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*From a Vendor's Viewpoint...*

## Providing IT Support and How You Can Help

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As offices and laboratories grow increasingly automated, equipment failures and system problems become commonplace. In larger work environments, daily struggles with technology are routine. Simple, standalone instruments are a dying breed being replaced by intelligent, networked devices. The lack of interoperability among this smorgasbord of devices from multiple vendors is often a source of problems and frustration. Rapid technological advancement has its price.

The current situation is likely to get worse before it gets better creating headaches for everyone. Why? The never-ending push to replace manual activity with automation results in an increasing variety of devices. As the number of devices becomes too large to manage, the focus changes to consolidation of functions resulting in fewer, but much more complex, devices. As a simple example, consider the attempts to combine cell phone, personal digital assistant and calculator. The results have been less than thrilling to date.

It's not just end users and managers who are stymied. Instrumentation vendors are equally frustrated because many external events beyond their control result in problems with their systems. Consider these all too common customer scenarios:

- Poor temperature control or ventilation causes equipment overheating.
- Inadequate preventive maintenance induces premature failure.
- Electrical power fluctuations damage circuitry.
- Poor network wiring causes signal quality issues.
- Bypassing security protocols compromises confidentiality or exposes proprietary information.
- User error due to inadequate training, fatigue or stress results in service calls.

And that's not all. These vendors face a variety of internal issues that make supporting their products more difficult than you might think. Supporting products in the field boils down to managing three major areas:

1. **Hardware Changes** – Companies will continue to improve the design of the hardware long after the product ships. In some cases, upgrades to customer equipment can be triggered by significant safety or reliability problems that can harm the user or seriously degrade the usefulness of the product. At times, the government will step in and force a recall though manufacturers usually replace faulty components voluntarily.

Other situations cause hardware changes but without the need to retrofit equipment in the field. For example, the need to reduce manufacturing costs will often force hardware design changes, or a component will become obsolete and no longer available making it necessary to substitute a different part. These changes cause support problems because ultimately there will be several hardware variations in the field and they will likely not behave identically.

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2. **Software Updates** – The need to patch security vulnerabilities, make improvements or fix bugs generates software changes. Events beyond the control of the vendor often force such changes. For example, many vendors employ an operating system or other software module licensed from a third-party software house. When the software house releases an update, the vendor must decide whether or not to distribute the update to its customers.

While the software is easier and less costly to change, it can be more difficult to troubleshoot and much tougher to manage. At times, even small changes result in new behaviors that can throw off experienced users unless additional training takes place.

3. **Customer Support Inquiries** – Regardless of how simple or complex the device, support will be needed. The inquiry may be prompted by anything from a DOA (dead-on-arrival) unit to a simple user error. Support centers generally find that call volumes increase whenever changes to existing products occur or new products are rolled out. This can cause severe fluctuations in the number of support personnel needed during any given time period.

Making matters worse, supporting customers is not an easy job. It can be boring at times and horribly frustrating at others resulting in high staff turnover. Attracting high-quality job candidates is a major challenge. Most applicants for support center jobs are simply under-qualified.

So how do vendors manage these three areas of change? The typical vendor operating model for maintaining and supporting products in the field revolves around the following functions:

- Log customer calls and capture new or changed information.
- Track and manage problems using all available data.
- Spot trends that show recurring user problems and their resolutions.
- Identify potential training areas or topics.
- Isolate possible software deficiencies or potential hardware failure points.
- Collect information about how products are actually used and the customer's evaluation.
- Escalate serious problems and those that are slow in being resolved.
- Track configuration changes such as component replacement or software installation.
- Generate management reports for evaluating performance and service level contracts.

### **The Tiered Support System**

Larger vendors employ a tiered support system. The first tier is often an automated system. Callers may be prompted to select a problem or symptom type and then are directed to common solutions, which may be available via phone, fax or the Internet. While this form of supporting customers may seem annoying, it exists because many problems are routine in nature and can be most expeditiously resolved by having the customer follow a few simple instructions.

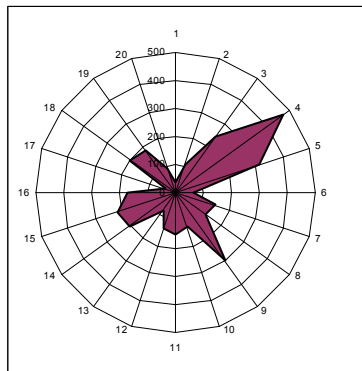
The next support tier is comprised of people who answer the phones. They have been trained to deal with the most common problems and have basic troubleshooting skills. These folks are chartered with resolving the problem on the first call if possible and making sure that the customer is happy with the resolution. They use fairly elaborate software applications to track customer information, document service calls and search for common solutions in an online knowledge database.

