Controlling the Business Environment for Controlled Language

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In General Motors' Controlled Automotive Service Language (CASL) project, a controlled language has been defined and technology is being developed to support that controlled language, but success is unlikely unless we prepare the business environment in advance of technology implementation. This paper describes how General Motors is managing a substantial business process reengineering effort in advance of the scheduled rollout of the CASL technology in order that the business processes will be in place to support that technology when it is ready. General Motors' efforts may serve as a model for other corporations which need to control the business risk to successfully deploy controlled language and related technologies.

General Motors' Controlled Automotive Service Language (CASL) project [1] encompasses the development and implementation of a controlled English authoring language as well as machine translation, translation memory, and software tools for authoring in controlled English and post-editing of machine translation output. These technologies must be integrated into an existing business environment that currently includes none of them, and which, when those technologies are implemented, must not only support them but must also maintain those business processes in place at the time of deployment without negatively impacting the daily production of authoring, data management, translation, and publication. Given the scope of the CASL project, the complexity of the business environment, and the importance of maintaining production schedules it is evident that without careful business planning the CASL project would not only fail but would also disrupt existing production schedules.
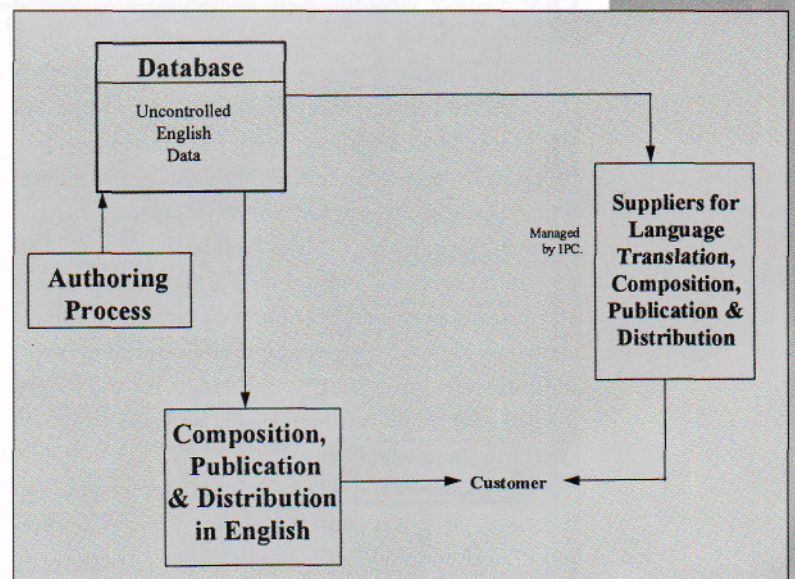
When the CASL project was first conceptualised and planned, GM's Service Technology Group (STG) as the sponsoring organisation was already responsible for the authoring and data management of the English source data for service information in North America. However, responsibility for translation was largely assigned to the International Product Center (IPC), a separate GM organisation. Responsibility for authoring and data management resided in STG, as it still does. The process model shown in Figure 1 illustrates at a high level how service information was created and delivered.

Clearly, any attempt to introduce new technologies and change the business practices of these groups needs to be carefully orchestrated in order to reduce the business risk associated with that new technology. Recognising the inherent risk in a "technology push" model of innovation, STG's management has taken several major steps to prepare the organisation for the new technology. A chronology of these steps may be useful to other corporations interested in controlling not only language but also the business risk associated with the development and deployment of controlled language.

The first change STG took was when the service information database system was updated to accommodate Canadian French. This step was taken

Figure 1: Business Process Model before CASL Project

Figure 2: Intermediate Business Processes

authors using ArborText. The authoring memory tools allow authors to re-use previously authored source language text when that text also meets their current needs. Document management and versioning is part of this existing data production and management activity. The CASL project is adding all of the subprocesses indicated by the double outlines.

LANT, based in Belgium and the technology provider for the CASL project, is creating a software controlled English checker which will be integrated into the authoring process to create controlled CASL English. The machine translation system will be Lant®mark and the translation memory system currently planned is Eurolang Optimiser, which will also function as the service lexicon database system. The quality control processes have been described elsewhere [2], borrowing statistical process control practices long-established in manufacturing. Another software tool is planned for the post-editors to use in checking the output from the translation memory and machine translation systems.

