

Are You Ready to Migrate Your Control Platform?

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Faster product turnovers, higher line speeds, greater throughput, less operator intervention, Big Data, virtualization, “lights out” manufacturing, intellectual property protection and security — all hot topics in manufacturing automation today.

The future success of many manufacturers likely relies, in part, on their ability to embrace these and other technology-driven opportunities. However, before discussing a potential “starry-eyed” view of the future state of manufacturing, we need to step back and take into account the impact of rapidly changing technology.

Advancements in technology are occurring faster than ever before. Not long ago...

- We relied on a GPS tool that quickly became out-of-date, requiring regular firmware updates to recognize newer streets. That navigation function is now a free app on most smart phones, with up-to-date maps, including street views with descriptions, and phone numbers of local businesses.
- Cassette tapes were replaced by the compact disc, which has since been rendered irrelevant by digital downloads.
- We referenced printed catalogs to select products; now we search the Internet, using automated selection tools, to get specifications, product images, 3-D models, application stories, competitive pricing and comparative reviews.

Psychologists tell us that “real” change requires a significant emotional event or motivator. Watching a competitor take market share can be just such an event; just ask those responsible for Atlas map books and Magellan GPS receivers about their position in the market after Apple launched the iPhone. Or, ask the folks who publish encyclopedias, dictionaries and thesauri about their market after “Google” and “Wikipedia” became household names.

Change in technology is unrelenting. It can be difficult and sometimes quite scary. You can’t stop it, but you can embrace it and benefit from it. Those who embrace change, via the adoption of newer technology, reap the rewards of finding ever-more-creative ways to differentiate their offering and distance themselves from their competitors. Those who embrace new technology are often seen, after the fact, as market creators.

Are you prepared, not only to meet today’s needs, but to embrace the fast-paced changes to come? Do you want to stay ahead of your competition? Now is the time to take action.

LISTEN.
THINK.
SOLVE.

Early Adopters vs. Heel Draggers

Some folks adopt technology for the sake of always being on the leading edge. Each and every time a new capability is available, they are ready to pounce on it and ride it until the next new thing comes along. Often, it isn't long before the shine of the new feature wears off (the differentiator's life cycle can be quite short) and they find that below the shiny exterior, there isn't much in the way of real value as a result of early adoption.

On the other end of the spectrum are those who adopt newer technology only when it's proven rock solid, and then only when their old solution simply isn't available any longer. These folks (some of whom still have cassette players in their cars) tend to drag their heels, refusing to adopt newer technology until absolutely forced to do so. The situational awareness for this group is extremely limited, because they don't know what they have been missing. In today's market, they eventually go out of business because they are essentially trying to compete with one or both arms tied behind their backs.

Motivated to Migrate

There are those vendors who leverage scare tactics, relying on fear, uncertainty and doubt to drive customers to "embrace" change. While a strong motivator, fear is not exactly the best environment for long-term decision making, as it encourages haste and the adoption of immature technology. Decisions made in a fear-filled environment look similar to those made by early adopters. In their haste to remove the source of their fears, the lack of a long-term plan often consequently means having to support a very divergent mix of technology. While they have managed to create the illusion of progress, they may have simply swept the root cause of their fear under the carpet, leaving it to eventually resurface as a problem.

Contrasting the fear-based decision makers are those who decide a course of action based on near-term and longer-term opportunities to achieve lasting value in the form of faster product turnovers, higher line speeds, greater throughput, less operator intervention, Big Data, virtualization and "lights out" manufacturing. For these folks, the decision to migrate to a newer technology is based on evidence that the newer technology has been proven to deliver — not just promised to deliver.

When to Migrate

Several years ago, the ARC Advisory Group published a white paper, "Automation System Migration for Increased Manufacturing Productivity." At that time, it was estimated that more than \$65 billion worth of process automation systems were nearing the end of their useful life, and that nearly one third of those systems were more than 20 years old.

It's an ongoing challenge for plant managers to decide when it no longer makes sense to expend the effort to keep legacy systems operating when they are no longer viable. What defines that tipping point? When is it finally time to replace legacy systems with new technology? Dick Hill and Peter Reynolds point out in the ARC Strategies' "Control System Migration Lessons Learned," published in April of 2013, that "increased maintenance and support costs alone are not necessarily adequate to justify replacement."

It could be argued that those who use increasing cost as the only reason to migrate are missing the much larger opportunity, which is akin to driving with blinders on and then only looking in the rearview mirror. Focused only on the goal of minimizing maintenance and support costs, they are missing the much greater opportunity to achieve greater results.

