Bombardier Aerospace, Program & Customer Support

June 7, 2004

Case Study: Bombardier Aerospace, Program & Customer Support

Bombardier Aerospace has been experiencing and continues to anticipate a sharp increase in sales, leading to a significant increase in the workload of its Customer Support organization. At the same time, management is actively seeking business opportunities to expand the range of value-added services delivered to the clientele. This business reality predicates the necessity for increased throughput with minimal increase in resources. To meet this challenge, Customer Support has introduced change initiatives to improve customer satisfaction, deliver defect-free products and services, introduce new products and services, hire and retain key competencies, build a knowledge base, leverage technology and reduce its operating costs.

Bombardier Aerospace is part of Bombardier Inc., a Canadian corporation of 55,000 employees, active in the fields of aerospace, rail transportation equipment, recreational products, financial services and services related to its products and core businesses. Bombardier Aerospace has grown in the last 10 years to become the third largest manufacturer of civil aircraft in the world, combining the resources of four leading aircraft manufacturers—Canadair and de Haviland in Canada, Learjet in the United States and Shorts in Northern Ireland. Bombardier Aerospace is actively engaged in process improvement, and has been implementing the Six Sigma quality program since 1997.

The Customer Support organization for Bombardier Aerospace, Business Aircraft, specializes in handling all customer-related issues relevant to operating a business aircraft, including: scheduled and unscheduled maintenance, customer, pilot and maintenance technician training, spares, technical information services, in-service engineering and special missions. This organization operates worldwide with major offices in Montreal, Wichita, Dallas and Tucson, and Field Service Representatives on all continents.

Bombardier turned to Interfacing to take advantage of its vast experience in the field of business process management (BPM).

Through the use of Charter and Designer, and under the guidance of Interfacing's Professional Services group, Bombardier Customer Support successfully produced tangible results including:

- An enterprise process framework, outlining the core and support process structure of the organization
- The definition, modeling, analysis and improvement of one customer-oriented process, resulting in standardizing and communicating best practices across the different sites
- An online monitoring mechanism for the selected process was developed to collect operational data and evaluate process performance, thus enabling its continuous management and control

Enterprise Process Framework

The entire improvement and standardization project started by creating an enterprise business model, consisting of a high-level, multi-tier set of business processes, fully describing the corporate mission of the organization. This model was turned into a process-oriented knowledge base, shared among process owners through the intranet.

The knowledge captured was structured along the tiers that define the organization's operations. It translated the corporate mission into a process structure and guided the capture of key data. This information included the process ownership, goal, boundaries, key performance indicators, customers and suppliers for each process in the hierarchy, as well as the resource types in the organization.

All existing ISO-related documentation was linked to the appropriate points in the framework. The knowledge base constituted a baseline for internal communication and enabled the performance measurement of the organization. It also provided invaluable structural input for future restructuring plans for cross-functional "mega" processes.

Process Analysis and Improvement

In response to the challenge posed by the anticipated increased future demand, BA P&CS selected one process from the enterprise business model for analysis, improvement and standardization across the organization. The process chosen describes the processing of unscheduled technical issues related to the operation of a business aircraft. This process starts when the organization receives a customer request for support and ends with its resolution. Currently, this critical process entails a number of hand-offs between various organizations within Bombardier Aerospace that lead to inefficiencies (delays and duplication of work) in the way that these issues get resolved.

A comparative study was conducted through the use of Designer. This included:

- process mapping and modeling of the current as-is mode of operations
- quantification of every task in the workflow with relevant performance data
- creation of different could-be scenarios, capturing different ideas for improvement

- simulation and impact analysis of all process models, as-is and could-be, selecting the recommended to-be scenario

The use of Designer provided Bombardier with a rigorous modeling approach that captured all volume, cost and time-related attributes.

The toolset permitted the creation of definitive models, as opposed to tw-dimensional maps, ready for analysis in accordance with Six Sygma's Analysis and Improvement phases. In this way, potential problems were identified prior to implementation. Furthermore, with Customer Support could design the new improved practice, and standardize it across the organization.

The comprehensive Designer discrete event simulation engine captured the impact of the improvement ideas through the pertinent process metrics, thus justifying their implementation. Considering a yearly volume, the benefits
identified included:

- a 27 percent reduction in elapsed time, leading to increased customer satisfaction
- a 21 percent reduction in processing time
- a 45 percent increase in the throughput of requests handled, with minimal processing cost increase, based on changes introduced to the way certain activities are executed

Monitoring Mechanism
An interface was created between Lotus Notes and Designer to monitor the performance of the process modeled. The Enterprise Process Framework built in Designer was imported into Lotus Notes as the architecture for a workflow application. The resulting database is used to capture the operational practice. A seamless transfer mechanism enables the collection and display in Designer of critical process performance data for a given period of time. The interface allows the process manager to:

- Monitor the performance of the process in real time whenever desired
- Decide on any corrective actions necessary
- Test any improvement ideas prior to their implementation
- Analyze bottlenecks

This permits the management and control of the process, ensuring that it remains within specifications, in accordance with the Six Sigma Control phase. Thus, a manager can swiftly know the performance of the process for the given period of time in terms of the average elapsed, processing and waiting time a client issue took to get resolved, the input volume, as well as the percentage of work completed or in progress.

With this interface, performance elements in the process model, such as the percentages of occurrence of different paths, can also be updated.

Current and Future Direction
Charter and Designer have been selected as a standard across Bombardier Aerospace for process mapping, modeling and analysis. These initiatives span objectives such as enterprise modeling, individual process improvement, as well as documentation.

The Lotus Notes initiative is also expanding to permit extensive process management and performance monitoring. The use of Charter and Designer, as well as the Lotus Notes monitoring interface, have been recognized as a unique and powerful support to the SixSigma methodology.

"We have been working with Interfacing Technologies since July 1998. Integrating business units, by aligning practices between different sites, has been facilitated by being able to link all our processes into one integrated framework shared by all managers. We are counting on FirstSTEP to enable us to simulate anticipated business volumes and efficiently prepare for and manage our growth with tailored action plans."

David Orcutt
Vice-President and General Manager of Programs and Customer Support
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