

The Basics of Software Integration

Installing new software at your organization offers many benefits, but it also has many pitfalls. You can overcome them by taking a systematic approach that will pay dividends in the long run.

By Jim Parrie, Ph.D., CPF

So, you have gone out and bought the latest and greatest piece of software.

Maybe it is a visualization program for your chain or perhaps new production software for your manufacturing plant. So how do you roll the new program out to your organization, making sure your pricing is correct and training your staff?

What Is Software Integration?

According to Wikipedia, “In engineering, system integration is the bringing together of the component subsystems into one system and ensuring that the subsystems function together as a system. In information technology, systems integration is the process of linking together different computing systems and software applications physically or functionally.”

The term “software integration” is used here to refer to integrating a computer program with one or all of the following—sales systems/procedures, production systems/procedures, and an organizational structure and culture. In other

words, after you purchase a point of sales program there will be a tremendous amount of time and work required for the new program to perform in a manner that is effective and profitable. Integrating a pricing program entails a plethora of tasks—purchasing computer hardware, verifying and inputting inventory and pricing, training, and so on.

You need a well thought-out plan and some seasoned professionals to make the integration as painless as possible. Every time you take a short cut you run the risk of increasing your costs and the overall project time.

Integrating software into your organization may require the use of a system integrator. The system integrator brings together discrete systems using a variety of techniques such as computer networking, enterprise application integration, business process management, and manual programming. Due to the limited size of the framing industry, there are relatively few system integrators or companies that offer system integration, but they are available. A system integrator requires the outlay of additional cash. However, it is more cost effective to have a paid integrator or consultant assist with the integration than to use a hit or miss method. It is especially valuable



when you use the services of an integrator who not only has software expertise but also framing experience. When you are searching for a software provider and/or an integrator, ask about hands-on, real world production framing experience. That experience will help make your integration go that much smoother.

If you have a retail hub-and-spoke operation, integrating software into your organization may entail integrating the mat design software at your retail counter with your point-of-sale system then passing that information to production so the order can be verified and then placed in the queue before that information is finally passed on to your CMC. If you have an e-commerce site, integration can entail passing information from that site to your production system then to your shipping programs (such as UPS and FedEx). As discussed in “Choosing the Correct Production Software” (Fall 2010), interfacing your accounting software with any additional package (such as production or point of sale software) is a detailed and painstaking process. Integration of all of these different packages within your organization often requires multiple skills sets that rarely exist within most picture framing enterprises. Therefore, if you want a smooth and effective migration to a new system, you need to bring in outside expertise.

The Request for Proposal

The Request for Proposal (RFP) is the key element to a successful integration. An RFP is a written, detailed specification document that enumerates the features

required for the software you seek to purchase along with the timeline, goals, and responsibilities of the parties involved. Think of it as the blueprint for a home that you use to get bids from contractors. The more detailed the blue prints, the more accurate the bid and the better

the end result. Projects where little upfront work has been done in the RFP almost always have far more issues than projects where an owner spends time developing an accurate RFP. Try building a house without blueprints and see how far you get.

When constructing an RFP you want to involve a software developer, your staff, an integrator/consultant, and your IT person. The staff involved in the RFP process should represent sales, production, operations, and management. These stakeholders have different requirements, visions, and concerns about any enterprise-level system change. You need to involve all aspects of your organization to hear their ideas and to get them to buy in to the change. Anyone not involved or doesn't feel like they've been consulted are potential obstacles to a successful rollout.

When interviewing integrators/consultants, ask if they have either written or have been involved in writing an RFP. You will be able to reduce the amount of time needed to construct an RFP if someone on the team has experience.

This is common sense, but it's also a factor that's often ignored.

Part of writing an RFP is making sure the writer asks the correct questions. Some of the questions that can provide key information are:



Integrating new software with automated equipment can improve your overall production efficiency so long as you make sure that the interface with each work station is functioning smoothly.

- Suppose that a majority of your mats are single opening, so how many multiple opening mats have you cut?
- Since you want to automatically reduce inventory, how do you count sheets of matboard once they have been cut—by quarter, half, or full sheets?
- If you have multiple locations (offices, work from home, or outside sales staff), you will need to be able to share files. Do you plan on using a WAN (wide area network)? If so, to secure your data are you using a point-to-point VPN? What type of encryption will be used—triple BEZ at 128 bit or higher?

There are hundreds of other questions based on your type of business and the software application(s) in question. Each of these questions can pose potential pitfalls if they are not addressed upfront. For instance, because of mobile computing and multiple locations, file sharing is important. If so, you may want to set up a WAN. However, that brings up information security issues. The hardware and software costs of WAN can also get pricey if you are not careful. This should be included in the RFP right away, not just for WAN cost estimating but to also make sure that the software can run on a WAN and also if the developer will charge additional licensing fees.

Slower Is Better

Too often owners are in a hurry to install their latest software purchase. They rush the process by not producing an RFP, by not testing the new system prior to installation, or running the new system parallel to the old system to ensure redundancy in case of failure. A system-wide integration takes months, not days or weeks. Placing pressure on your staff or the developer will not speed up the process. In fact, not doing the upfront work actually slows the process down considerably. The analogy of building a house applies again. If you rush the pouring of the concrete and do not let it set properly, it may crack and not settle properly. The same can be said for software integration. By taking your time in developing an RFP and following a due diligence process prior to implementation, integration can be faster than if you take shortcuts. These generally lead to bad pricing, faulty reporting, frustrated staff, excessive downtime, and inordinate labor costs.