The ARC study goes on to state that the decision to migrate is a business decision that competes with other business decisions, all competing for capital. The migration decision should be based on business metrics of success. Ask yourself if migrating from one technology to the next will:

- Increase OEE
- Increase your ability to meet current and near-term future requirements (growth)
- Increase Return On Investment
- Improve your ability to detect and decrease incidents, due to improved operator awareness
- Enhance security
- Achieve and maintain regulatory compliance
- Heighten competitive advantage
- Provide technology that is interoperable with your current production management system
- Provide greater operational flexibility, allowing production of multiple products on the same machine or line
- Support real-time decision making via real-time information
- Take advantage of the Internet of Things, via connectivity to standard unmodified Ethernet
- Improve the uptime of your operations
- Improve control precision

What to Migrate To

In its 110-year history, Rockwell Automation® has continuously invested in order to make products available for sale as long as practically possible and has striven to meet the needs of our customers.

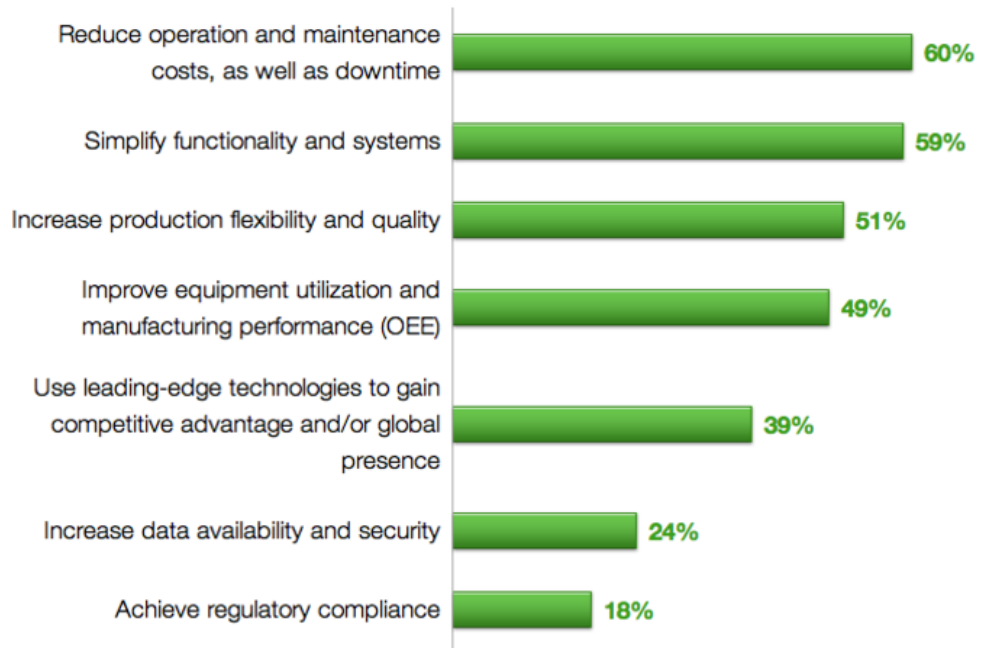
One such product family has been the SLC™ controller family, first introduced in 1989, and subsequently one of the most successful PLC platforms ever sold. The SLC platform continues to have a large, loyal and dedicated following of customers, despite the platform being nearly 25 years old.



Over that time, the SLC portfolio has expanded to include more than 100 products, satisfying the requirements of very diverse applications. Given its industry-leading reliability, the portfolio has truly protected its customers' automation investment.

When asked which types of production challenges they are focused on overcoming today, these customers respond:

What are the greatest benefits you have received from the CompactLogix controller?



Note: this is a multiple-choice question – response percentages may not add up to 100.

As market requirements and the available technology have evolved, Rockwell Automation recognized the need and opportunity to develop a new platform with greater performance and integrated functionality. The result of that development is the CompactLogix™ Programmable Automation Controller (PAC), a flexible, scalable, industry-proven control platform.

CompactLogix provides manufacturers and OEMs with a small controller that offers the perfect balance of cost competitiveness and performance. Most notably, it can exchange system-wide information while still providing powerful processor and I/O functionality. Whether you need local or distributed I/O, discrete or a high-speed I/O, sequential or motion capabilities, CompactLogix is the ideal solution.

“We modernized our control platform to CompactLogix for the flexible data structure which, for our customer, makes all the difference. That, combined with FactoryTalk® and a common tag database, has slashed development time and made subsequent changes fast and easy.”

Engineer, Large Enterprise Automotive & Transport Company



The configuration and programming of the CompactLogix PAC is simplified via the Studio 5000 Automation Engineering and Design Environment™. This environment combines engineering and design elements into one standard framework that allows Design Engineers to develop all elements of their control system, enabling their work and information to be used downstream during Operation and Maintenance.

