

Semantic Designs signs Process Control Software Reengineering Contract with Dow Chemical

The Dow Chemical Company's migration from its proprietary MOD 5 to standard industrial controllers will be enabled by Semantic Designs custom software engineering tools.

Semantic Designs (SD) has signed a contract with [The Dow Chemical Company](#) (NYSE: DOW) to enable Dow to capture the process control application used in its facilities worldwide as part of the company's ongoing commitment to industry leadership in safety, reliability and quality.

More than 30 years ago, Dow embarked on a path to develop and implement standardized, highly integrated Process Automation systems incorporating basic process control, process information, and safety instrumented systems functionality. The vision for the future was and remains to implement manufacturing operating discipline focused on safety and operation excellence, accomplished by utilizing standard applications and platforms, and adapting to specific business, process technology, and regional requirements. Based on what Dow wanted to accomplish, and a lack of commercial offerings at that time, [Dow developed several proprietary solutions, including a process control system that came to be known as MOD](#), which is short for "Manufacturing Operating Discipline". In 1999 the MOD 5 was the first fully integrated control system to be certified by TUV, the premier German certification company for electronic systems. This company certifies only those systems that meet their extremely stringent requirements.

The legacy process control applications were developed to implement the Manufacturing Operating Discipline with a methodology developed internally in its MOD 5 process control computer. These applications are developed in a proprietary computer language (Dowtran). Extracting these concepts requires specialized software analysis and transformation tools.

Dr. Ira Baxter, CEO/CTO of SD said, "Dow asked Semantic Designs to build a state of the art reengineering tool, to recover, preserve, and re-shape the business-critical process knowledge stored in these systems".

SD will be implementing custom tools to reverse engineer Dow's applications, enabling understanding, enhancement, and migration to other industrial control platforms. The initial phase of the contract is expected to take roughly a year.

The custom tools will be built on a foundation provided by Semantic Designs' industry-leading [DMS® Software Reengineering Toolkit](#), an engine for building customizable tools for analyzing and transforming the source code of large, complex software systems. DMS is unique in the software industry in its ability to process a wide variety of modern and legacy computer languages with the same precision as the compiler and development tool for those languages, including Java, COBOL, C++, SQL, HTML, and many others. Unlike standard development tools, DMS can absorb an entire software system of millions of lines to collect precise data across entire systems.

That knowledge is then used to achieve a desired customer effect, especially massive automated change, driven by pattern-directed matching and code transformation rules. Dr. Baxter noted that DMS's success comes from its generality, compared to the typical limitations of point-solution tools.

Semantic Designs has applied DMS to a wide variety of complex software engineering tasks, including analysis



of large banking-software systems for Australia- New Zealand bank, discovering relationships in the enormous mainframe software systems of the U.S. Social Security Administration to enable impact analysis, and [migrating sophisticated embedded systems such as the B-2 Stealth Bomber mission software](#) for Northrop Grumman and the U.S. Air Force. Other customers include Boeing, J.P. Morgan, Cisco Systems, Raytheon and Rockwell Collins. SD also has software engineering research contracts with the U.S. Department of Energy.

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