FROST & SULLIVAN

ABB

2017 Global Distributed Control Systems Company of the Year Award

Contents

Background and Company Performance

Industry Challenges

In 2016, the automation market was beset by several challenges, such as the plunge in oil prices, the economic slowdown in China, policy uncertainty caused by the new government in the United States, and political unrest in the Middle East. With the global investment climate improving following a rise in oil and commodity prices, there is new interest in automation projects that will boost production capacity and improve productivity. End-users are now looking for opportunities to evaluate their automation systems in light of recent advances in engineering methods, automation, and the connectivity provided by commercial information technology and the Industrial Internet of Things (IIoT), rather than simply returning to the methodologies of the past such as upgrading to the latest version of a control system provided by the current automation vendor.

The process industries' production assets have never been larger or more complicated, and with increased scale and complexity, there is a growing inability to predictably deliver capital projects on schedule and within budget. In this scenario, the primary concern of the end-users lies in deploying their resources in a cost-effective way and attaining high capital efficiency. This cannot be achieved by just squeezing prices. It requires new methods of executing projects and new ways of looking at things. The attempt to reduce project costs adds pressure to automation costs, which is a prime challenge to the growth of Distributed Control System (DCS) vendors. DCS vendors that address this challenge through the use of innovative technologies in the field of cloud engineering, digital marshaling, virtualization, and automated data management are expected to gain a competitive advantage.

Visionary Innovation & Performance and Customer Impact

Connecting 70 million smart devices through 70,000 control systems, ASEA Brown Boveri (ABB) has one of the largest installed bases of process automation systems when compared to other automation vendors. ABB has been on the leading edge of efforts to streamline the design and delivery of digital automation systems and minimize the associated project risk since its establishment in 1988. As end-user projects get bigger and more complex, the financial risk posed by the inability of end-users to execute projects as planned has intensified over the past several years. This is especially true in the oil and gas segment and power segment, which are more capital intensive compared to other industrial sectors.

ABB aligns with market Mega Trends and develops industry-specific DCS solutions to address the demands of different end-user market segments. ABB's product solution targets Mega Trends such as Urbanization and Innovation to Zero across the end-user industries, enabling them to create new opportunities and values for their customers. This has helped ABB to stay ahead of competition and retain a leadership position in the DCS market. With market growth drivers such as increasing demand to implement advanced control strategies, the need for software-based services, value-added services (including upgrading cyber security, consulting, and training), and optimizing lifecycle costs are

expected to be intact in the short term. ABB is well positioned to retain its leadership position in the future as it is primed to deliver value to its clients in this market.

Addressing Unmet Needs

The increasing scale and complexity of automation projects has made it almost impossible to deliver capital projects on schedule and within budget. A key contributor to the growing risk of missing DCS project deadlines include late design changes, which tend to cascade throughout a project. A significant unmet need in the market is decreasing the dependency of the automation design on the process design. ABB took a significant step forward in streamlining the execution of its customers' automation projects with the release of its Select I/O, an Ethernet-based single channel I/O solution for the ABB Ability™ System 800xA. This can be configured in the field to address the growing demand for full redundancy down to the signal conditioning module. Because the base hardware for every type of signal is the same, Select I/O effectively allows each I/O channel to remain flexible and "undeclared" until very late in the project, often up until just before commissioning. This effectively decouples I/O hardware engineering from software design, which lowers development costs and shortens the delivery schedule. The Select I/O, when coupled with the process know-how of ABB, improves the efficiency of DCS project execution and provides ABB a distinctive advantage in the DCS market with respect to competition.

Visionary Scenarios through Mega Trends

The concept of a connected industry is increasingly becoming a reality as industries, such as oil and gas, chemicals, power, pharmaceuticals, steel, water, mining, food, and beverage, move towards a digital operating environment to improve connectivity, productivity, and cost-effectiveness. The recent launch of the ABB Ability platform in 2017 will provide ABB with a competitive edge over its competitors because it provides unified, cross-industry digital capability—extending from device to edge to cloud—with devices, systems, solutions, and services. While similar competitor offerings allow end-users to sense, analyze, and take actions to drive efficiency, ABB has added self-learning capabilities to its solution that allow it to harvest data, take control, and enable users to do more. This distinguishes ABB from the rest of the competition in the market.