It is very common for owners to purchase a software solution in July or August and then pressure everyone to



When designing a new software package, make especially sure that the appropriate data will be transferred accurately between the system and the equipment, especially for work stations where data was previously entered by the equipment operator.

have it up and running by Christmas. Putting the pressure on creates a greater chance for errors. Due to the sales cycle of capital investment items in the framing industry, many purchases occur from mid-second quarter to the beginning of the fourth quarter. There are a variety of reasons for this, but one major reason is that the West Coast Art & Frame Show in Las Vegas is now the major domestic tradeshow of the industry, and it takes place in late January. Most decision makers come to Vegas to look at a software/hardware solution. They will then have back-and-forth discussions for a month or two and finally make a purchase in mid to late summer. Then the pressure is on for a pre-Christmas rollout.

If you are placing an enterprise-level solution, give yourself time. You can buy time by running your new solution in parallel to your old software. This will allow a longer test period and provide redundancy during the Christmas season. Instead, you can speed things up by not delaying on the research and getting information to the developers quicker so they can provide the bids you need. Do not make a quicker decision without conducting proper due diligence, but do not procrastinate. If you cannot have a solution in place, tested, and ready to run by October 30 (for a retail based operation), then you

may want to hold off your launch until the first quarter of the following year. Otherwise you may place too much pressure on your staff and mistakes will be made, causing you more grief and money. Often the software developer gets blamed because the solution does not work or the developer is seen as not responsive when in fact the purchaser's expectations are not realistic.

Review Procedures, Systems, and Layout

Whether you purchase software or try to develop it in house, you should produce a detailed flow diagram of your current production and sales system. During this phase of the process it is recommended that you meet with your staff and, using their input, construct a detailed step-by-step flow chart of the various processes in your organization. By having this flowchart you can have a meaningful discussion with your software provider and integrator. This will also be an opportunity to gain organizational efficiencies. A workflow diagram should start with a customer placing an order to the order being sent to production and all the way until the item is given to the customer.

When owners look at step-by-step workflows they realize where they are losing money through inefficiencies. You will probably be able to find cost saving measures over and above the efficiencies gained by adding software. This is one of the ways installation of a new software platform can help save money, because it forces you to look at your entire process from start to finish. Most owners are so busy with day-to-day operations that they never take the time to study their workflow in depth.

When putting together your workflow diagram, also provide an itemized list and location of the equipment you use as part of your RFP. The type, size, placement, and capacity of each piece of equipment are important factors when integrating production software. Today, there are more pieces of equipment being

used that can provide or receive data from software. There are computerized mat cutters, automatic measuring gauges for saws, digital readers for joiners, automated sizing machines, printers, scanners, and more. By working with an integrator, you will be able to determine the optimum layout and systems you should be using in your facility. You can then set a timetable and budget for the changes that need to occur.

Verify Hardware Specifications

During the RFP process you should provide the developer with a detailed layout of your work and sales workflow. Then ask the developer to illustrate in diagram format how the orders will flow through your organization based on the most effective use of the software. Then take the flow diagram and determine if this process will be more effective in your organization than your current processes. You don't want to purchase and install a process that is no more effective than what you are currently using. Why bother investing the time and money?

It's also a very good idea to meet with several network consultants or equipment vendors to determine the most efficient network setup for your organization. Whether you are going to purchase a new system/network or not, use

the expertise of vendors to determine if your hardware configuration is optimal. Even if you purchase the best software available, it will still be limited by the efficiency and capacity of the hardware. Most facilities have one or two state-of-the-art computers and a slew of "legacy" units. These older computers contain antiquated architecture and operating systems that can cause installation and performance issues.

An integration plan will help you to determine the length and order of a system rollout. An integration plan will also help you develop a budget and expenditure flow. Develop a rollout plan in conjunction with your IT department, your vendor, and your staff. Just remember that faster is not always quicker.



With new software, optical bar scanners will help speed up production and eliminate errors—if you take the time needed to design the system to fit your individual production needs.

Communication Is Key

It is essential that you maintain an open line of communication with your vendor. By having an RFP, you and the software vendor should have a clear understanding of the expectations for all parties. Open communication means quickly communicating any concerns and issues. For instance, once the software is being tested (commonly called "beta testing") you may see some issues of concern. Clear communication takes more than telling a vendor you are not happy. You need a written document that lists the specifics of what the system does nor does not do, including screen captures if possible, sample printouts, or some other physical examples. Also included is an expectation of response. When you send the document, place an expected time of response for the receiver. The response may merely be acknowledgment of receipt of the document but should also include an expected answer date. When both parties detail their expectations and anticipated dates of fulfillment, the lines of communication will be clear. This is important for a more successful integration.

Communication also involves letting your staff know about any changes. Include your staff as much as possible in the process. Publish updates as often as possible either

orally or in memos or a newsletter.

Also make sure you determine upfront any exceptions that exist outside of your standard orders and communicate them to everyone involved. Details and exceptions are what generally cause the most problems in rolling out new software. These can cause software to run slow or to crash, jamming up production.

Conclusion

The main point to remember when installing software in your organization is that there is a lot more involved than buying a disk and sticking it into your computer. There are hard costs and soft costs and numerous problems to avoid. Do a lot of research, talk with experts, and consider using an integrator/consultant to help you negotiate the pitfalls. When you do, you'll greatly improve your chances of success. ■

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