With the CompactLogix controller, users now have the means to cost-effectively integrate a simple machine or application into a plant-wide control system. The CompactLogix PAC provides seamless connectivity to a rapidly growing network technology based on standard Ethernet, and delivered at a price point that positions it as the next generation application controller for medium-sized applications (i.e., applications requiring up to 16 axes of complex motion).

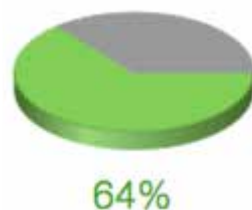
Many customers have taken advantage of the greater functionality and superior performance delivered in the smaller footprint that is CompactLogix, in new machines and applications. Additionally, many SLC customers have chosen to migrate to CompactLogix.

“We migrated to CompactLogix because it provides newer technology with integrated motion control and greater network architecture flexibility.”

Electrical Engineer, Small Business Industrial Manufacturing Company

When customers were asked what motivated them most to migrate from an Allen-Bradley® SLC control platform to the Allen-Bradley CompactLogix PAC, their top four responses were:

- Simplification with a single-design environment
- Enhanced processing speed to boost system performance
- Optimized performance control with embedded servo and robotic control
- Scalability for a right-sized motion application



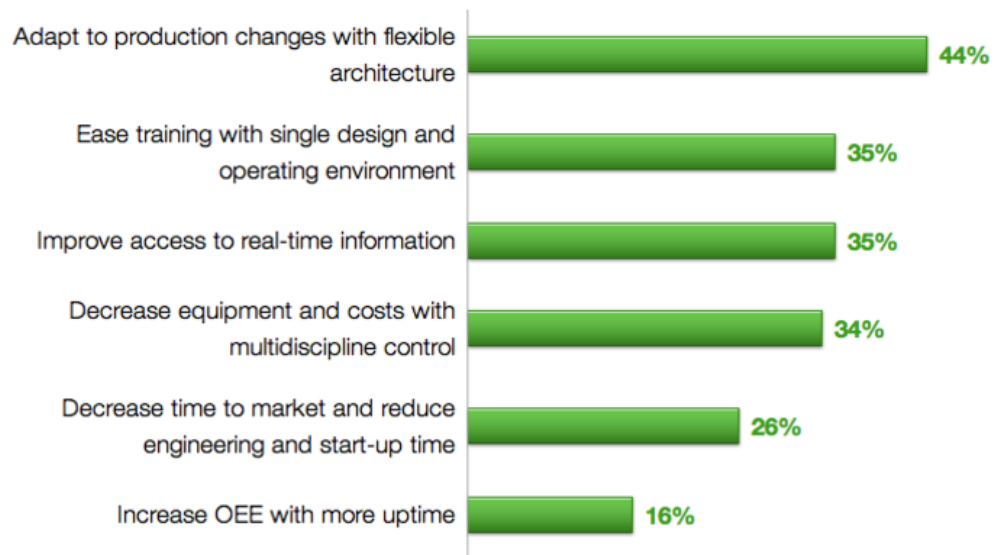
End users value a single design environment

64% of surveyed customers migrated from SLC control to an Allen-Bradley CompactLogix 5370 controller to simplify via a single design environment.

While these drivers were key when justifying the migration, the subsequent benefits at the machine, equipment and application level were easily validated. For these customers, the migration decision was based on business metrics of success rather than any vendor-generated fear, uncertainty or doubt regarding the availability or longevity of a particular product.

For one customer, manufacturing similar products of different sizes on the same equipment required a considerable amount of downtime while the machine was reconfigured for different-sized products. The opportunity cost for this manufacturer included the unproductive downtime for the machine, as well as the expense of additional manufacturing lines to meet production quotas. Add to that the cost of maintenance and spare parts, and the business case for migrating to a more capable PAC quickly became clear. Migration to the CompactLogix PAC achieved a reduction in downtime by up to 49%.

In addition to downtime reduction, the customer now has a more nimble machine that costs less to maintain and is easier for his operators to use. Finally, the CompactLogix PAC provides greater access to relevant real-time information, enabling more informed decision-making.



Note: this is a multiple-choice question – response percentages may not add up to 100.

Another customer was driven to find ways to reduce the standard deviation in their process regarding weight and moisture content to ensure greater product consistency. The business goal was to increase overall quality and capacity utilization, while simultaneously reducing maintenance costs. They summarized their business case to management by showing improved throughput at a lower cost.

