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**USING CASE TO EXPLOIT PROCESS MODELING IN TECHNOLOGY TRANSFER**

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## **USING CASE TO EXPLOIT PROCESS MODELING IN TECHNOLOGY TRANSFER**

A successful business will be one that has processes in place to run that business. Creating processes, reengineering processes, and continually improving processes can be accomplished through extensive modeling. Casewise® Corporate Modeler™ CASE is a computer aided software engineering tool that will enable the Technology Transfer Department (TT) at NASA Marshall Space Flight Center (MSFC) to capture these abilities. After successful implementation of CASE, it could then go on to be applied in other departments at MSFC and other centers at NASA.

The success of a business process is dependent upon the players working as a team and continuously improving the process. A good process fosters customer satisfaction as well as internal satisfaction in the organizational infrastructure. CASE provides a method for business process success through functions consisting of systems and processes business models; specialized diagrams; matrix management; simulation; report generation and publishing; and, linking, importing, and exporting documents and files. The software has an underlying repository or database to support these functions. The Casewise® manual informs us that dynamics modeling is a technique used in business design and analysis. Feedback is used as a tool for the end users and generates different ways of dealing with the process.

Feedback on this project resulted from collection of issues through a systems analyst interface approach of interviews with process coordinators and Technical Points of Contact (TPOCs). These interviews were part of the following project schedule:

### **Project Schedule**

- ❖ Set a plan for process intervention.
- ❖ Get a list of Space Act Agreement (SAA) Process participants.
- ❖ Obtain the series of documents associated with the SAA Process.
- ❖ Gain knowledge of the process through meetings with process support staff.
- ❖ Obtain initial copy of Casewise®.
- ❖ Pursue a learning curve of the CASE tool.
- ❖ Model NASA, MSFC, and TT enterprises using organizational hierarchy models.
- ❖ Create a data flow diagram of the SAA Process.
- ❖ Interview process coordinators and TPOCs to collect issues.
- ❖ Diagram a new business dynamics model of the SAA Process with issues attached and descriptions populated.
- ❖ Generate an issues report and publish it for end users.
- ❖ Do preview presentation on CASE for the TT Department.
- ❖ Produce interview reports for the SAA process owner.
- ❖ Write project report.
- ❖ Train CASE administrator.

- ❖ Give final presentation.

In addition to the project schedule, goals were set for the project initiative as follows:

### Project Goals

- ❖ Analyze the process looking for obvious holes, glitches, or issues.
- ❖ Provide help on executing the process by determining whom the players are, what the steps are, and how it is implemented.
- ❖ Interview the coordinators and TPOCs.
- ❖ Build models of the process based on the actual formal process and the interview feedback.
- ❖ Explore the possibility of collecting metrics on the process and the sub processes.
- ❖ Create the ongoing ability to change the process as needed to ensure continuous process improvement.
- ❖ Collect information that will help to generate training documentation.
- ❖ Work toward automation of the process.

In order to analyze the SAA Process by collecting issues, interview questions for the process coordinators and TPOCs were spawned as follows:

### Coordinator Interview Questions

- ❖ What issues do you have with the Space Act Agreement (SAA) Process?
- ❖ What suggestions do you have for improving the process?

### TPOC Interview Questions

- ❖ What is your understanding of CAITS and CAITS form?
- ❖ What are your expectations of flow time for the whole process?
- ❖ Are you aware, in the concurrence cycle, where the longest waiting time for signature resides? Does this concern you?
- ❖ How many outside companies do you work with per year that might produce Space Act Agreements (SAAs)?
- ❖ Why do you want to do SAAs, what do you get from them, and what do you need from them?
- ❖ What issues do you have with the process?
- ❖ Do you have any suggestions for improving the SAA process?

For the SAA Process, I created process dynamics diagrams, which show an overview of the process, the functions of the process, and how the process works. A function dynamics diagram provides the explosion of one elementary systems process into its individual transaction steps. Sub process diagrams can then be produced to further break down the steps within different process parts. When a process diagram is exploded or decomposed into sub process diagrams, this allows for the advantage of keeping the sub processes internal to the organization, while publishing only the main process. Issues generated from the above interview questions were then attached to the appropriate diagram objects and the descriptions populated.

An issue report was published for the end users to generate ideas for process improvement. Interview reports were also produced for the same purpose. Issue collection is inline with CaER's personal vision for processes and systems to include listening to feedback from customers and implementing changes as needed.

In addition to populating the object descriptions for the various process steps, the appropriate SAA documents were linked to the correlating process steps. These documents can be exploded and opened in the application that they were created in. Linking documentation provides for deeper analysis of the process steps.

Completed documentation for each individual Space Act Agreement (SAA) could also be attached to duplicate process models to track the actual individual SAAs, both with documentation and metrics. Metrics such as service time and costs have input areas in the properties boxes for each process object. The metrics can be tracked and reports generated through simulation. The business process simulations are a powerful means of performing statistical breakdown of business processes in relation to the metrics that are entered.

Another means of analysis in Casewise<sup>®</sup> is matrix management. According to the CASE manual, matrix diagrams show associations between data and objects in models such as applications and technologies, or processes and organizations. This is a useful way to analyze impacts of any process redesign, and also to record the activity between business objects. A matrix diagram can aid in examining and planning a business area and can be used to:

- ❖ Show the interactions between objects.
- ❖ Report on the interactions between objects.
- ❖ Identify intersection patterns.
- ❖ Perform impact analysis.
- ❖ Record and define the interactions between objects as an aid in scoping and planning.

Casewise<sup>®</sup> has some additional capabilities. The published report information can be completed in Microsoft Word or Excel, as well as in HTML for posting on a web site or company intranet. A diagram can be exported via the Web for external/internal controlled changes and imported back into the original diagram. The software can also be linked to third party software to import and export data back and forth.

In conclusion, CASE can promote successful business processes while furthering the goal of Technology Transfer, which is to encourage broad use of MSFC-developed technologies by American private enterprise. The importance of good processes is evident by Art Stephenson's (MSFC Center Director) statement, "Our processes are far from perfect. We need to continually look at ways to improve them. We need to use "out of the box" thinking to find new and better ways of doing our business." Finally, I want to impart that CASE can help to continue the vision of the Space Act Agreement Process at NASA/MSFC to meet the needs of customers and move at the speed of business. This will be accomplished by continuous process improvement.