

# Achieving CSIA Certification

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## Overview

It can be difficult to assure current and potential clients that you run your business well. Moreover, if you are honest with yourself, you know you could run your business better. It can be difficult as a controls system integrator to find business best practices that apply to your specific operational challenges.

The Control Systems Integrators Association (CSIA; [www.controls.org](http://www.controls.org)) was established to address the specific business practices of controls system integrators. DMC ([www.dmcinfo.com](http://www.dmcinfo.com)) became a certified member of CSIA in April, 2009 to both receive recognition for having good business practices and continue to improve our operations. In this whitepaper, the author discusses member certification and the reasons DMC pursued it; general audit preparations and DMC's specific strategies; and the results of DMC's audit and next steps with CSIA.

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## Introduction to CSIA

CSIA was founded in 1994 with the following mission: “to bring successful system integration to the marketplace by creating recognition and demand for CSIA certified members; improving system integration best practices and performance; and providing an industry forum and networking opportunities” (1). CSIA is “committed to the business development of control system integration companies and their implementation of best practices” (1). CSIA introduced its *Best Practices and Benchmarks* in 1997 (now in its third revision) to provide a “framework for integrators to evaluate and continuously improve their own businesses” (2).

The Certified Member program was introduced in 2001. A certified member list can be found at [http://www.controls.org/about/registered\\_members.htm](http://www.controls.org/about/registered_members.htm). An integrator must meet the CSIA’s definition of an integrator (described below), “offer multi-vendor products for non-exclusive sale”, achieve revenues of \$600,000 for three years (and maintain this revenue), and attend two CSIA Executive Conferences in a three-year period (3). Prospective members must pass a 3<sup>rd</sup> party audit and be re-certified every three years.

The annual CSIA Executive Conference takes place in late April or early May (the next one is April 29-May 1, 2010 in Seattle, WA). Seminar topics in the past have included KPIs, ROI, PM, strategic planning, sales capacity, and the future of plant automation (2). Presentation titles from the conference this year included “Five Secrets for a Successful Banking Relationship,” “Lead Qualification: Follow-up on Sales Leads,” “Net Promoter Score: A Specific Measurement of Customer Loyalty,” “Recession-Busting Market Opportunities,” and “CSIs Partnering with the Automation Distributor.” This conference provides an opportunity to network with peer organizations, learn from their experiences, and compare business practices and processes. DMC’s president has benefited greatly from attending these conferences and has expressed his regret at not attending sooner.



Figure 1: DMC's President, Frank Riordan (on the right), networking at the Executive Conference

## Benefits of certification

CSIA certification assures DMC's clients that we are a "financially healthy company capable of completing projects in a professional and technically sound manner". The client knows that DMC, along with all other certified members, has project management excellence, structured standards, a proven track record, and a culture of service, capability, and ethics. Rather than a more generic certification, CSIA certification is focused on our marketplace. (4)

The CSIA certified member list helps clients looking for system integrators to find DMC. DMC is one of only three certified members in the Chicagoland area. DMC is able to display CSIA branding, pictured below, on our marketing materials, providing credibility to clients that are unfamiliar with our services.



Figure 2: CSIA Certified Member Brand (4)

In addition to providing more business opportunities, CSIA provides resources to improve business procedures. “The Best Practices and Benchmarks process serves as an ongoing ‘checks and balances’ tool that control system integrators can use in a ‘self-deterministic’ fashion” (4). The Best Practices and Benchmarks address many critical business areas including human resources and project, quality, financial, and technical management.

In addition to benchmarking against CSIA standards, networking opportunities, including the annual Executive Conference, allow system integrators to compare their business procedures to those of other integrators. Members can share solutions to management related problems and evaluate their own performance relative to their peers. Networking through CSIA encourages accountability for following best practices and optimizing business performance.

