

Six SPC Charting Problems Solved

By Steve Daum

Why do businesses invest money and effort to improve productivity? The answer is payback. The idea of studying a process, minimizing the costs, and streamlining work is old and well-practiced. However, when new technologies are early in their deployment, organizations sometimes throw tried and trusted techniques out the window.

Consider the installation of a new color printer on the network. Employees connected to the network discover the new printer and are soon printing almost everything to the new device. Admittedly, the price of printing in color has come down dramatically. But do the check sheets that hang on restroom walls to log cleaning sessions require 64-bit true color with a photo-grade high-gloss finish?

We often see similar problems when an organization first deploys statistical process control (SPC) software. SPC charting is not new technology. It has been around since the 1930s. However, in the 1930s, people created SPC charts by hand, using paper and pencil. Today, when deploying SPC, organizations create charts with software. Thus, SPC charting is prone to the *new technology inefficiency syndrome* referred to in the color printer example.

The six problems we often observe when organizations first deploy SPC software are:

1. Chart it because we can (page 2);
2. Chart it in case we need it some day (page 2);
3. Assume that EVERYONE wants to look at ALL of the charts (page 3);
4. Expand the scope of what is charted (page 3);
5. Prematurely invent and deploy other systems to support charting (page 4);
6. Prematurely define and enforce charting standards (page 4).

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1) Chart it because we can.

SPC charting software has been improving for twenty years. If you purchase a software package such as SQCPack, you will be able to see your first SPC chart within minutes. The ease with which this is done sometimes creates excess enthusiasm for SPC charts. Within a few hours, the SPC charter might have created hundreds of SPC charts based on various data he or she has lying about. Beware of the employee emerging from his or her office, toting a three-ring binder full of charts, just a few hours after installing new SPC software!

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Setting up SPC charts can be easy—that's a good thing! However, creating and using SPC charts should be viewed as a business process like any other. Before setting out on the journey, give thought to the payback and long-term impact of keeping the charts.

2) Chart everything in case we need it someday.

This is a variation on “*Chart it because we can.*” The idea can take hold that we should chart almost every metric. After all, disk space is cheap and getting cheaper, and the software makes charting almost painless, so why not just chart everything?

In some regulated industries, such as those that must comply with CFR 11.1 and other FDA regulations, charting nearly everything might be necessary. For the majority of firms, however, this approach is overkill.

For the majority of firms, charting virtually everything is overkill.

Before charting, consider the following:

1. Who will look at these charts?
2. Who will maintain them?
3. Who will ensure that the data continues to flow into them?
4. What benefit, if any, will offset these costs?

3) Assume that EVERYONE wants to look at ALL the charts.

This is common among people who have recently learned about the phenomenon of SPC charting. They see the value in these charts; and assume that everyone else will see the value and therefore will want to look at all these charts. And not just today, but on a regular basis from now until eternity.

Before creating an SPC chart, consider whether there is a need and a payback.

Hold on, whippersnapper! Most people are working hard doing what they perceive as “their job.” Let’s not make an assumption that they will be as excited about what they perceive as “your job.”

Communicating SPC charts to others is an important part of deploying SPC. However, investing recurring effort to publish SPC charts to a wide audience should be evaluated like any other business process. What is the need and is there a payback?

4) Expand the scope of what is charted.

The deployment of SPC charts may come to different departments in your organization at different times. Often, new practitioners of SPC charting will inadvertently expand the scope of their work. For example, they may start by charting various errors that lead to down-time in their work areas. Once they are comfortable with SPC charts and see results from their efforts, they may look for things to chart in other work areas. An astute manager needs to channel this effort in a productive way. Beware! A person might get carried away with SPC charting, expanding the scope of his or her work in ways that may be unproductive for other parts of the organization.

5) Prematurely invent and deploy other systems in support of SPC charting.

You've had your new SPC software for a few days. You've demonstrated the ability to create control charts of important quality metrics. The next step is to get the IT department to develop a new data entry system, a new quality database, or a new SPC chart web page to go along with your nifty SPC system.