Migration to the CompactLogix PAC provided the equipment operator rich trending analysis, allowing for real-time correlation of variability in the production run. The integration of upstream operations via a CompactLogix PAC on an EtherNet/IP infrastructure provided better upstream process control and operator awareness, resulting in the reduction of manufacturing disturbances that directly impacted the quality and performance.

“The communication issues we had with our legacy system are gone with the new system,” the manufacturer reports. Furthermore, the improved quality upstream reduced breakage and loss downstream, resulting in improved uptime, greater capacity and lower maintenance challenges (i.e., greater throughput at a lower cost).

Many customers shared similar drivers for migrating: "Modernizing our control platform to CompactLogix provided better performance at lower cost, resulting in a solution that was much more marketable."

Better performance included the higher speed of the PAC, access to richer data content, allowing for better decision making, more automated process control functionality and the opportunity to focus on their "value add / differentiators," rather than the control system.

41% of surveyed customers migrated from SLC control to an Allen-Bradley CompactLogix 5370 controller to enhance processing speeds and boost system performance.

For the OEM community, migration to CompactLogix helped make them more competitive. As one OEM noted, "CompactLogix reduced our hardware costs and increased our flexibility in programming methodologies, allowing us to focus on what we do best."

Many saw cost savings that were multiplied by the ability to perform discrete control and motion control in the same PAC. "The CompactLogix processors have allowed our engineers to quickly produce programs for our custom equipment. By building Add-On Instructions (code) and migrating that code across multiple machines, we could quickly build new programs for other projects."

"The CompactLogix system is more intuitive for the programmer (design and engineering) as well as the equipment operator (final customer)."

Engineer, Small Business Industrial Manufacturing Company

"We modernized our control platform to CompactLogix to provide better performance, at less cost, which makes our solution much more marketable."

Engineer, Small Business Industrial Manufacturing Company

The savings in time and money were compounded by the reduced time to market. Their post migration assessments include comments regarding reduced engineering and development time, lower cost, higher performance, easier training, faster start-up times, and enhanced troubleshooting.

The ROI of Migration

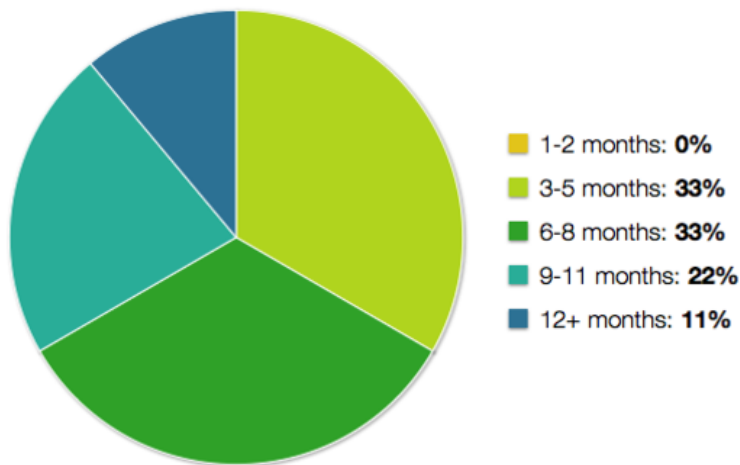
In addition to the operational benefits associated with migration to newer technology, there are significant financial benefits. End users say that in many of their manufacturing plants, they have a mix of technologies installed. As a result, they also have a mix of spare parts in inventory that includes parts for active equipment as well as inactive equipment. A brief review in many of these plants indicates that they actually have an excess of spares for even the active equipment; the net result is a considerable amount of cash tied up in spares.

In one such example, more than \$20K per year was spent in one plant on just the carrying costs associated with excess and inactive equipment spares. This particular customer had 24 plants with similar circumstances. As the CompactLogix PAC consolidates discrete and motion into a single control platform, spare parts for this customer could be slashed considerably. Imagine the potential business impact on your financials associated with finding nearly half a million dollars in free cash.

CompactLogix saves costs with multi-disciplined control

39% of surveyed customers saved \$25,000-50,000 or more in the last 12 months by using a single control platform for standard and motion control.

When customers were asked what the payback period was for their investment in migrating from SLC to CompactLogix, two-thirds responded that the return on their investment was achieved within eight months or less.



Case Study: Giw Industries, Inc

Challenges

Is most focused on overcoming the following production challenges:

- Improving equipment utilization and manufacturing performance (OEE)
- Using leading-edge technologies to gain competitive advantage and/or global presence
- Reducing operation and maintenance costs, as well as downtime
- Simplifying functionality and systems
- Achieving regulatory compliance

Use Case

Migrated from SLC control to an Allen-Bradley CompactLogix 5370 controller to:

- Simplify with a single design environment
- Optimize performance control with embedded server technology and robotic control
- Integrate safety, such as safe stop and speed monitoring
- Improve security with built-in IP capabilities
- Enhance processing speeds to boost system performance

Is confident that they are prepared to address market changes with the CompactLogix system.