Shortly after these generic business processes were outlined at a high level, the organisation began to work on some of the targeted subprocesses that were not yet active. For example, staffing was put into place and work begun on a multilingual service lexicon. This in-progress activity is intended not only to support the controlled vocabulary work for the CASL project but also to satisfy the existing needs for authoring and translation. Similarly, to prepare for the envisaged quality control activities, STG spearheaded the creation of a committee sponsored by the Society of Automotive Engineers and designated as SAE J2450 to develop what is intended to become an automotive industry standard quality metric for the translation of service information. This metric will be adopted by STG for all translations, including both the CASL machine translations into French and also the numerous additional translations that will continue to be performed by outside suppliers.

Management again took the next significant step in creating a business process reengineering (BPR) [3] group whose task it is to establish and implement the details behind the generic process model of Figure 3. This activity is currently underway. It will be the results of this group's efforts that determine the success or failure of the CASL project to rollout its controlled language and other technologies in the organisation. Let us therefore consider this group in more detail.

The BPR group's membership is revealing. It currently consists of STG managers responsible for the primary sub-processes, viz. authoring, data management, translation (including supplier relations), and composition/publication/
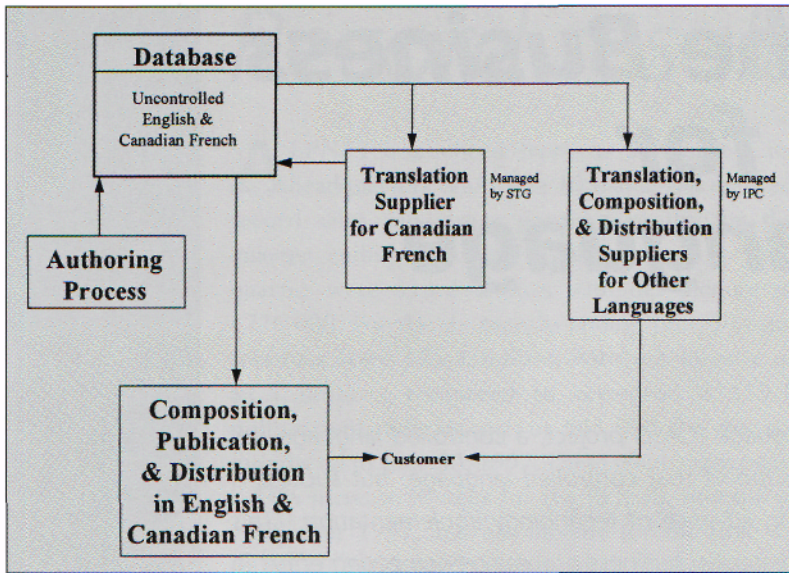
independently of the CASL project because there was an existing business need for this language. Management responsibility for Canadian French translations was given to STG, while the IPC retained responsibility for the translation of all other languages. The result is shown in Figure 2.

The first step in organisational change came with the creation of a unified translation group in STG, bringing together the few individuals already in the organisation who were responsible for translation. This was quickly followed by the functional transfer to STG of the translation responsibility from the IPC. The result was the consolidation in STG of all service information translation for North American GM vehicles, with the exception of Saturn Corporation which maintains separate business activities for all service information functions.

The STG translation group is also the functional owner of the CASL project. This is an important point because the manager of the group is now motivated to optimise the *integration* of the CASL project with the daily operations as a unified system, instead of trying to coordinate with a different functional group.

The first preparatory step this new group took was to create a generic process model for the production and translation of service information which is the *target* for the integration of the controlled authoring tools as well as the other CASL technologies into a unified model that encompasses all business practices. This business process model is shown in Figure 3, where the double-outlined boxes indicate new processes to be added by the CASL project and single-outlined boxes indicate processes currently in production.

In Figure 3, the service information production database is currently based on Ingres and is populated with SGML-tagged data created by

distribution. Another member represents GM's corporate information systems organisation to assure that the BPR group's efforts are consistent with corporate standards and processes. Both of the technical leaders of the CASL project are group members. The BPR group's executive sponsor is the director that has overall responsibility for all activities represented in Figure 3. Given the group's mission and the functional responsibilities of its members it can be seen that the group not only has the mandate from executive management to design the future business processes for service information creation and delivery, but it also has the capability and authority to develop and implement them.

The timeline for BPR development is such that it coincides with the planned CASL pilot, scheduled to begin in December 1998. Thus not only will the new CASL technologies be piloted, but also the business processes to support those technologies. Therefore, both the technologies and the business processes will be tested in the controlled environment of a pilot where lessons can be learned and adjustments made without disruption to the daily deliverables in any of the affected subprocesses.

