Agile Practice Reference Models

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It is painfully obvious that there are no role models for the Agile enterprise. Some companies are clearly better than others at short-cycle product realization, some are quicker to outsource and partner, some excel at low-volume, high-variety production, some have harnessed the commitment and involvement of empowered teams, others have instilled customer responsiveness in every employee -- but none have put it all together in a preemptive operating strategy.

Chrysler's platform teams moved them to the front of their industry, Motorola's leverage on people gives them a clear advantage in their markets, and Hewlett Packard's first-to-market capability gets the highest margins among their competitors.

Each of these companies pioneered new operating capabilities with powerful results. Competitive success has come from leveraging these unique operating capabilities with well chosen market strategies.

But we sit at the beginning of a new business era driven by decreasing innovation cycles and increasing globalism. One where continuous and unpredictable change are the emerging dominant forces. In these early days a few companies have found a few ways to put them in front of the pack; but none are masters of change. None are yet the Agile enterprise that thrives in this new unpredictable and uncontrollable environment.

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Business is an experimental science. We learn what works by examining the survivors. To write the construction manual for the Agile enterprise we can simply wait a decade and then catalog the operating procedures of those that are left standing -- or we can examine the pieces that already exist now, extract some principles, and try to fill in the missing parts. This is unprecedented, but so are the times. It's a choice between natural selection and genetic intervention. But before we can manipulate the genome of business we must map it first.

This mapping process began among the industry focus groups at the Agility Forum, with six cornerstone reference models defined in 3rd quarter of 1994, and initial case investigations completed in the 1st quarter of 1995. Agile Practice reference models focus on Agile concepts only, using proficiency at change as the qualifier.

Six teams of participants in the Agility Forum's focus groups investigated six different areas important to business Agility: people issues, legal issues, virtual enterprise, process and equipment, information and control, and product realization.

Reviewing a case from each of the six models will provide the flavor of the reference base, and perhaps encourage a deeper look or serve as inspiration to begin your own internal search for Agile practice cases (see this column June 1995).

Process & Equipment: Machine tools built by Applied Materials employ an architecture that offers significant Agility gains to both their customers and themselves, and should be a role model for processing equipment in general. Processing technology advances quickly in the semiconductor wafer fabrication industry, with a typical manufacturer buying a plant-full of new generation machine tools every three years for multiple locations.

Applied's "cluster tool" approach recognizes that a new generation of processing technology only accounts for 40% of the machine tool, and 60% is relatively timeless utility and support mechanism. The architecture separates this utility platform from the processing chamber, and accommodates four or more processing chambers attached to a single platform much like outboard motors to a boat.

Applied now has a faster design and development cycle by reusing the common platform framework, and has more international options for local content with non-critical platform construction. Applied's customers can incrementally upgrade any platform one chamber at a time any time, mix or match chambers on a platform for redundancy and custom processing needs, reconfigure platforms to add new capability or pace growing demand, and swap dysfunctional units for fast recovery.

People Issues: Team recognition at Xerox started in 1983 with 300 people gathered in a cafeteria to honor twelve exemplary manufacturing and engineering teams in a corporate wide celebration. Today 10,000 people meet in a convention center with satellite linkages to Canada and Europe to exchange the ideas that gained them recognition. Team excellence at Xerox is scored on five dimensions: business impact, innovation, use of tools and processes, teamwork, and building as a team. The highest ratings in any dimension go to teams that have had their work adopted in other parts of the business.

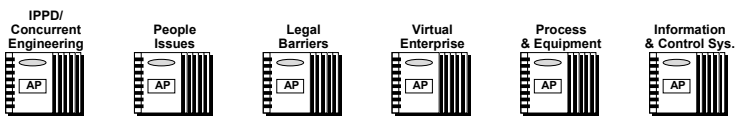
AGILE PRACTICE REFERENCE BASE

(Available from Agility Forum 1-800-9BE-AGILE)

- **80+ Agile-Practice Case Examples.**
- **2-Page Standard-Format Case Summaries.**
- **Case-Search Prioritized by Industry Focus Groups.**
- **Case-Qualification Established by Industry Focus Groups.**

Phase 1: 1994/95
Test of Procedures
Bottom-Up Emphasis
March '95 Publication

Phase 2: 1995+
Standardized Procedures
Evolving to Enterprise Emphasis
Continuous Publication



As part of the team-support infrastructure this mobilizes reusable ideas internally and fosters team initiative and a sense of common cause - important building blocks for both proactive and reactive change proficiency.