Implementation of Best Practices

Through its Next Level Strategy, which aims at profitable growth, relentless execution, and business-led collaboration, ABB has adapted to rapidly changing market dynamics to serve its clients with a combined power and automation portfolio. In October 2016, it launched its Stage 3 of the Next Level Strategy, which helps ABB rebuild its successful

transformation momentum and strengthen its position as a pioneering technology leader and global digital champion. ABB places a high focus on increasing its customer value proposition with the help of software-led differentiation, solutions-as-a-service, and technology leadership.

ABB's dedicated service organization focuses on maintaining and continuously improving the performance of customer's equipment and processes through a suite of services. Especially ABB's advanced digital services are in continuous evolution, also in combination with new business models, to address opportunities through digitalization and unmet needs of customers. A key differentiator for ABB is its lifecycle policy. This policy aims at maximizing the useable life of a customer's investment. This means that ABB is committed to maintaining full lifecycle integrity for its products and systems and supports any products for at least 10 years once removed from active sale and an equivalent replacement is available.

In order to take complete advantage of digital transformation, a broader ecosystem of applications is required. For instance, start-ups foster innovation and help automation vendors scale up their digital offerings faster than they would with organic developments. As a leading automation vendor, ABB embraced this trend earlier than many other vendors in the automation space. ABB formed a strategic venture capital unit called the ABB Technology Ventures (ATV) in 2009. ATV focuses on many segments and automation is one core focus area for the organization. The primary objective is to seek out potential automation technology partners who are aligned seamlessly with ABB's vision of industrial digitalization. Since its inception, ATV has invested about $150 million in technology companies that have a high potential in diverse sectors, including IIoT and cybersecurity. These start-ups function as an extension of ABB and offer innovative services and analytics capabilities to complement its existing digital portfolio. In October 2016, ABB entered into a strategic partnership with Microsoft to develop next-generation digital solutions on an integrated cloud platform that will enable digital transformation for its customers in businesses such as robotics, marine, and eMobility.

Financial Performance

ABB's penetration and expansion in emerging markets has helped it dominate the DCS market with a 20.5% market share in 2016 and continue its market dominance, while its two closest competitors hold market shares in the range of 15.2% and 14.5%. ABB has unswervingly lead the DCS market across power end-user segment. It's expertise in developing innovative solutions that match the needs of energy and energy-intensive industries like oil and gas, utilities, and mining operations has reinforced its significant global market share. ABB has the best and widest DCS portfolio across the process automation market. The organization offers the customer-specific control platforms ABB Ability System 800xA, ABB Ability Symphony Plus, Freelance and a Compact Product Suite. ABB's continued quench to stay ahead of the market is very clear here, as its competitors are progressively introducing compact and low-cost products in the years to come from now. While many competitors have had flat growth in recent years, ABB continues to steam ahead and build on its existing installed base.

For instance, in the oil and gas end-user industry where safety is a primary concern, ABB astutely developed the System 800xA HI (High Integrity) solution. This integrates two previously independent automation platforms—safety and process control—into a single system. Also, with rising concerns over minimizing the carbon footprint, ABB has given its clients a greater visibility of energy use with the help of more integrated and automated systems.

Having invested $10 billion in R&D, organic growth, and acquisitions in the United States over the past seven years, ABB is growing in the North American region—a region that contributes 23.5% of revenues to the overall DCS market. Its recent acquisition of Bernecker + Rainer is in line with its growth strategy to improve its number two position in the industrial automation space. The acquisition closes the gap in the machine and factory automation portfolio of ABB and is expected to enhance market coverage, offering a broader solution scope for customers and provide an end-to-end digital offering with the help of this combined innovation power.

Customer Ownership Experience

With the commercial launch of ABB Ability in 2017 and the availability of more than 180 ABB Ability solutions customized for individual end markets, ABB continues to set the benchmark for digitization, enabling its customers to accelerate towards achieving operational excellence. ABB Ability Collaborative Operations, for example, connects customers instantaneously to a subject matter expert from ABB for timely help and

assistance 24/7. Problems are solved before they become failures by utilizing data insights and advanced analytics and through remote collaboration that enables real-time customer interaction.

