connect Östra Sverige (<http://www.connectost.se/>).