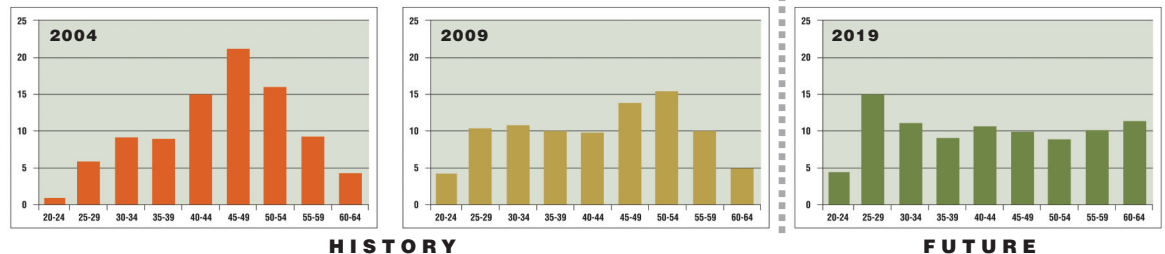


Accelerating Time to Competence Through Accelerated Development Programs

Bill is an asset manager for an upstream oil and gas operator. He has just received news that the project proposal his team had prepared over the last 9 months has been approved so Bill is shifting the team's focus into an operational mode. For the early project delivery stages, Bill will have access to experienced geoscientists and engineers on his staff, but he knows that pressure from other projects in the future will require that he transfer responsibility for these functions to less-experienced staff as soon as possible. He also recognizes that, if the project succeeds, additional qualified resources will be necessary to carry the project forward, especially in light of current industry demographics as shown in the following diagram.

SPE Demographics



He has a number of criteria in mind that an effective program for the development of his staff must have. First, the capabilities that participants develop must be immediately relevant to his needs. Participants must be able to apply classroom skills in a practical setting within the actual asset to which they are assigned. Second, the participants must remain immersed in the company working culture by being imbedded in his staff during their development so they can learn company workflows and establish relationships with their supervisors and peers. Third, skill acquisition by the participants should be on the fastest schedule possible, which reliably allows them to acquire the needed capabilities and function as independently contributing team members. Lastly, the development effort must be cost-effective.

The new Accelerated Development Programs (ADPs) being deployed by PetroSkills are designed to deliver against all of these expectations.

How do we ensure the skills are relevant?

Over the last 10 years, PetroSkills has established the world's largest oil and gas industry training alliance. The members are comprised of over 20 global oil and gas operators and service companies. The alliance has compiled detailed competency descriptions into industry-benchmarked Competency Maps (CMAPs) which provide comprehensive coverage for all exploration and production disciplines. Alliance member subject matter experts (SMEs), develop learning content which undergoes a continuous quality assurance process. The SMEs also assure that the courses are designed to deliver the competencies defined in the CMAPs, including extensive localization of the course content to address asset-specific learning needs.

A competency assessment of each participant can be done to set the baseline. Then an initial gap analysis is done to compare against the desired capability criteria. If needed, these steps, as well as progress tracking in the future, can be accomplished through the Competency Analysis Tool (CAT). ADPs can be adjusted as required to efficiently close the identified gaps and subsequent gap analysis to show progress of each individual.

Finally, PetroSkills has assembled an unrivaled group of over 220 industry experts as instructors and coaches whose performance also undergoes continuous quality review. Over 90% of these instructors have active consulting practices and they bring their daily interaction with current industry challenges into the classroom to ensure that topics are relevant to the learner.

How do we ensure the skills are practical?

PetroSkills recognizes that a large fraction of the total learning required to function as an independently contributing team member occurs in the workplace. ADP's balance learning activities between classroom and workplace environments. The classroom environment is focused on providing a solid competency foundation by addressing basic scientific, engineering and cross-discipline principles and planning aspects of relevant technologies. The work environment immerses participants in the discipline-specific and multi-disciplinary workflows of their sponsoring companies, facing practical challenges in a structured and coached environment. During the program, participants will develop a balance of technical and people skills, engaging in analysis and planning tasks while maintaining mutual accountability with team members for delivering desired outcomes. Focused interpersonal skills will be added as appropriate for the specified capability criteria to be achieved, including language skills, if required.

ADPs consist of four major categories with time breakdowns as follows:

Classroom – Discipline-specific	approx. 15-20%
Classroom – Inter-discipline	approx. 5-10%
Work experience – Coach-supported	approx. 65-75%
Assessment	approx. 5%

To support workplace learning, PetroSkills provides structured activities and SME coaches to draw linkages between classroom learning and practical application. The coach will typically be task-focused in their relatively narrow sub-discipline area of specialty. As such, participant-coach interactions are usually short-term during that segment of the program. As a result, participants may be working with a number of different coaches during the program. To maintain continuity, a program manager maintains consistent contact with the coaches, the participant, and their supervisor.