Wait! In the early stages, investing in some larger infrastructure to support your SPC charting efforts can be a mistake. Why? You just don't know enough yet. Typically, the deployment and use of SPC charts happens in an organic way. It grows and changes as business needs grow and change.

As you use SPC over time, you'll see that metrics that are important today may not be important tomorrow. This experience will better prepare you to invent the larger infrastructure. Your idea might be a good one. But you need to evaluate it just like any other business decision; what are the costs and what are the benefits?

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6) Prematurely define and enforce a standard.

Standard business practices are a good thing when the participants have the experience to define the best practices within their standards. When you first deploy SPC charts, the temptation to lay down the law may exist. The temptation to define standards for all users on how to compute control limits, how many points to plot on a chart, how to display titles on the chart, etc. is hard to resist.

The problem with doing this too early is that "the standard" might disallow some useful, yet unlearned, features of the software. Over time, users of any software package within an organization will come to learn various tricks, tips, and shortcuts for getting the most from the application. Some amount of time needs to pass before the community gathers this learning. Defining a standard too early can circumvent this learning and the associated benefits.

You must resist the temptation to define standards for all users.



What to do? Treat SPC charting like other business processes

To solve or prevent each of these six problems, you should treat SPC charting like any other important business process. Study the process, streamline the process, and remove inefficiencies when they are found. Your SPC software provider should have experts who can help. If not, find a provider who does.

You must also consider the financial side of the SPC charting process. What are the costs of deploying a chart for a particular metric? What are the benefits to be gained? Is there a return on investment for charting?

How you deploy and use SPC charting software will be unique to your organization. However, there are some common themes that must be considered. Here is a list of questions to ask before deploying a new SPC chart:

1. Where will the data for this chart come from?
2. Is there currently an ongoing way to gather and store this data?
3. How often will the SPC chart be evaluated?
4. Who will evaluate the SPC chart?
5. Is this a short-term or long-term SPC chart?
6. What is the cost to set up and monitor this chart?
7. What are the potential benefits and/or cost savings for monitoring this chart?
8. Can we show a return on investment for monitoring this chart?

To ensure efficient implementation of SPC software, ask your provider for help.

The answers aren't always readily apparent. It's not uncommon for organizations large and small to struggle with answering them. But finding the answers will ensure efficient and effective SPC implementation, which in turn will lead to greater profitability.

Don't hesitate to ask for help. To prevent making costly mistakes, contact your SPC software vendor's support team. If they have adequate experience, they will be able to help guide you through your software implementation.



When choosing a software vendor, consider PQ Systems. Our team can help you avoid each of the problems described in this white paper and assist you in implementing SPC software wisely in your organization.

Why PQ Systems (and what do they know about SPC charting)?

Experience: Since 1984, PQ Systems has been providing charting software and services for manufacturing, healthcare, education, government, and other industries.

Proven success: Our SPC charting software SQCPack is being used in high-performance organizations such as Akzo Nobel, Baptist Health, Cleveland Clinic Health System, Honda of America, and Innophos.

Happy customers: Hundreds of our customers have been with us since our beginning in the 1980s. Now that's customer retention.

Broad experience: We have experience helping organizations in nearly every sector to implement SPC charting. Our customers include discreet and process manufacturers, K12 educators, hospitals and clinics, restaurants and banks, colleges, government organizations, and more.

We do the hard work: We ask the right questions to ensure that your SPC software implementation will be the most efficient for your organization.

Direct access to a highly-qualified team: Our team of advisors and trainers has a combined 150 years of experience helping thousands of customers with their SPC charting.

Learn more about implementing SPC software in your organization by calling us at 800-777-3020. Or, gain instant access to a free trial of SQCPack when you visit www.pqsystems.com.



ABOUT THE AUTHOR

Steve Daum is Director of Software Engineering for PQ Systems. He has more than 30 years of experience with statistical process control, control charts, and control charting software. Steve has published papers in a variety of professional journals and has led multiple seminars and presented on statistical process control and issues related to quality to a variety of audiences in the U.S., England, and South Africa. To learn more about PQ Systems' software applications SQCpack and GAGEpack, visit www.pqsystems.com.

