

Mobilizing Knowledge with Agility Audits

Rick Dove, Sr. Fellow, Agility Forum, dove@well.com, Paradigm Shift International, 505-586-1536

Hidden in every sizable company are a wealth of innovative techniques that will improve its competitiveness -- if they are recognized and diffused to the rest of the organization. How do you find the pearls? How do you get the rest of the organization interested in something they didn't invent?

Mobilizing embedded corporate knowledge is a cornerstone of Agile competition. If a company is going to accelerate its proactive and reactive capabilities it cannot afford to reinvent the same solutions over and over again, it cannot afford to make the same mistakes over and over again, it cannot afford large changes when small ones will do, and it cannot afford to ignore the pearls that go begging for recognition.

Leverage comes from reusable knowledge, reconfigurable for different applications across the entire corporation.

The principle asset in a corporation today is its collective knowledge -- something that doesn't show on the balance sheet. The value of that asset is multiplied by its mobility within the corporation. Most companies today have not thought about that knowledge base, how it changes, and how it gets deployed at points that need it while it still has something to offer.

"Mobilizing embedded

corporate knowledge

is a cornerstone of

Agile competition."

An auditing technique for profiling Agility in corporate plant environments provides interesting advantages here. The technique we will discuss recognizes that an organization is a complex thing, especially if it is a production unit, and starts with a top-down look that produces a general but broad-based profile. This initial profile illuminates the important areas of change proficiency for the organization being audited, and pegs each as either well in hand or in need of real attention.

Audits are motivated for many reasons, e.g., to ferret out opportunities for improved performance, or to validate capital expenditure plans for maximum applicability in an unpredictable future. But the unsolicited advantage they bring immediately is the discovery of hidden corporate pearls. The audit is for Agility, so it looks for examples of real change proficiency, frequently finding it as an accidental and unrecognized benefit of some innovation motivated by a different reason. Whether purposeful or accidental, however, these innovations have not been leveraged across the corporation.

In addition to finding these pearls, the audit process gives them visibility among decision makers who look for corporate leverage. It does this by employing these decision makers in both the actual audit process and the authoring of the final report.

It is a combination of the high-level, cross-cutting approach and the minimal time commitment that permits these scarce resources to become involved.

Twelve subject areas are explored in order to build a comprehensive profile. The exploration process involves twelve individual sessions, each devoted to one of the areas. In each case the plant provides two or more people who can speak knowledgeably and broadly about each area being discussed. In general it is good if each session includes both management and hourly so a full spectrum of knowledge is present. The order of the areas below is not important. Interview sessions may be scheduled for the convenience of the participants.

The profiling is done with a team of two-to-four people who are present in all interviews.

Each interview session is scheduled for approximately 60 minutes; and works best when started with a 20-30 minute thumbnail presentation from the plant experts being interviewed, followed by a question and discussion period for the remainder of the time. The initial presentation can be as

formal or informal as the plant experts desire, but should attempt to paint a reasonably comprehensive picture of the area being discussed.

Questions and issues that each set of experts should consider before the interviews are suggested below for each of the twelve areas, with a set of questions common to all areas listed as item number 13.

1. Organizational Structure - Discuss the organization relative to its structure. How are responsibilities compartmentalized? What are the organizational units and sub-units? What are the standard mechanisms and events of inter-unit interaction? How are decisions and approvals obtained. What is organizationally rigid and what is fluid? Are teaming concepts employed? What about cross-functional teams? When was the last reorganization and what was its nature?

2. Human Resources - Discuss the human factors for all employees - management and labor alike. What forms of training and education exist? Is cross functional training available. To what degree are people empowered? How is hiring and downsizing accomplished? What mobility exists within the plant, within the corporation, and within the community for employees? Are there unique, difficult, or rare skill sets involved? When an open or new position is filled, is there a bumping ripple effect among other employee positions? What is the general access-to-information situation? What surprise events have occurred in this area in the last 24 months that required a response.

3. Operating Procedures - Discuss standardized policy and operating procedures. Is there a standard procedure for new product start-up, or for factory conversion? What operating procedures apply to the production activity? What requires approval signatures and how long do they take. What events have caused procedures to be implemented and/or modified? What performance metrics are used within the plant, and what by corporate? Discuss work rules and speed of responsiveness to unexpected production needs.

4. Information Automation - Discuss the MIS and decision support computer-related environment. What kind of operating and management reports are available? What kind of general information is accessible? To what degree are personnel supported with desktop access? How often have these been updated and modified? What kind of shop-floor reporting exists? What role does simulation and modeling play. What project management tools used? Describe an event where a change to the system was desired but did not (could not) occur. What forms of electronic communication exist - and between who? How are engineering changes dealt with? Are suppliers and customers tied electronically to the plant in any way?

5. Control Automation - Discuss the automation control environment. What systems, hardware, and software are in use? Discuss a case where an improvement was implemented. Discuss the backlog of unimplemented improvements and corrections. How is control code developed and maintained.? How do new controls enter the plant? How are controls and their systems maintained? How is training for new technology accomplished?

6. Facility - Discuss the physical plant facility relative to its fixed and flexible nature. Has the plant been reconfigured ever? What restrictions exist in adding equipment and processing capabilities? Discuss the utilities (electric, gas, steam, sewage, toxic disposal, etc.) required by the production process, and their fixed and flexible nature. Discuss the procedures involved in relocating or obtaining new utility service in the physical plant. How is equipment relocated - installed initially - removed?

7. Material Movement/Management - Discuss material, wip, and finished goods movement and storage within the facility. Discuss JIT implementation and examples of when it fails - like material not available when needed from both internal and external sources.