Workplace learning activities will include individual and small group projects ranging from simple operational observations to detailed procedures and studies. These activities are captured in PetroSkills Work Experience Inventories (WEIs). Similar to competencies in CMAPs that describe the knowledge component of a capability, the practical application components of a capability are described in WEIs. The participant and the coach agree on WEI content and then engage in those activities during a prescribed timeframe, preferably promptly following the classroom event dealing with the same technology.

Finally, the program includes assurance of both the classroom and workplace learning activities to build the supervisor's confidence in the participant's capability to perform the required work. The classroom events will include individual written assessments and small group projects to be reviewed by a management panel. The operational activities will be monitored and validated by a qualified observer.

The progress of each individual will be reported to the supervisor on a regular basis.

When participants achieve all of the specified capability criteria and are recognized as independent contributors, the material which has been used throughout the program will continue to serve as reference material through web access to our online virtual library called Knowledge Hub (KHub).

(See flow map on following page)

How can development be delivered locally?

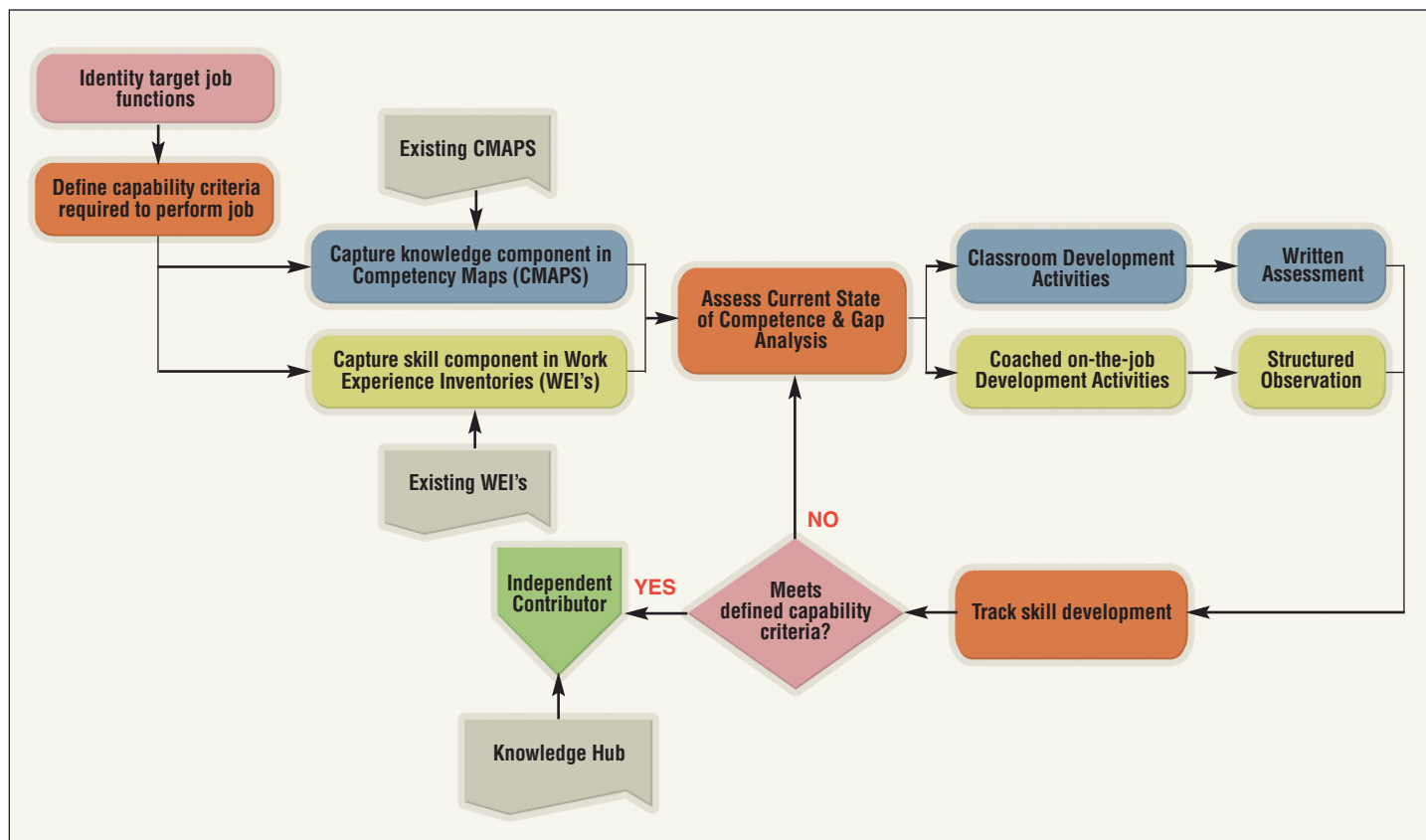
PetroSkills has global capabilities. Courses are routinely delivered at dozens of locations around the world. ADP is typically delivered on an in-house basis to a group of newly hired technical professionals who work through the same program together.

