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## agileASSESSMENT™ Knowledge Management Analysis

### Using agileASSESSMENT Analysis to Design Effective Training Programs

During a routine day at a semiconductor fabrication plant, personnel detected smoke billowing from an air conditioning power distribution center. After taking the center offline, they discovered that a loose terminal lug exposed the supply line, causing an electrical arc that damaged several components. The excess heat destroyed a \$1000 circuit breaker and a \$10,000 Silicon Controlled Rectifier, but even worse, the accident caused a production loss at the plant in excess of \$100,000 per day until the power distribution box could be repaired.

Further investigation determined that a technician applied the improper torque setting on the hand tool used to secure the terminal lug. Though the technician was a senior-level technician and had over ten years experience in this plant, a lack of knowledge about a simple hand tool caused a significant loss in production.

Incidents such as this one occur far too often in all facets of manufacturing and business operations, especially since many of these and future failures could be avoided through proper personnel training across the full range of required skills. Most companies dedicate significant resources to education and training. However, the question remains whether the training courses offered address the specific knowledge and skill gaps for each individual within the organization.

With the right assessment tools, the existing levels of workforce expertise can be determined, and a core-competency baseline can be defined for a variety of skills. Armed with this data, businesses can realign their training budget and design programs that raise the skill levels of each individual for those areas where knowledge or skills fall below the competency baseline.

Assessments provide the factual evidence an organization needs to implement the correct knowledge management and training solutions. Statistics show that with most training programs, the costs associated with lost production and travel time for training participants can account for the greatest expense of the program – in some cases, upwards of 90%. In contrast, the costs for design, development, and delivery of training often represent less than 10% of the total cost of corporate education and training programs.

Given this distribution of training expenses, the assessment must generate information that specifies an efficient training regimen for each individual within the organization, maximizing learning while minimizing time away from day-to-day operations.

### Using agileASSESSMENT Analysis to Measure Organizational Knowledge

Designing, developing, and implementing a comprehensive training plan to achieve business objectives is nearly impossible without measuring the existing skill levels of the organization's personnel. A personalized agileTCP™ agileASSESSMENT™ knowledge management and training assessment provides valid data about the current state of an organization. The analysis of this data helps the organization determine the roadmap for focused training to bring core competency up to the desired levels.

A customized agileASSESSMENT analysis provides the following benefits:

- Establishes a baseline for standards in competency and defines expected performance levels
- Creates greater efficiencies in the training budget by focusing solely on what is needed
- Provides a mechanism to quantify return on investment, providing both the costs and benefits for projected solutions
- Establishes a pre-hire test to measure skill levels of new hires
- Provides customized training roadmaps for individual participants
- Reinforces job roles and responsibilities across the organization



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- Helps to identify the causes of poor performance
- Identifies experts within the organization to serve as mentors
- Identifies specific areas of support needed for low-performing employees

Each organization has unique knowledge management needs. To determine where training resources will yield the most effective results, agileTCP performs an agileASSESSMENT screening to define core areas and determine benchmarks for success. This screening is part of the agileXCD instructional design methodology developed by agileTCP, which includes the following stages of training development:

- Analysis – an assessment of training needs
- Design – the plan for course content
- Development – the creation of course materials
- Implementation – the delivery of training
- Evaluation – the review and fine-tuning of the training program

Addressing the analysis stage of this methodology, the agileASSESSMENT evaluation provides a comprehensive analysis phase that occurs before training programs are designed, implemented, or delivered. As the crux of this methodology, agileASSESSMENT activities drive the entire training initiative by determining current skill levels, learning capabilities, available resources, knowledge gaps, and training courses needed to meet business objectives.

Using data collected from the agileASSESSMENT evaluation, the employee test scores create the initial set of internal benchmarks. The initial benchmarks, or baselines, represent the averages of all scores collected for each defined skill or knowledge area. For example, an assessment that tests for Industrial Science knowledge determines that 62.15% is the average employee score among all employees tested; therefore, employees that scored below the 62.15% baseline are likely candidates for Industrial Science training.

The agileASSESSMENT evaluation includes a detailed analysis of the collected data as well as recommendations to improve existing training programs. With such recommendations, an organization is armed to update its training program via internal resources or by using agileTCP's design, development, and implementation services. agileTCP's approach to such services includes applying industry best practices to agileASSESSMENT recommendations while strictly adhering to an organization's set standards and guidelines.

## Using agileASSESSMENT Analysis to Measure Critical Thinking Skills

Assessment questions should address multiple levels of knowledge and skill. While testing for existing levels of employee knowledge is important, testing for application of knowledge to solve problems is equally important.

The agileASSESSMENT questionnaire includes tiered questions that test for subject-matter knowledge as well as critical thinking skills. In this taxonomy, basic questions about a concept or skill are considered Level 1, questions about the application of knowledge are considered Level 2, and critical thinking questions that require the creative application of knowledge are considered Level 3. Within a single subject area, employees unable to answer Level 1 questions most likely will be unable to answer Level 2 questions. Moreover, a percentage of employees who correctly answer Level 1 questions may not be able to answer the Level 2 or Level 3 questions.

For example, if the assessment tests knowledge about clocks, the tiered question set might look like the following:

1. What is a wrist watch? (Level 1)
2. What is a second hand? (Level 1)
3. How do you adjust time when you change time zones? (Level 2)
4. How do you set the alarm to sound at 7:30 a.m.? (Level 2)
5. If the second hand stops moving, how would you fix the watch? (Level 3)



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In this example, the Level 1 questions focus on conceptual knowledge about clocks. The Level 2 questions assume conceptual knowledge and focus on operational knowledge. The Level 3 question assumes conceptual and operational knowledge and asks employees to think critically, analyzing available information to troubleshoot a problem.