## **DMC and how we fit into CSIA**

CSIA defines a control system integrator as an “independent (or profit-loss division) value-added engineering organization that focuses on industrial control and information systems, manufacturing execution systems, and plant automation”, that has “application knowledge and technical expertise”, and provides an integrated solution to an engineering problem. This solution includes “final project engineering, documentation, procurement of hardware, development of custom software, installation, testing, and commissioning.”(5)

DMC is a consulting firm offering high-caliber engineering and software development services around Chicago and around the world since 1996. Our core areas include manufacturing, test and measurement, custom application development (for a variety of platforms), and SharePoint enterprise development. Our customers include Argonne National Laboratory, Bosch, Fermilab, Solo, Underwriters Laboratory, and Yaskawa.

DMC certainly meets CSIA’s definition of an integrator. DMC has a focus on industrial control and information systems. The engineers at DMC apply a wealth of knowledge and expertise in areas such as vision systems, motion control, software and database architecture, data acquisition, and signal processing. DMC specializes in custom software and has been involved in all phases of a project including planning, design, implementation, deployment, and testing.

Another reason DMC fits into CSIA is that the president is engaged, “wants his company to be the best in class”, and “has the clout to take it there”. These are characteristics of a typical member company, according to CSIA. (6) The president has been improving business practices long before considering CSIA certification. He has implemented many initiatives to automatically track and then improve company metrics. DMC’s top executive shares CSIA’s belief that “being a good system integrator goes hand in hand with operating a good business” (7).

## **Preparing for the Certification Audit**

### **Groundwork**

The first step in becoming a certified member is to become an associate member of CSIA- [www.controls.org/join.htm](http://www.controls.org/join.htm). Besides the many great benefits described above, associate members have access to *A Guide to the CSIA’s Best Practices and Benchmarks, Third Revision* (BP&B). This publication contains

the requirements for certifications and is essential for the auditing process. The newest edition of this guide (3.01, approved January 28, 2009) marks those sections that are being audited at this time (8).

CSIA recommends treating certification as an internal project with a project manager who will delegate assignments to those employees with expertise in specific areas of audit, such as financial management. Assignments should have clear expectations and deadlines. (8) DMC's president noted that distributing the effort is essential to accomplishing certification. Otherwise, the process either becomes one person's full-time job or is never finished.

Setting a deadline was very important to kick-starting certification and keeping it on track. Once the auditing firm was hired and scheduled, it was certification or bust. CSIA notes that the audit requires evidence that procedures are being followed during several months of day-to-day operation (8). Often companies require 9 to 24 months for preparations (9). For DMC, this evidence had already existed and the audit was scheduled for 2½ months after beginning preparations.

CSIA provides both an audit mentor program and audit preparation training program. For more information, contact the CSIA Executive Director, Bob Lowe ([www.controls.org/about/executive\\_board.htm](http://www.controls.org/about/executive_board.htm)).

There are two authorized auditors, Exotek ([www.exotek.com](http://www.exotek.com)) and American Systems Registrar (ASR) ([www.asrworldwide.com](http://www.asrworldwide.com)) (10). DMC hired ASR for no reason other than their availability to perform the audit before the 2009 Executive Conference, which was DMC's self-imposed deadline. ASR and Exotek provide optional pre-audits that can highlight deficiencies and focus audit preparations. DMC did not have an external pre-audit performed. Internal audits are, of course, highly recommended.

## Gathering the Evidence

CSIA provides a Microsoft Excel spreadsheet to manage and track audit preparation progress- [www.controls.org/controlsmembersonly/practices.htm](http://www.controls.org/controlsmembersonly/practices.htm) (members only). It closely matches the audit report created later by the auditor. It includes those sections of BP&B included in the audit and a description of each section. There are fields for the certification project manager to assign a person to each section, set a completion date, mark whether or not the section is complete, and list any additional actions are required. For use on the audit day, there are fields to describe evidence of compliance with each section and the location of supporting documents. (8)

Instead of using this spreadsheet directly, DMC converted it into a Microsoft SharePoint list. Microsoft SharePoint is "an enterprise portal that allows users to share information, collaborate in the execution of business processes, and aggregate information from multiple data sources." SharePoint allows businesses to establish best practices and make standard operating procedures (SOPs) easily accessible and editable through the use of Wikis. It can also support decision making through the use of dashboards and Key Performance Indicator (KPI) views. (11) SOPs and KPIs are items encouraged by CSIA.

