10 Reasons Why System Integration is Important

An overview of the benefits that system integration can offer to industrial end-user clients

In today's day and age, when companies want to stay ahead of the game they need all their systems to work synchronously. Systems that are not integrated result in significant increases in cost and resource consumption. Read on to find out reasons stated by the Control System Integrators Association (CSIA), a not-for-profit, global trade association that seeks to advance the industry of control system integration...

Source: CSIA

Leveraging all the key aspects for efficient system integration

● Defining systems integration in an industrial setting is the first step in explaining its importance. Industrial system integrators typically are independent entities that use technical and project management activities to integrate commercially available hardware and software from multiple suppliers into a solution for an end-user client. System integrators' technical expertise commonly includes electrical design, engineering, programming, testing, commissioning and ongoing support. System integration entities may be standalone companies or business units within an equipment supplier or distributor. What they have in common is that they provide control, automation and information solutions for manufacturing and industrial processes.

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SPECIAL

Source: CSIA

System integration allows for making the best-in-class products from multiple suppliers work in tandem

Having defined system integration, let's address the purpose of this article – describing the importance of system integration. Here are 10 reasons why system integration is important to industrial end-user clients.

Saving the end-user client personnel costs

1 By using independent system integrators, industrial clients save the cost of hiring, personnel evaluation, continuous education, time to stay current on technology, and so forth. Additionally, it is difficult for a non-system integration company to select the right people, and bad hires are an expensive mistake. However, it is advisable to have a small internal staff to manage projects that are contracted to system integrators. The size of that staff depends on the magnitude of projects that are performed.

For example, there are many industry standards that apply to automation and information systems that an end-user client may find challenging. Examples are ISA99 on cyber security, ISA100 on wireless communications and ISA101 on human-

machine interface devices. Does an end-user client really want to invest in their own staff learning and implementing these standards? A system integrator makes the educational investment. Then, that cost is amortized over many clients and projects, to the benefit of all.

Improving the quality and reliability of the integration project

2 No one person or company knows everything. The system integrator often brings to the table an understanding of mechanical, process and business intelligence issues and knows how to integrate those disciplines into a working system. That's why our industry is called system integration – we integrate!

A common mistake in manufacturing and process industries is that managers wait until later in the project development to contract a system integrator, thinking they have little to offer upfront, yet that couldn't be further from the truth. It's best when system integrators are involved in the earliest planning stages so they can contribute their knowledge and expertise and save costs and improve outcomes.

Accountability for time and resources

3 System integrators must remain on budget to maintain a sustainable business. Whether contracts are fixed or variable, costs, labor and materials must be managed based on the upfront plan and contract. In short, system integrators are accountable for time and resources. Contracts always have definitions of scope of supply of services and products and also an associated cost structure. The system integrator, for internal purposes and for client relations, must honor the agreement.

When a project is implemented by internal project staff, that accountability is often minimized. An attitude of 'it'll take as long as it takes' can exist, so budgets and schedules sometimes suffer.

Knowing and applying current industry standards in safety, environmental and modern technology

4 Examples of these standards are networks, cyber security and interoperability of equipment. End-user clients can rely on system integrators to get updates on topics such as machine safety, process safety, international programming standards, networks for intelligent instrumentation, network standards to prevent cyber attacks and so on. Granted, there are some standards and regulations on which it's best for the end-user clients to remain current, typically ones that pertain specifically to their industry. However, it's incumbent on the system integrator to be knowledgeable about the majority of standards.