In general, agileASSESSMENT questions are created using the following guidelines:

- Questions are written by Subject Matter Experts (SME) within the manufacturing industry
- Questions focus on core competencies within a specific discipline or functional area in the organization
- Questions are created to test multiple levels of knowledge and skill

If an organization routinely tests employees to comply with industry certification standards, then the certification requirements become the foundation for developing the agileASSESSMENT analysis questions. As a result, the baselines for certification-related skills must meet or exceed passing levels.

## Using agileASSESSMENT Analysis to Focus Training

The agileASSESSMENT results provide the blueprint for the design and development of training to ensure the greatest impact on both productivity and the bottom line. With agileTCP's insight and instruction, an organization uses the collected data to address the following business issues:

- Define strategic goals.

An organization must articulate its strategic goals and map its training programs to these goals. For example, if improved maintenance performance is a key strategic goal, then a training plan can be designed to improve maintenance performance only after the analysis of assessment data verifies current competency and sets standards to increase competency levels.

- Establish a core competency baseline.

The core competency baseline might require several iterations before being established as the standard for an organization. However, after the baseline is established, a training plan can be created that moves all individuals to recommended competency levels. After future assessments, the organization might decide to raise the core competency levels based on improved results.

- Use employee-level assessments to direct training resources.

The data collected for each individual assessment is analyzed and courses are recommended to each individual. Training resources are focused on those areas needed to bring the entire team up to the recommended competency levels across all knowledge and skill areas. Meeting such competency levels allows the organization to achieve its strategic goals.

The data collected by a personalized agileASSESSMENT test results in statistical averages for each core competency area. Table 1 shows sample assessment results for maintenance services, summarizing the average scores for all employees tested across six areas dealing with both knowledge and skill.

**Table 1: Sample Assessment Results for Core Competency Areas**

Core Maintenance Disciplines	Percent Correct
Industrial Pipe Fitting	39.00%
Troubleshooting	44.75%
Industrial Fundamentals	49.15%
Industrial Science	50.25%
Electronics	60.33%
Industrial Mechanics	64.00%

Using these company-wide averages as a baseline, individual employee assessments are compared to these benchmarks to determine the training courses needed and the employees that should attend. Each employee is given a personal training plan that directs the individual to courses needed in order to meet core competency levels in those respective areas. By this standard, employees are not assigned to training courses in which they already have met or exceeded the baseline levels.

For example, consider the assessment results for maintenance service employee John Doe. Table 2 shows his individual assessment scores.

**Table 2: Sample Individual Assessment Scores**

John Doe: Core Maintenance Disciplines	Percent Correct
Industrial Pipe Fitting	31.00%
Troubleshooting	40.00%
Industrial Fundamentals	52.50%
Industrial Science	56.66%
Electronics	75.00%
Industrial Mechanics	80.00%

After comparing the individual test scores to the benchmark averages, the results indicate that this employee meets current training competency levels in four disciplines: Industrial Fundamentals, Industrial Science, Electronics, and Industrial Mechanics. In fact, he exceeds the baseline significantly in Electronics and Industrial Mechanics, making him a likely candidate for a coach or mentor in those respective areas. However, he falls below the baseline in two disciplines: Industrial Pipe Fitting and Troubleshooting. Therefore, his personal training plan would include courses in two of the six disciplines.

In addition, an organization may have the strategic goal of providing specialized training that moves employees above the baseline to the next pre-defined level. In such instances, John Doe would also be a candidate for additional training in Industrial Fundamentals and Industrial Science. Though he passed the baseline in each of these two areas, he is not performing at a mastery level in these disciplines. As such, his personal training plan would include courses or mentoring in disciplines such as these where he meets the baseline but is not considered an expert.



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## Improving Productivity with agileASSESSMENT Analysis

The agileASSESSMENT tools allow an organization to maximize investments in its greatest asset –employees. Measuring existing knowledge and skill levels throughout the organization, and using this data to funnel resources into the areas that need them most creates exponentially increased levels of cost efficiency for training and knowledge management initiatives.

Using proven agileASSESSMENT evaluations, an organization is provided with invaluable benefits not found elsewhere, including:

- Measurable current competency levels and, as a result, the data needed to establish acceptable competency standards
- Definition and reinforcement of skills needed for each job description within the organization
- Enhanced efficiency of training resources focus on specific areas for each individual who needs improvement
- Productivity loss prevention via elimination of redundant training tools
- Training roadmap for continuous quality and performance improvements throughout the organization

An organization's first step toward working smarter and improving productivity should always be an agileTCP agileASSESSMENT knowledge management and training assessment.

## about agileTCP

agileTCP ([www.agileTCP.com](http://www.agileTCP.com)) is a knowledge management and training solutions company based in Austin, Texas that provides technology-driven solutions by working with clients to transform, control and package business intellect. Since 1996, agileTCP has been meeting and exceeding the training and knowledge management needs of companies worldwide. Our proven techniques, methodology and subject matter expertise have maximized business value for our clients, including increased operational efficiencies of over 80%, reduced training costs of over 40% and substantially increased revenue across our client base. For more information on agileTCP, please visit [www.agileTCP.com](http://www.agileTCP.com) or call 512-732-2223.