In reviewing the above chronology, it can be seen that a series of coordinated evolutionary steps in both organisational structure and technology development are preparing the business environment for the introduction of radically new technologies, including a controlled language. Our goal is nothing short of revolutionary improvements in cost, quality, and time to produce and deliver automotive service information in several languages while controlling the business risk in achieving this goal. We feel that the concurrent development not only of the CASL technology but also the business processes to support that technology is a necessary if not sufficient prerequisite to project success. As the cliché states, however, whether the CASL project is successful or not only time will tell. ■

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References

[1] Means, Linda and Kurt Godden. "The Controlled Automotive Service Language (CASL) Project." *Proceedings of the First International Workshop on Controlled Language Applications (CLAW 96).* Katholieke Universiteit, Leuven, Belgium. 1996. pp. 106 -114.

[2] Godden, Kurt. "Statistical Control Charts in Natural Language Processing." *Proceedings of the First International Conference on Natural Language Processing and Industrial Applications.* vol. I. University of Moncton, N.B. Canada. pp. 111-117.

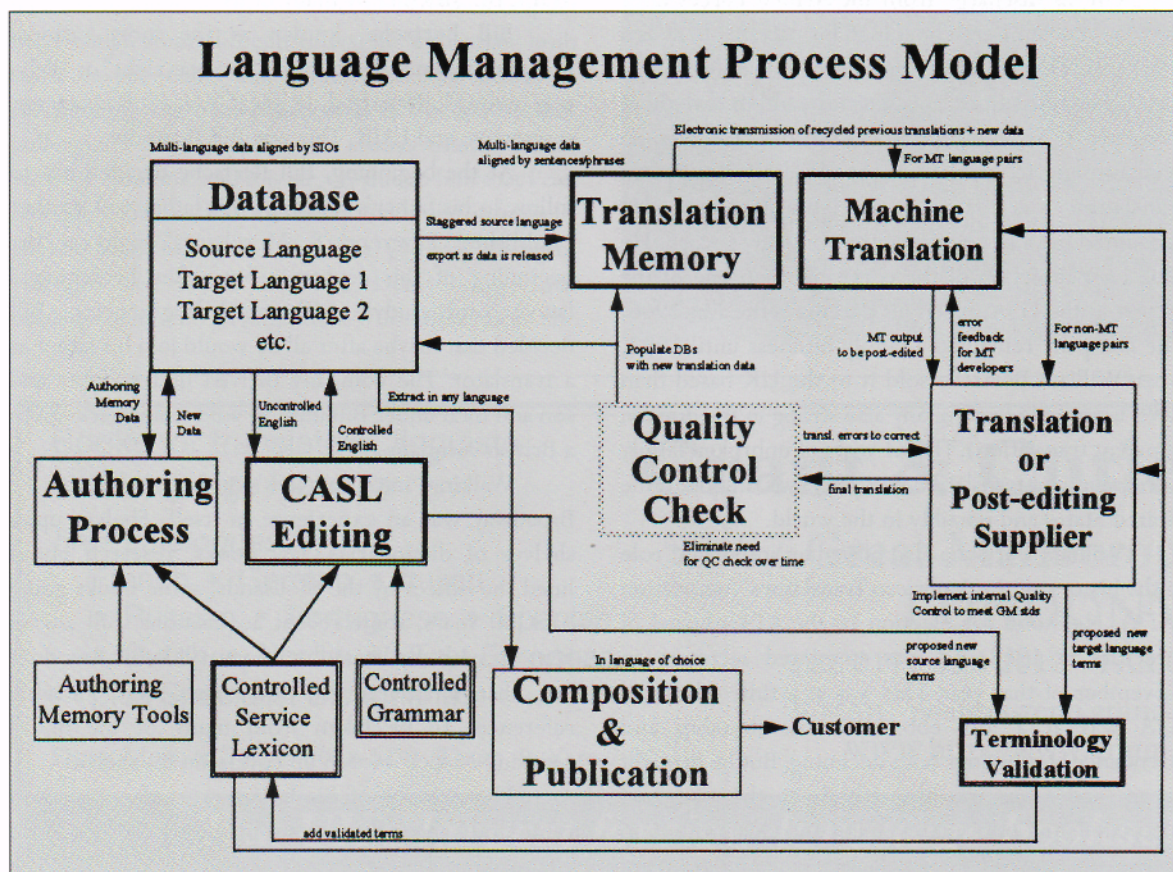[3] Hammer, Michael and James Champy. *Reengineering the Corporation: a Manifesto for Business Revolution.* HarperBusiness. 1993.

Figure 3: Target Business Processes