Bringing innovation and experience from working across industries

5 A large majority of system integrators work in multiple vertical industries. Examples would be consumer products and food and beverage. An integrator may gain experience in an application such as batch processing, material handling and packaging in the
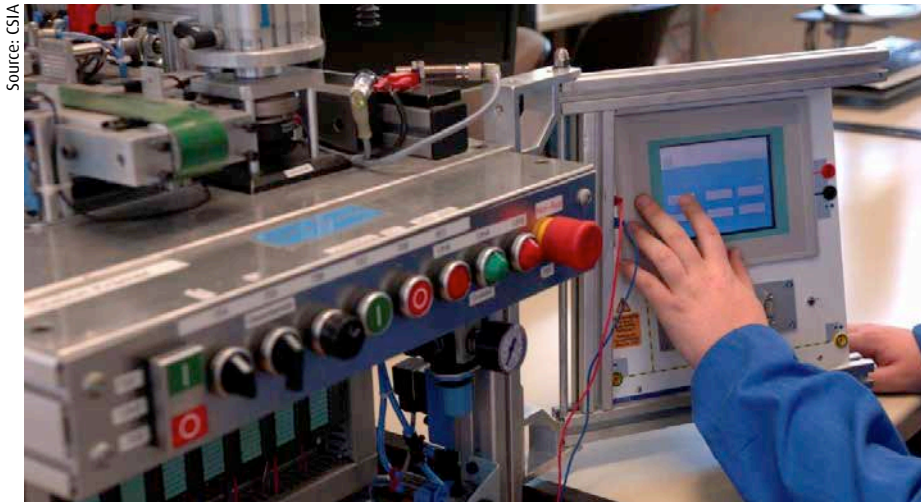
Source: CSIA

Using independent system integrators are vital and not being tethered to any one automation supplier acts in the best interest of the end-user client when making selections

production of hand cream. Then in another project involving the production of chocolate syrup, the production efficiencies and improvements in quality realized in the hand cream application will transfer to chocolate syrup.

Their inherent exposure to different industries results in a breadth of knowledge that can't be learnt at a show, through training or from a magazine. It comes from doing projects. System integrators learn to recognize when the experience gained in one application and industry can be applied in another. This capacity allows system integrators to bring innovative solutions to resolve an end-user client's challenges.

Having the right skill set for project management and execution

6 Project management and execution skills are very different skill sets. A good system integrator has both. An indication of the importance of these skills to the success of a project is that three of the nine sections of the CSIA Business Best Practices and Benchmarks Manual focus on project management and execution. Those skills are included in a good system integration company's best practices and make the difference in project success or failure.

Knowing how to manage project risks

7 Risk is the most significant enemy of a system integrator, so it is taken seriously. Recognizing project risks comes with experience and is a natural process for integrators. Risk management begins at the planning phase of a project and emphasizes once again what was mentioned in the second reason above, namely the importance of a system integrator being involved in the early stages of a project. It stands to reason that good risk management is in the best interest of the end-user clients even though a client-integrator risk discussion can be uncomfortable.

Providing proper documentation for future reference

8 It's common for internal staff to move onto the next project and not properly provide drawings, software code and operations manuals. The staff often has good intentions of doing the documentation but it just gets pushed to the background with hopes of doing it later, but later never comes. Since final documentation is typically included in the contracted scope of supply for the system integrator, the integrator is held accountable for providing it and the end-user client can be assured of

getting it. Proper documentation is important for maintenance, support and scalability.

Choosing the best hardware and software for an application

9 Knowing what products are available for an automation solution is important. And knowing which ones are the best solutions is equally important. Independent system integrators are not tethered to any one automation supplier, so they act in the best interest of the end-user client when making selections. And as system integrators they know how to integrate – how to make best-in-class products from multiple suppliers work in tandem.

Some product suppliers also do system integration work but they are biased towards their own products. Therefore, even if those products are not the best solution and don't deliver the highest value, they are used anyway. Thereby, the full potential of a project will not be recognized.

Providing expert technical staff on demand

10 End-user clients sometimes have a temporary need for additional staff to assist internal staff when there are too many concurrent projects. Most system integrators can provide engineers, designers, programmers and so forth during those busy periods. Coming from a system integration company, the personnel are effective immediately after safety orientation. When the project load diminishes, they simply return the integrator. There are personnel staffing companies but those from system integrators are inherently more efficient plus equally capable backup is available, if necessary.

Are all system integrators created equal? No. As in all industries, some companies are better than others. So how does an end-user client differentiate a good system integrator from a not-so-good one? System integrators who become certified by the Control System Integrators Association have demonstrated through an independent audit, conducted every three years, that they uphold the CSIA's best practices for management. ●