A screen shot of the audit preparation SharePoint list is shown below. One advantage to using a SharePoint list is the ability to concurrently edit the list instead of having to check-out the Excel spreadsheet when making

modifications. Each person involved with the audit preparations could asynchronously keep their assignment information current so maintaining this list did not fall to the audit project manager.

DMC Sharepoint > Management > Strategic Initiatives > CSIA Certification Audit Scorecard

CSIA Certification Audit Scorecard

Control Systems Integrators Association audit scorecard.

Criteria N	Section	Description	Assigned to	Status	2009 Audit Score	Main Link	Notes/Comments
1.1.1	GENERAL MANAGEMENT	Is the integrator clear about its purpose, strategic objectives and goals? Does the integrator have a mission, vision statement, and strategic objectives? Does the integrator follow a clear strategic planning process?	Frank Riordan	3 Employee knowledge of the "system" is good and the system is uniformly applied. "Systems" can be considered minimally adequate, but with opportunities for improvement.	3	<a href="#">Strategic Initiatives</a>	
1.1.3	GENERAL MANAGEMENT	Are short-range objectives and goals regularly established and performance monitored with established KPIs?		3 Employee knowledge of the "system" is good and the system is uniformly applied. "Systems" can be considered minimally adequate, but with opportunities for improvement.	3	<a href="#">Goal Setting and Tracking</a>	in addition would also have our KPI info - test
1.1.5	GENERAL MANAGEMENT	Is there a plan for ownership and management transition formulated and understood (i.e., succession planning)?		3 Employee knowledge of the "system" is good and the system is uniformly applied. "Systems" can be considered minimally adequate, but with opportunities for improvement.	2	<a href="#">Succession Planning</a>	have a partner & a management team that is completely aware of all operations; we document all operations as much as possible in our SOPs to facilitate an unplanned for transition
1.2.8	GENERAL MANAGEMENT	Are meetings effective, whereby agendas and objectives are set, timing respected and everyone attending participates and contributes?		3 Employee knowledge of the "system" is good and the system is uniformly applied. "Systems" can be considered minimally adequate, but with opportunities for improvement.	3	<a href="#">Meeting Guidelines</a>	see weekly status meetings, monthly company meetings, etc.
1.4.1	GENERAL MANAGEMENT	Does the integrator have any written policy for its computer systems, such as allowable software, monitoring rights, maintenance procedures, insurance coverage, and security?	Leon Grossman	3 Employee knowledge of the "system" is good and the system is uniformly applied. "Systems" can be considered minimally adequate, but with opportunities for improvement.	3	<a href="#">Computer Systems Management</a>	
1.4.6	GENERAL MANAGEMENT	Does the integrator have a system of adequate backup (every day, off-site storage, assigned person, rotated backup media)?	Deborah Nunaley	3 Employee knowledge of the "system" is good and the system is uniformly applied. "Systems" can be considered minimally adequate, but with opportunities for improvement.	4	<a href="#">Server Back Up Date Procedure</a>	
1.5.3	GENERAL MANAGEMENT	Does the firm carry adequate errors and omissions insurance when required?	Deborah Nunaley	3 Employee knowledge of the "system" is good and the system is uniformly applied. "Systems" can be considered minimally	4	<a href="#">Corporate Liability and Workers Comp Insurance</a>	

Figure 3: DMC SharePoint Audit Preparation List

The criteria number (far-left column) and section columns corresponds to the BP&B and the description was taken from the audit preparation Excel spreadsheet. If a section needed additional preparation before the audit, that section was assigned to an individual. The Status column corresponds to the score that would be given by the auditor and contains a description of what that score means. This column represents DMC's internal audit. The 2009 Audit Score column is the audit score DMC actually received. In most cases, the internal audit value was equal to or less than the actual value; being conservative on an internal audit is generally preferred.