Results

Realized ROI in migrating to the Rockwell Automation CompactLogix controller in 12+ months.

Achieved the following benefits with CompactLogix controller:

- Adapted to production changes with flexible architecture
- Decreased equipment and costs with multidiscipline control
- Improved access to real-time information

Reduced downtime by 25 – 49% with CompactLogix.

Saved \$50,000-75,000 in the last 12 months by using a single control platform for standard and motion control.

Is satisfied with their overall experience migrating to CompactLogix.

Testimonials

“Improved efficiency and repeatability in controlling testing operations.”

“Have made it easy to add both local and distributed controls to outlying equipment.”

Case Study: Technic, Inc.

Challenges

Is most focused on overcoming the following production challenges:

- Improving equipment utilization and manufacturing performance (OEE)
- Increasing data availability and security
- Increasing production flexibility and quality
- Using leading-edge technologies to gain competitive advantage and/or global presence
- Reducing operation and maintenance costs, as well as downtime
- Simplifying functionality and systems
- Achieving regulatory compliance

Use Case

Migrated from SLC control to an Allen-Bradley CompactLogix 5370 controller to:

- Scale for a right-sized motion solution
- Simplify with a single design environment
- Optimize performance control with embedded server technology and robotic control
- Integrate safety, such as safe stop and speed monitoring
- Improve security with built-in IP capabilities
- Enhance processing speeds to boost system performance

Is confident that they are prepared to address market changes with the CompactLogix system.

Results

Realized ROI in migrating to the Rockwell Automation CompactLogix controller in 12+ months.

Achieved the following benefits with CompactLogix controller:

- Reduced time to market and reduced engineering and start-up time
- Increased OEE with more uptime
- Decreased equipment and costs with multidiscipline control
- Eased training with single design and operating environment
- Improved access to real-time information

Reduced downtime by 10 – 24% with CompactLogix.

Saved \$50,000-75,000 in the last 12 months by using a single control platform for standard and motion control.

Is very satisfied with their overall experience migrating to CompactLogix.

Testimonials

“Technologic growth path from SLC higher cost and forecasted obsolescence.”

“Easier and shorter development time.”

Migrating to CompactLogix

Taking all this into consideration, we could simply encourage you to develop plans to migrate your applications from SLC to CompactLogix, and leave it at that. But as your automation partner, we offer you much more than that.

When the time comes for you to transition to new technology, we provide a suite of migration tools to help you plan and mitigate the time and cost of migrating from SLC 500 and 1746 I/O to the CompactLogix and ControlLogix® platforms. These include:

- Hardware conversion tools (e.g., swing arm wiring conversions)
- Software conversion tools
- Communication gateways
- Programming and Selection Guides
- System and Selection Tools (e.g., Integrated Architecture Builder)
- Global Engineering Modularity Standards (GEMS) – application libraries for migrating packaged applications

As our products age, we take our commitment to protecting your investment seriously. By communicating lifecycle changes and offering you options to help extend the life of your system as long as possible, we help you to proactively plan and optimize your migration while minimizing risks to current productivity. With Rockwell Automation on your side, you'll have all the help you need to make the transition as seamless as possible. Our commitment to helping you protect your investment and strategically migrate your installed base helps make our products a sound investment today, tomorrow, and well into the future.

We understand that legacy migration can seem like a leap of faith. One of our customers told us, "The key for us was the ability to move to a new platform with as little impact as possible on the day-to-day running of the facility. The success of the migration exposed limitations of the former control approach, based around standards that had not been reviewed for quite some time."

So, if you currently use SLC controls, you might want to consider migrating:

- If you need more from your SLC controlled application
- If your standards are no longer adequate
- If you are being challenged to further reduce cost and improve OEE

Rockwell Automation can help bridge your legacy SLC systems to the multidisciplined control of Rockwell Automation's Integrated Architecture® - an integrated control and information system that improves manufacturing productivity and helps reduce the total cost of ownership by providing unparalleled functionality, flexibility, and scalability. This transition can bring long-lasting value in the form of faster product turnovers, higher line speeds, greater throughput, less operator intervention, Big Data, virtualization and "lights out" manufacturing. The best part of it all is that migrating to an Integrated Architecture-based system via the Allen-Bradley CompactLogix controller is based on evidence that the newer technology has been proven to deliver the benefits you need.

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