

Jennifer Brown
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IMT Custom Machine Company, Inc.

Synopsis:

Custom Machine Company Inc. (CMCI), a subsidiary of International Machine & Tools, operates two plants in Ft. Wayne and Chicago. These plants have played a game of patch-up and catch-up with their information technology. Hardware and software developed for one specific purpose often ends up serving several other different uses. In late 1998, it became apparent that the information technology – specifically the process control software and mainframes – has been stretched too thin, and needs updating and revising before the shortcomings of these systems reach a crisis level affecting production.

Recommendations:

These two facilities need to consolidate systems and work flow in a highly managed IT environment. Charles Browning, a staff engineer tasked with uncovering major IT issues by Darrin Young the Vice President and division manager, suggested a move away from reliance on the mainframes towards a workstation-centered environment. With the lease on the S/390 mainframe nearly expired, this is the best time to move in this direction.

The MIS department should move all the CAD work to RS/4000 workstations, while keeping the AS/400 mainframe to control work flow and track production progress. The entire process could be controlled by a process control database system running on the mainframe.

Keeping the AS/400 mainframe will also place CMCI in the best position to fulfill the new requirements from IMT headquarters to use UNIX.

The initial costs in this redevelopment will be centered in:

- Redevelopment of the project tracking system.
- Acquisition of new RS/4000 workstations for the Ft. Wayne CAD users.
- Migration of data from the S/390 to the AS/400, and into the new project tracking system.
- Training the employees and support personnel on the new systems.

After this redevelopment and migration is complete, the long-term result will be lowered operating costs due in part to:

- Savings from not re-leasing the IBM S/390 Mainframe.
- Streamlined machine development via managed and coordinated process.
- User productivity resulting from a unified technological environment.
- IS support productivity via less differentiation between hardware and software.

Analysis:

CMCI survived a tightening of its market in the 1970s and 1980s. The result placed CMCI as one of the largest custom production machine companies in the world, but the Company was so focused on survival until 1997, it ignored its information technology.

The Ft. Wayne and Chicago manufacturing facilities use pieced together systems that are under-supported and under-developed. Several of the programs used to process

specifications and quotes are inefficient – requiring hours of additional work to accommodate the various workarounds that have been created due to the underdevelopment of these systems.

In some cases pockets of the Ft. Wayne and Chicago facilities use an IBM AS/400 mainframe acquired from another company, while others used a leased IBM S/390 2nd Generation. The Chicago facility shared work with the Ft. Wayne facility, but uses RS/4000 workstations for development.

Additionally, the software has been stretched to the limits of its programming. In some cases older processes and numbering systems have been squeezed into software that had been programmed for completely different machine-making processes.

Finally, IMT-USA's parent Company settled on directing its IT strategy towards UNIX. The Ft. Wayne and Chicago facilities do not have extensive backgrounds in UNIX, and the IMT headquarters in Bonn, Germany are not to the stage of its own conversion to offer guidance.

Alternatives or Opinions:

IMT could choose, as Browning recommended, to do nothing, and take a wait-and-see approach. This action is viable, especially when considering the UNIX decision, and the conversions occurring at the Company's international headquarters.

However, the headquarters has no timeline and very little information on this directive. Waiting for the headquarters' action could mean waiting until problems reach a crisis level.

Another option would be a move towards more mainframe use. This move helps to consolidate everyone to fewer processes, and helps with control over processes, but the mainframes currently do not share information well, and need significant reprogramming to correct for some of the process control issues. Additionally, the users in Chicago have something similar to a client/server set up, and report they like this system. It will be difficult to convince them to move to something else.

Conclusions:

CMCI is fortunate it recognized these problems before they grew to the point where they negatively affected production. These plants need to settle on a single hardware and software direction before they are in a crisis. They require scalability to adjust to changes in the workflow process and machine development, while at the same time offering some consistency and stability to the overall process flow.

Moving to a consolidated hardware and software strategy will be expensive in the short-term -- especially in terms of purchasing new hardware, and developing new software -- but the final result and total cost of ownership will be significantly reduced. Improving the work-process flow means employees and information technology will be utilized more effectively. Having less differentiation will make support more efficient, and less costly.