

Improving the Process

Executive Summary

Today, as never before, telecommunications companies (Telcos) are subject to pressures from customers, competitors and regulations to improve their profitability and enhance their corporate image. One way to increase profitability is to institute efficiency savings to services that are provided to their customers. This has the added beneficial effect of improving their image with the customer. Productivity Improvement is the term used to describe the factors that enable these savings to be achieved.

In general, Productivity Improvement is any tool or application that enables the customer (Telcos) to increase efficiency in the way its workforce and systems operate. This is a broad definition that could encompass any task in the organization. For the purposes of this discussion the focus will be directed towards those tasks that can be affected by test equipment and systems.

Productivity Improvement from testing may be divided into four main categories:

1. Improvements to test instruments
2. Improvements to testing methodology
3. Improvements to field support
4. Improved corporate efficiency

These categories are not mutually exclusive, and a specific improvement or feature can be applied in one or more categories. However, each category has equal importance when defining and implementing a Productivity Improvement plan.

Improvements to test instruments

Instrument improvements are directly traceable to a specific feature or function resident on the instrument. These will generally be grouped into three subcategories:

1. Ease of use
2. Testing efficiency
3. Connectivity

Ease of use improvements are targeted at making the test instrument or system more useful to the technician by making his or her job easier to accomplish and learn. They will relate to such features as: instrument setup defaults specifically targeted at a testing application or user, and context sensitive help.

Testing efficiency relates to features that help make the instrument perform its function quicker. A testing macro is a good example. A macro combines multiple test functions (steps) under a single command that is issued by the technician. All the test steps are performed without the technician's intervention thus saving time and ensuring that all the steps are completed.

Connectivity refers to how the test instrument is connected to a PDA, laptop or personal computer. Today's technician is more likely to use a laptop routinely in his working activities than his predecessor of only a few years ago. Laptops today are used to download job records rather than use a paper dispatch system. The ability of a test instrument to connect directly to a laptop and download test records to it greatly enhances the usefulness of both tools.

There are two basic methods of connection: tethered or wireless. The two most common tethered connections are RS-232 serial interface or USB. The most common wireless connections that are gaining popularity are Bluetooth™ and G.802.11a or b. Infrared connectivity is rarely if ever used, due to both its complexity and the environmental conditions usually encountered by the technician.

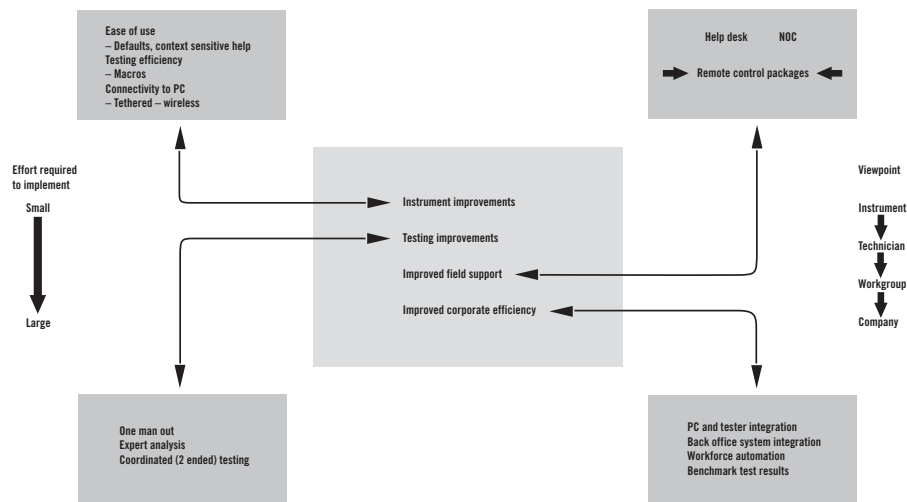
Improvements to testing methodology

The next subcategory, improvements to testing methodology, focuses on capabilities that will enhance testing procedures.

These capabilities can enhance the way a workgroup, as opposed to an individual technician, performs tasks. They range from the one person out concept, where the field technician interfaces with a tool in the network to perform a task that would normally take two people. A good example of this is when the field technician dials up a test instrument located in the network and that instrument responds in a preprogrammed manner.

Testing improvements would also include the use of expert analysis packages that would reside on the PC or test instrument to assist the technician to turn up a service or clear a problem. Such a package would use the results of the test and advise the user on the most likely next step to take.

Another example would be to give the test instrument the ability to communicate with a test system that has been integrated into the network. This would enable the technician to interact with this system and perform the required tests without the intervention of the network operations center (NOC), thus saving the field technician’s time and freeing NOC personnel for other tasks.



Productivity Improvement Definition
 Any application or tool that positively affects the customer's efficiency, thereby reducing their cost of doing business or the time required to perform a specific task.

PI Defined = 4 Parts

Improvements to field support

Improvements in field support would enable the technician to shorten the process of learning the test instrument. This would enable the field technician to contact the Help Desk or NOC for assistance. The NOC personnel could control the test instrument from their position and reduce the time to remedy the problem, and at the same time resulting in the added benefit of providing training to the field technician.

Improved field support could also produce improved inventory management. On connection to the network, the instrument could call up a control center, download its serial number and firmware version, and retrieve the latest software packages available for that particular test set. This could all be done automatically without the technician's intervention. The information obtained from the test instrument could be uploaded into a database that would be used to track the instrument more clearly.

Another improvement in field support would be to use downloaded test results to provide coaching reports that would identify problem areas. These could answer questions such as: Is the closeout test being completed properly? Has the repeat rate decreased? And, is a test result valid?

Improved corporate efficiency

The fourth category, improved corporate efficiency, contains elements of the other three categories, but applies them over the entire workforce. Some features in this category would be laptop and tester integration, workforce automation, uniform testing process and back-office system integration.

Laptop and tester integration can lead to Productivity Improvements by decreasing the time needed to perform the testing function. The integration could take place in several ways. One example would be to build the test function into the laptop using a PCMCIA card or media bay module. This method has the drawback that since the laptop and tester are integrated, there is no way to perform the required tests if the laptop were to develop a problem. In addition, if the test instrument is designed to the media bay specifications of a specific computer model, it restricts the test to using that particular computer model.

Another way of integrating the test instrument and laptop would be through connectivity. The tester and laptop could be set up to communicate with each other through a wireless connection. In this way they could continue to function separately, but together.

Workforce automation is a term that encompasses dispatching and closeout of work orders through a laptop. Efficiency can be increased here, by enabling data to be transferred between the system and a laptop and then to a test instrument, or directly to a test instrument. This information could be pair and cable, circuit ID, customer address to the test instrument, and test results to the laptop or system. Once a closeout is performed, a network order could be downloaded to the technician. Doing this would support a just in time dispatch and by adding GPS capability to the test instrument could enhance this process even more. This would enable the system to tailor its dispatches to the geographic location and skill-set of the technician.

Back-office system integration would provide an interface to the test instrument that would enable it to control a system testhead. This would eliminate, or at least mitigate, the need for the field technician to contact the NOC, and as a result reduce the time required to perform the test.

Conclusion

As stated earlier, the goal of Productivity Improvement is to increase the efficiency of the telecommunications company's workforce. This white paper has outlined several functions and features that are applicable to testing. These are all geared toward reducing the mean-time-to-install, mean-time-to-repair, and repeat rates. Reducing these three rates has the added benefit of increasing the company's image in the eyes of the customer and within the regulatory environment. The implementation of all four categories of improvements is critical to the process if realistic, sustainable gains in efficiency are to be realized.

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