Evaluation Level	Evaluator	Factors to Evaluate
Technology	Training Provider	• Effectiveness of IT in supporting training-related tasks • Ease of use and usefulness of IT-based tools used by training providers
	Trainee	• Delivery and presentation of training materials • Ease of use and usefulness of communication tools
Reaction	Trainee	• Relevance of the course to the trainee's job • Satisfaction with course content and presentation • Quality of instruction • Effectiveness of instructor • Overall satisfaction with the training experience
Skill Acquisition	Trainee	• Knowledge and skill learned
Skill Transfer	Trainee	• Ability to apply the skill learned at work
	Manager	• Effect of the training on the trainee's performance
Organizational Effect	Manager	• Effect of the training on organizational goal achievement

When implementing the framework, these factors need to be evaluated.

grams. IT aids presentation of training material to training participants while supporting their communication [8]. The trainee's own evaluation of technology must include an assessment of the effectiveness of IT-based presentation, as well as the ease of use and the usefulness of communication tools (such as email, chat rooms, and desktop video-conferencing). The technology-evaluation data is helpful for both designing better training programs and for improving IT-based tools for training.

The trainee's perception of a training program (measured at level 2 of the evaluation dimension) provides valuable information for designing future training programs. Trainees must evaluate whether the course they've just been through covered concepts and skills that are meaningful to their jobs, whether its content was well designed, and whether its coverage of useful skills and concepts was adequate. The trainee also evaluates the effectiveness of the instructor and the quality of the training facility. A trainee's evaluation of technology and reaction to the program are best measured through a questionnaire survey given immediately following the program.

Evaluation of the knowledge and skills acquired by the trainee must be made by training managers in light of the program's learning goals. Concepts learned may be assessed through written or oral tests, while mastery of the application software may be evaluated through hands-on tests. Skills acquisition is best measured immediately following the training.

Skills transfer is best evaluated soon after the trainee gets a chance to use the software at work, ideally no more than one to three weeks following the start of on-the-job use of the software. Skills transfer can be evaluated by surveying trainees about how they are able to use the software and how often they seek help when using it. We do not recommend measuring skills transfer through a test; such tests are difficult and time consuming to create, and trainees often lack the motivation to take them.

Department managers help determine training needs by identifying gaps between the desired and the actual software skills of their subordinates. They also allocate resources for training. Past research indicates that trainees often fail to transfer the knowledge and skills learned in training programs to their work environments [1]. Our framework provides for measurement of this key indicator of training effectiveness, from both the trainee and the manager perspectives. The manager fills out a questionnaire assessing how well the trainee uses the software at work. This evaluation must coincide with the trainee's evaluation of skills transfer, facilitating comparison of the two.

Finally, a training program's organizational effect (level 5 of the evaluation dimension) must be measured by department managers. While this evaluation is the most difficult to measure of the five levels of measurement, it provides the greatest value to business managers by relating investment in training and organizational goals. It is greatly facilitated by setting explicit training goals during the planning phase of a training program and linking them to departmental and organizational goals.

Successful implementation of the training evaluation scheme requires planning and coordination. The training manager coordinates the activities related to training evaluation. The evaluation plan and instruments to be used for data collection must be investigated and implemented as part of the process of designing a training program. Evaluation measures must be based on the training goals set by training managers in consultation with their organizations' business managers. The primary users of the training evaluation data are the training manager and the business managers whose departments are most likely to benefit from the related programs. This feedback helps training designers improve subsequent training efforts. It also helps business managers evaluate the effectiveness of their organizations' investment in EU training.

Lessons Learned

We used the case research method [10] to evaluate our framework. As a case study site, we chose a U.S.-based manufacturer of telecom products with worldwide operations and sales revenue of approximately $400 million in 2003. It used a training program (designed, developed, and delivered by its own train-