Information & Control Systems: Information systems that span multiple organizations and integrate everything from dealer-based customer order entry to production scheduling and supplier breakout promise streamlined operations. But in a sector like the automotive industry we would need to call time-out for a few years to design and implement a totally integrated system -- shear scope and complexity of ongoing operations, legacy systems and multiple supplier, dealer, and production organizations precludes a straightforward design and implementation cycle.

Without calling time-out, Rover Group in the UK is actively deploying a full-stream order processing system. With a highly modular message based approach they are able to "wrap" legacy systems and add functionality at will, bringing new capability on-line incrementally without interrupting ongoing operations. The Rover vision sees implementation and upgrade of the system as a never-ending effort: adding functionality and replacing legacy systems with modules that will themselves become legacy as innovation continues. They have adopted an object-oriented network framework that is vendor independent, facilitates constant incremental upgrade and augmentation, and easily accommodates prototype tests and design correction.

IPPD - Integrated Product & Process Development: Helping people make and implement decisions faster and more accurately is a cornerstone of the Agile enterprise, as is development and evolution of corporate core competency. General Electric believes that design engineers spend approximately 60% of their time looking for information, and then additional error prone time in manipulating and transposing this information into various design notebooks and documents. To relieve the designer of this non-value-added time they have developed a series of interacting "active document" working tools that include a Requirements Notebook, Process Worksheet, Process Notebook, Parts & Supplier Catalog, Best Practice Handbook, and Logistics Experience.

These notebooks are the work-in-process tools that capture the engineer's creative process and automatically cross correlate and propagate design activity and changes throughout all notebooks, provide links to an array of analysis tools, and suggest or enforce preferred parts and vendors. Experience in plastic snap-fitting design has shown information search time cut by 85%, detail part design cut by 90%, and redesign time cut 65%. These notebooks provide a framework for mobilizing reusable knowledge.

Importantly, the tool set itself can be quickly customized for a wide range of different engineering tasks: only two months was required to set up the tools for plastics snap-fitting engineers.

Virtual Enterprise: The purest form of Agile virtual enterprise is a business operating entity composed of organizations that do not share a common working span of control, forms quickly to pursue a common opportunity, and dissolves just as quickly when the opportunity is over. A sizable naval shipyard recently faced the need to enter the commercial ship-building market or go out of business when defense cutbacks killed their market. Landing commercial business was considerably different and they had long since lost their core competency in commercial practices. Their supplier base was sufficiently diversified to have the necessary knowledge, however, and valued the shipyard as a customer and prime contractor.

An opportunistic virtual enterprise was set up to pursue a single order, with a sharing of risks as well as rewards that was a new concept for the suppliers. A process plan had to be developed just to coordinate and integrate the large number of bottom-up process plans this approach generated, and is recognized as a key practice in this virtual enterprise's eventual success. Upon successfully securing the ship order the virtual enterprise dissolved and the relationships reverted back to the traditional prime-sub for construction.

Legal Barriers: The team involved in building this reference model was composed of corporate lawyers and deal-makers from a broad base of industry, and identified twenty-four barriers to establishing an Agile business relationship. This reference model focuses on the nature of these barriers currently, and will be augmented in subsequent work with Agile practice case examples that address each of the barriers.

The reference base is an ongoing Agility Forum project to collect Agile practices in a variety of important business areas. It is the first attempt to utilize a qualification procedure and metric framework to identify practices in industry as being Agile. Though the initial phase in 1994 has not had the rigor that mature benchmarking processes impose, the activity has followed a consistent practice of investigation, qualification, and documentation, and does provide useful quantitative and qualitative case-to-case comparisons.

All told there were approximately 150 team people involved in the efforts to define, find, evaluate, and qualify the 80+ case examples in the initial phase. Many of the participants expect to find immediate benefit from deployable ideas in this reference base, others are looking across cases for underlying principles that can be used to build and customize new Agile systems more suited to their specific needs.

Putting a number of Agile practices together in one place will not necessarily result in an Agile enterprise. The reference base should not be viewed at this early stage as containing the bricks from which Agile enterprise is made, though many will indeed be found there already. Study these bricks as closed systems, and then scale the principles up to the enterprise.