8. Production Process - Discuss production process issues. What is the capacity utilization of the processes in place? Do capacity requirements fluctuate? How is the plant scheduled? How does installed process technology compare to the state of the art? What changes in process technology are occurring and what does the future require? When was the process last changed, and why and with what procedure? Are workstations or work areas ever idled because of upstream or downstream stoppages. What forms of flexibility exist in the process? What is the human role in the process? What kind of process characterization knowledge exists? What is the role, if any, of simulation and modeling?

9. Production Equipment - Discuss the general state of production equipment. What degree of automation exists? What degree of flexibility exists? What range of materials can be accommodated? What unique single-point equipment has caused the biggest problem when it is down. How does installed equipment compare to the state-of-the-art? What is the turnover and upgrade of equipment technology? What does the future require that is not present? Are unique and/or rare skills required for any equipment? What is the nature and state of operator and maintenance training? What are equipment utilization and failure rates? Where would you like to make a change but can't? What kind of process characterization knowledge exists? What is the role, if any, of simulation and modeling? What degree of variation and commonality exists among equipment types?

10. Changeover/Setup System - Discuss the changeover and setup processes. How often do they occur? What are the procedures? How is equipment utilization affected? What are the cycle times? How is a new product introduced to the production environment - and how frequently does this occur?

11. Supply Chain - Discuss the supply chain and supporting logistics. How stable is the supply chain? What is the procedure for gaining new suppliers? What is supplier turnover? Describe an unexpected supplier failure that was costly. How flexible are supplier contracts? What is JIT situation and performance history?

12. Distribution Chain - Discuss the customer interface and logistical support. How is business obtained? How is the customer interface conducted? How are product-orders obtained and received? How often do product-orders get modified - and with what lead time? What are the trends in this area? What are sizes and frequencies of orders? How many product types are there? What shipping alternatives exist? What finished-goods inventory exists? What are the customer delivery-time expectations and trends?

13. Every Area - What types of change occur in this area, how often, at what cost, and how long do they take to settle down? Where are the costs of these changes captured? What unpredictable events out-of-your-control have impacted this area in the last 24 months. Examples of "unpredictable events out-of-your-control":

- Absenteeism of key people with unique skills.
- Externally imposed production schedule changes.
- Bad materials/subassemblies received from supplier.
- Key supplier insolvency.
- Mandatory short-notice engineering changes.
- Market demand increases/decreases.

- New performance/cost/staffing metrics imposed.
- Discovery that shop floor control has major bug.
- New product needs new materials or new process.
- Process technology breakthrough becomes available.
- Major process/equipment/die failure.
- Downsize directive from headquarters.
- MIS/CIM software changeover mandated by headquarters.
- Regulatory procedure/process change mandated.
- Etc.....

The team can conduct the twelve interview sessions in two days, and then spend a day in a team workshop identifying key change proficiency issues; grading each as good, bad or indifferent; and analyzing the cases where good approaches were found. This analysis of the good approaches will later be used to develop and spread a conscious understanding of beneficial techniques as well as export really good ideas to other parts of the organization.

There is value in restricting the interviews to the two-day period - the information transferred to the interviewers is rapid-fire and massive, and results in the team looking for patterns and integrating the information across the organization. Participating management has reported the experience as extremely enlightening and valuable. The report writing and development of the cases-to-be-illuminated are generally assigned to one or two of the team for later review and concurrence by the full team.

The questions asked of each of the twelve area experts plants seeds among them for further development. Done right, all of the participants will take ownership for the final report, and should be involved in a final brief-out and workshop when the report is finished.

We believe that the best way to make an organization Agile is to build upon concepts that are already accepted and just need amplification. We also believe that truly Agile approaches by their nature facilitate a migration from the existing legacy situation to a strong Agile environment, and should not require a major discontinuity in the operating environment. You may in fact ask to have something done very differently, but you won't need to institute this change on a massive scale in order to begin the transformation process.

Key Change Issues and General Proficiency (Generic Example)	
<p>Creation</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Start New Supplier Relationship <input checked="" type="checkbox"/> Write New PLC Code <input type="checkbox"/> Build New Bid Package <p>Improvement</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Thru-Put <input checked="" type="checkbox"/> Overtime <input checked="" type="checkbox"/> Absenteeism <p>Migration</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> To Cross Functional Teams <input type="checkbox"/> To Lean Operating Practices <input checked="" type="checkbox"/> To Quick Custom Delivery <p>Addition/Subtraction</p> <ul style="list-style-type: none"> <input type="checkbox"/> Skill Training <input checked="" type="checkbox"/> Install New Tooling <input checked="" type="checkbox"/> New Product Prototype Builds 	<p>Correction</p> <ul style="list-style-type: none"> <input type="checkbox"/> Equipment Failure <input checked="" type="checkbox"/> Bad JIT Parts <input checked="" type="checkbox"/> Absenteeism <p>Variation</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Every Product Different <input type="checkbox"/> Engineering Changes <input checked="" type="checkbox"/> Bottle-Neck Backup <p>Expansion/Contraction</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Meet Increased Market Demand <input checked="" type="checkbox"/> Downsizing <input checked="" type="checkbox"/> New Product-Pilot Surge <p>Reconfiguration</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Process Changeover <input type="checkbox"/> Lean Inventory Management <input checked="" type="checkbox"/> Job Bumping
<p>Proficiency: <input checked="" type="checkbox"/> High <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Low</p> <p>(See prior essays for discussion of eight change types above)</p>	