The main link column usually contains a hyperlink to the SOP that documents a process to meet that particular item. The ability to click-through to relevant documentation greatly simplified audit organization and facilitated the audit evaluation. For example, for item number 1.4.6: "Does the integrator have a system of adequate backup (every day, off-site storage, assigned person, rotated backup media)?", the main link points to an SOP Wiki entitled "Server Data Back Up Procedure." A screenshot of this article is included below.

## Server Data Back Up Procedure

This SOP explains the steps we take to protect DMC's our data that is stored on the server.

This backup procedure is designed to protect our data from hardware failure, accidental erasure and catastrophe. Full protection from these perils requires the following:

- Frequent Backups
- Archived Backups
- Off-Site Backups

The Technical Director, Office Manager and Administrative Professional share the major responsibilities of ensuring all backups are successfully made. The Office Manager is responsible for the day-to-day monitoring of the backups and the necessary tape changes while the Administrative Professional provides fill-in support in the Office Manager's absence. The Technical Director is responsible for the overall setup, structure and strategy of the backup system.

Backups can occur on Internal Storage or Removable Media. This SOP will detail these backups separately.

### Internal Storage Backups:






**Figure 4: SOP Wiki article demonstrating a data backup procedure**

DMC has an extensive library of SOPs in the form of a Wiki. The library is centrally located and always accessible on SharePoint. Keeping this documentation electronic prevents employees from using outdated hardcopies and the wikis are easily editable, which simplifies keeping them up-to-date. A process has been defined for approval of SOP updates by the management team. The library is searchable within itself and as a part of a general search of our SharePoint site.

In addition to the SOPs, which document the official processes, the audit preparation SharePoint list includes evidence of the B&BP items in day-to-day operations. Four representative projects were chosen and the use of relevant items in those projects was described in each project's column. Whenever possible, hyperlinks were included to click-through to actual documents that resulted from following DMC's SOPs. For example, for item number 5.01.1: "Is the work done by the integrator contractually authorized?", the main link points to an SOP entitled "Customer PO Processing." In the customer fields, the words *here* in blue text are hyperlinks to actual documents related to this requirement- proposals and purchase orders.

## CSIA Audit Scorecard 2: 5.01.1

Close

 New Item | 
  Edit Item | 
  Delete Item | 
  Manage Permissions | 
  Alert Me

<b>Criteria Number</b>	5.01.1
<b>Section</b>	PROJECT MANAGEMENT
<b>Description</b>	Is the work done by the integrator contractually authorized?
<b>Main Link</b>	<a href="#">Customer PO Processing</a>
<b>Notes/Comments</b>	Every project we get receives a PO and has a proposal.
<b>2009 Audit Score</b>	3
<b>CSIA Audit</b>	Yes
<b>Customer 1</b>	<a href="#">See Proposal Here.</a> <a href="#">P.O.'s here.</a>
<b>Customer 2</b>	<a href="#">Proposal here.</a> <a href="#">P.O.s here.</a>
<b>Customer 3</b>	<a href="#">Documents here.</a>
<b>Customer 4</b>	<a href="#">POs can be found here.</a> <a href="#">The Proposal can be found here.</a>

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Figure 5: Audit Preparation Item showing links to supporting documentation

In the example below, there is some explanation of how the requirement was met on different projects with customers that have different requirements. There are also links to documentation inside and outside of SharePoint.

## CSIA Audit Scorecard 2: 5.03.2

Close

[New Item](#) | [Edit Item](#) | [Delete Item](#) | [Manage Permissions](#) | [Alert Me](#)