Coaches will likely work face-to-face with program participants and their supervisors to establish working relationships and to gain buy-in to program expectations. Once the relationships are established, a substantial portion of the coaching function can be provided virtually, thereby reducing cost and allowing adaptability to operational requirements.

Depending upon the scope of the ADP, an in-country program manager may be assigned to ensure the continuity and quality of the program.

In preparation for an ADP, relevant field data will be gathered and used throughout the program to act as a 'red thread' to unify related exercises and case studies. This will reinforce concepts as well as demonstrate the interrelationships among the concepts presented throughout the program.

The conceptual flow map showing the relationship between these ADP activities is shown in the following diagram.



How can development be delivered at an accelerated pace?

Effective learning occurs when an individual has an opportunity to connect with new information by seeing, by hearing, and by doing, so that a variety of learning styles and preferences are served. So opportunities to see, hear, and do need to be planned into the learning process. Also, since a large fraction of the required learning happens on the job, perhaps 80% or more, learning at a faster pace suggests that classroom learning should be linked to workplace learning in a structured way and over a short time span. New information that is applied by the learner in the near-term is moved from short-term memory to long-term memory, thereby more effectively imbedding the information in the learner so it can be accessed for future use. For this reason, ADP sequences activities so that a classroom learning event and assessment is followed promptly by related workplace learning events and observations. Additionally, while individuals will have learning assignments in both of these environments, they will also share learning and experiences with fellow participants in the program to create team work products. With this combination of a variety of learning methodologies and the timeliness of the delivery, ADPs have the ability to move more quickly than traditional programs.

Beyond a plan and structure to support an accelerated pace, focused resources are also a requirement. ADPs deliver this linkage between classroom and workplace through a focused coaching effort coordinated with the course instructors and the overall development program. The coaching effort is intended to augment, not replace, the efforts of the participants' supervisors, especially in those situations where supervisory manpower has limited availability to junior staff.

The detailed plan for an ADP progresses through a logical sequence from foundational concepts to more advanced concepts, all of which can be adjusted to meet specific requirements. The capability criteria can be expanded to gain a more broadly capable individual or narrowed to focus on a more limited scope. Using this model, ADPs can develop required capabilities over substantially shortened timelines.

What allows development to remain cost-effective?

Cost-effectiveness is a measure of value obtained for a given expenditure as compared to other options.

What options might Bill consider?

One approach would be to increase the number of experienced staff on the project so that he can simultaneously deliver on project requirements as well as on the development requirements for the newly hired staff. The advantage of this approach is that new staff can develop valuable

relationships among current staff and gain familiarity with workflows. The disadvantages are that staff members who have interest and capability to manage personnel development may not be available, and relevant and effective learning content to deploy into this effort may not be prepared. Also, the cost to overcome these disadvantages is likely to be high.

Another approach is to send the new hires away to an existing program such as a Masters Degree program at a university. The advantages of this approach are that it essentially outsources development, which alleviates the ongoing burden on experienced staff and it does so at a known cost. The disadvantages are that the program may not be relevant to Bill's needs, it may not incorporate practical applications of the knowledge, and the participants lose contact with the sponsoring company, its personnel, and its workflows.

The traditional approach is to send staff to courses from time to time and then allow them to apply the learning as the opportunity arises during the normal flow of their work. The advantage of this approach is that it requires little management effort and the development cost is relatively low and spread out over time. The disadvantages are that substantially more time is required for the staff to attain competence in their field and the return on training investment is reduced as a consequence. Additionally, the company is exposed to more operational risk as staff members engage in tasks for which they may not be demonstrably competent, also known as "the cost of incompetence."

ADPs, on the other hand, are designed to meet all of Bill's criteria. ADP content and duration can be customized to deliver the specific capability criteria required for the target functions and target assets, thereby ensuring the learning will be immediately relevant. ADP learning content and learning structure are in place and quality assured by industry experts. ADP instructors and coaches have a proven track record of leading world class learning events. ADP is delivered locally and customized with local content while the participants remain immersed in their sponsor company's work environment. Using the ADP model, Bill can develop in his new hires exactly what skills he needs at an accelerated pace with a reduced burden on his experienced staff while still maintaining ongoing daily relationships with the new hires. The return on training investment is improved because the time to competency is reduced as shown in the following diagram, travel time and expenses are reduced, and the "the cost of incompetence" is minimized.

Effect of cycle time and performance improvement on professional development.