Behind the front line support tiers are the supervisors and senior support technicians. If the problem cannot be resolved on the front lines, it is escalated to this tier. These personnel have more experience and in-depth training enabling them to dig deeper and seek out uncommon solutions. If they cannot solve the problem, there may be something fundamentally wrong with the product or its environment.

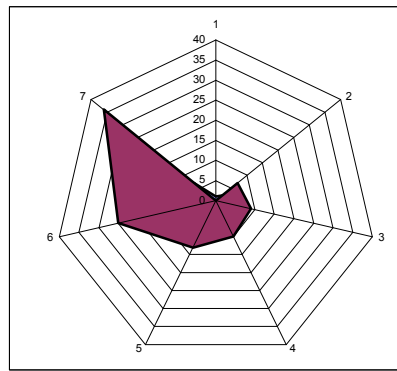


The last support tier and one that you will rarely deal with directly is comprised of people within the product-engineering group. These folks design, build and test the products we use everyday. They only get involved when all else fails and their involvement sometimes results in changes to the product to prevent the problem from recurring. Some vendors also use predictive models to isolate problem-prone areas. Using historical customer data gathered across all their products, vendors are able to visualize trouble spots and take preemptive action to correct the weaknesses before problems become widespread.

For example, the chart labeled “Problem Reports” shows total problem reports for fictitious “Product X”. The problem types have been segmented into twenty categories simply numbered 1 through 20. The radar chart clearly shows that problem number 4 has occurred most frequently. We can dig deeper into the cause of this problem by sub-dividing problem 4 according to system configuration. Let’s say there are



**Problem Reports**



**#4 Configurations**

seven system configurations in the field. The radar chart labeled “#4 Configurations” shows the percentage of each configuration reporting problem 4. We clearly see increasing frequency signifying that each change to the product is making this problem worse. (In this case, radar charts provide a simple way to compare data items without being distracted by their raw numeric values.)

You can actually help your vendors with this ongoing effort to improve quality. Every time you make a support call, the information you provide is entered into a database. Obviously, your issue must be tracked through resolution but equally important the data will help identify weaknesses in the product. This insight can then be used to prevent recurrences and ensure that similar problems don’t show up in future products. Here are six tips for getting help that will benefit both your company and the vendor.

### 6 Tips for Getting Help

- 1. Be polite and courteous.** Control your emotions. This is a business conversation, not talk radio. Support staffers are not perfect and only human. If you give them an attitude, they will have to waste time dealing with you, not your problem.
- 2. Be prepared and concise.** Before the call, take the time to write down pertinent information about your equipment, configuration, software, and the chain of events leading up to the problem. If there appear to be multiple problems, break them out separately. Minimize attempts at diagnosing the condition(s) and just stick to the facts.
- 3. Let the support staffer control the call.** Basic information about you and the equipment must be gathered before troubleshooting can begin. There is always a process that must be followed and it is best to follow along rather than argue. Answer questions with adequate detail but don’t ramble. Give the staffer time to type notes. Ask your questions after the staffer has finished asking questions.
- 4. Listen carefully and take notes.** It’s important to follow instructions during and after the call. Read or repeat back your understanding of the instructions. Do not second-guess the support center. Even if you believe you have already tried something, the sequencing of steps can make all the difference.



**5. Be understanding on callbacks.** Chances are you will get a different person should you need to call back regarding the problem. Give the staffer time to read the call history. Ask if there are any questions regarding the history. Proceed to explain what actions you took and what results you observed after the last call using your notes.

**6. Persist in getting the problem solved.** In most cases, the support center will have dealt with similar problems before (even if the person you are speaking with has not). There will be other times when your problem is particularly complex or obscure. Most support centers use a tiered system whereby the front-line responders can escalate the call if they cannot resolve the problem. Once you've done what the front-line support staff has asked without success, ask for escalation. Be polite and persistent.

Information and instrumentation technologies will not get simpler any time soon but having a general idea about how vendors support your needs puts you in a better position to help yourself. And these days, with so much competition around, you need to give yourself all the help and support you can.

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