<b>Criteria Number</b>	5.03.2
<b>Section</b>	PROJECT MANAGEMENT
<b>Description</b>	Does the integrator review their project plan with project members? Is the project plan presented to the client for approval?
<b>Main Link</b>	<a href="#">Project Kick Off Procedures</a>
<b>Notes/Comments</b>	
<b>2009 Audit Score</b>	3
<b>CSIA Audit</b>	Yes
<b>Customer 1</b>	Internal Kick-Off Meeting.  Several meetings with the customer prior to being the project to lay out the project requirements and plan.
<b>Customer 2</b>	Statement of work. Additionally, SRS and SSD are green documents, reviewed with Client as changes occur, specifically at monthly status meetings.
<b>Customer 3</b>	Internal Kick-Off Meeting. <a href="#">OneNote</a>  Several meetings with the customer prior to the project kickoff to lay out the project requirements and plan.  <a href="#">Goals, Schedule, Milestones were captured, OK'd by customer, reviewed weekly.</a>
<b>Customer 4</b>	Project team works directly with customer developing specs & evaluating project

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Figure 6: Audit Preparation Item explaining specific examples and providing links to documentation

The audit preparation project manager was responsible for reviewing this list and ensuring each employee kept the sections to which they were assigned current. A status update meeting was held every 1-2 weeks to discuss the overall status and progress of preparations and make certain all areas were being covered.

### The Audit and Beyond

The audit takes a whole day. The auditor went through the audit item list and DMC discussed the process evidence and day-to-day evidence with him. Each item in the auditor's report had a corresponding item in the SharePoint list and all evidence was just a click away. The auditor provided feedback on each item as it was discussed and assigned each item a score.

The auditor compiled the scores and additional overall comments into a *CSIA Certification Audit Report*. These overall comments complemented DMC's training of new employees in DMC's operations; recruitment of new employees that has led to high retention; high level of detail; use of computer tools to reduce paperwork and project status confusion; and extensive use of SharePoint to document and retain contracts.

The auditor also compiled an *Opportunity for Improvement Report*. This report included four items. The first was establishment of a timetable for reviewing the succession planning process. The second item was developing a tool to track the number of project hours used versus the project percent complete, in order to identify projects that are in trouble. The third item was a project event log to capture a daily project status. Items two and three are currently being addressed as part of a SharePoint project status dashboard. The fourth item related to customer survey results and a Prato analysis.

Businesses are assigned a level based on the number of personnel and amount of business, with each level having a benchmark score. DMC is a level 2 business. DMC received an overall score of 245 and that exceeded the benchmark score for our business level of 238. We met or exceeded benchmark scores in 6 of the 8 sections of the B&BP.

### **Next Steps and Next Time**

As mentioned above, some specific opportunities for improvement identified by the auditor are currently being addressed. DMC visits the benchmark list and performs an internal audit on a quarterly basis. This internal audit is meant to increase the scores of items that are included in the audit and verify that other items in the B&BP are handled appropriately. A CSIA team has also been formed to review compliance with the B&BP on a more regular basis and report their finding to the entire company.

DMC is up for re-certification in 2012 and strives to improve our audit scores across the board. For the audit in 2012, DMC will follow a process very similar to the one described here. The project and resource management surrounding DMC's audit preparations was very efficient and the day of the audit ran very smoothly. DMC will be enhancing and improving its use of SharePoint and even more evidence of process compliance and day-to-day application will be contained there.

DMC's president does regret waiting so long to pursue these initiatives. He wishes he would have become involved with CSIA sooner in terms of attending the executive conferences and becoming certified.

### **Conclusion**

Most companies claim to be world class organizations and believe they are doing things well. CSIA defines the way a control system integrator should operate in order to be world class. This is defined through the *Best Practices and Benchmarks*, and expounded through the seminars and key-note addresses at the Executive Conference.

The auditing process provides a third party evaluation of whether one's company is running as a world class organization should. DMC takes great pride in having its operations validated and DMC has a clear path towards

further improving its operations. DMC has not pursued CSIA membership as the end-goal but rather as the means to becoming a great business. In addition to validation, DMC also appreciates the credibility CSIA membership will provide in the marketplace. Now, those considering DMC's services will be assured of the quality of those services and DMC's commitment to best practices.

If you are considering certification, do not hesitate in becoming a member of CSIA. You and your business will benefit greatly from the knowledge and experience found within this association. DMC hopes you will benefit from our experience in the auditing process and looks forward to meeting you. We would be happy to share more about our work with CSIA generally or the certified membership process specifically.

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