

Case Study 4-1: Mentoring: Ford Motor Engineering

The Ford Motor Company Ford Technical Education Program (FTEP), which has been in existence for approximately two years, grew out of the Ford Design Institute's objective to become the world's leading consumer company providing excellence in automotive products and services. To meet this objective, Ford realized that it required a work force capable of providing unmatched technical competence. As a result, Ford engineers are required to certify in the FTEP tools and methodologies key to its core engineering processes.

FTEP is a global process comprised of a series of steps leading to qualification. These include:

1. Identify business processes.
2. Identify the capability needed to support business processes.
3. Complete the Application of Prior Experience and Learning (APEL) test to determine which FTEP tools and methodologies one qualifies in.
4. Identify a personal training plan.
5. Complete the identified training programs (instructor-led and/or computer-based).
6. Complete the online post-test (if engineer fails, course must be repeated).
7. Apply methodologies in the workplace (a recommended three-month period).
8. Test to become FTEP-qualified (if engineer fails, repeat application and retake APEL). Engineers may take the APEL at any time to determine if they qualify in a FTEP tool or methodology.

Situation

Much time and energy was spent to develop the FTEP tools and methodologies that could effectively address the technical challenges that Ford faced. Engineers become FTEP certified by successfully completing a series of training programs, which focus on the consistent use of FTEP tools and methodologies. During the FTEP planning process, Ford management astutely recognized the need to provide ongoing support to engineers once they completed training and were certified to apply the methodologies in the actual work environment. To address this need, Ford initiated the role of Application Engineer as a unique feature in the FTEP process. Engineers qualify for this role by successfully completing the FTEP courses, demonstrating mastery in the application of FTEP methodologies, and expressing interest in working as a mentor with teams.

Description of Role

The role of an Application Engineer is that of an advisor rather than a facilitator. A team in need of application engineering services can go to the Ford intranet to locate the names, location, and contact numbers of certified engineers. The champion and team leader, not the Application Engineer, is responsible for driving the methodologies applied by a team as they problem solve. The team leader is the facilitator.

The Application Engineer's role is to remain in the background as an observer as a team proceeds through experimental runs, discusses findings, and documents results. The Application Engineer could best be described as a mentor who is there to answer questions, provide examples from experience, and advise a team on process and application results. The mentor reviews applications of FTEP methodologies for consistency and correctness. However, the mentor is not responsible for driving process by telling teams how to run an experiment or how to interpret results.

The Application Engineer documents observations and makes note of a team's findings and applications. These notes are processed online to provide a resource for other engineering teams.

Lessons Learned

Although the FTEP program is only two years old, the Application Engineers have compiled a formidable list of experiences to serve as a basis for ongoing continuous improvement and growth in the FTEP program. Among the lessons learned are the following:

- Not enough teams are taking advantage of the expertise and support the Application Engineers provide, which indicates a need for increased company support and promotion of the Application Engineer role.
- FTEP training is often approached as a means of filling required personal training hours rather than as "training" for a specific application or team to which one is assigned or will be assigned at the completion of the training.
- Application needs to be in the major timeline to fulfill team needs. Frequently, too much time elapses between completion of the FTEP training program and team application of the FTEP tools and methods.
- Roles and responsibilities of FTEP team leaders and Application Engineers need to be more clearly defined to eliminate confusion to team members.
- Computer-based training followed by a four-hour facilitated debrief session has proven to be a successful medium for FTEP training.

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