With two DCS product lines - ABB Ability System 800xA and ABB Ability Symphony® Plus - ABB addresses the specific needs of various industries. Both DCS solutions are industry-leading and proven over decades evident by their installed base. Symphony Plus is tailored to the power generation and water industries whereas System 800xA is targeted towards all other industries. Both solutions support customers by driving gains in performance, productivity, efficiency, and safety throughout the end-user business operations lifecycle, from the planning stage to the maintenance stage. With the help of domain expertise and process knowledge, ABB has developed an overarching digital architecture that augments the human expertise of the clients to deliver improved performance. ABB also has a footprint across a broad range of industry verticals, more than any other participant in the industrial space. ABB's years of domain expertise, combined with its huge installed base, distinguishes it from other automation vendors in the Global DCS market. Further, it enables ABB to design its solutions based on the context of each end-user requirement.

Customer Service Experience

In line with its growth strategy, ABB extends its expertise and resources into key target markets such as power generation, oil and gas, and metals and mining, where process automation systems have significant growth opportunities in both greenfield and brownfield projects. The ABB Value Provider Program (VPP), a one-of-its-kind program in the market, is aimed at developing ABB's third-party channels including distributors, technical distributors, system integrators, panel builders, and service providers. With the help of this program, ABB locates a third-party provider in close proximity to its end-users in order to reduce the response time to its clients' sales, support, service, and engineering needs. The value provider's in-depth knowledge about local markets coupled with an expertise in ABB's products enables it to function as an extension of ABB, resulting in extensive coverage in targeted regional segments.

ABB has leveraged its decades of experience in the DCS market to develop the capability of a Main Automation Contractor (MAC). This means that ABB can offer a wider scope than conventional vendors by working proactively with clients to deliver a complete automation solution, from automation/instrumentation selection to commissioning and after-sales support. This helps end-users reduce the project schedule, engineering required, and change requests. Also, with the introduction of Ability, ABB is well qualified to deliver turnkey Main Automation, Electrical and Information Contractor (MAEIC) solutions. Only one other company, apart from ABB can deliver a similar solution. This is another critical differentiating factor for ABB.

Technologies and Platform Convergence Shift Focus From MAC → MIC

Understanding, owning and managing process data is key to unlocking outcomes from predictive analytics
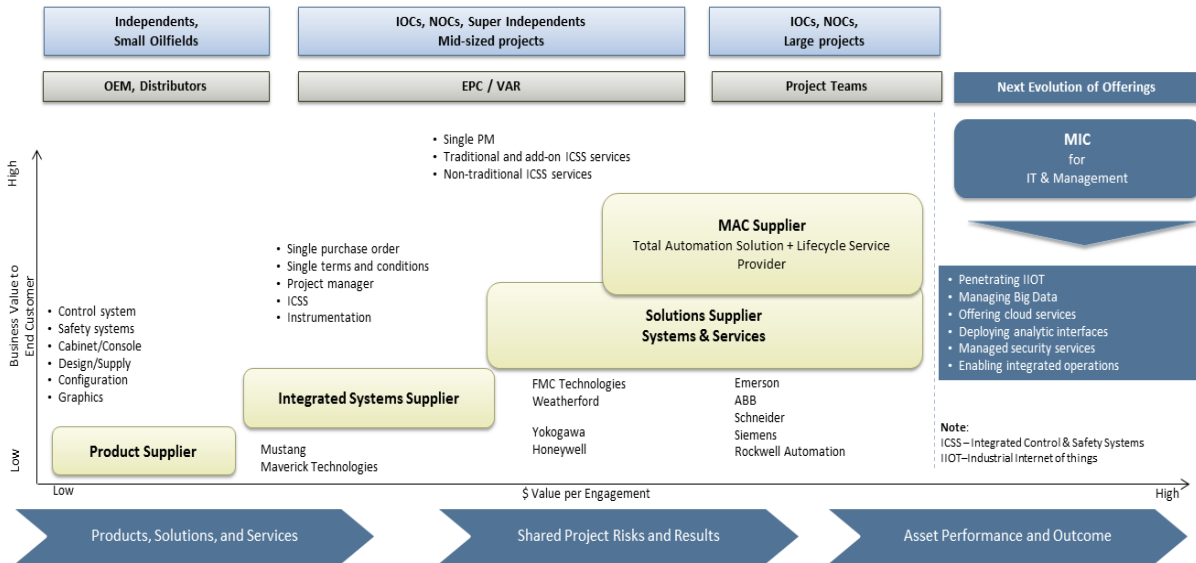
Source: Frost & Sullivan

Conclusion

ABB equips industrial customers with the digital technology and cloud platform to empower every person, team, and business system within an organization to glean new insights and drive smarter, faster and simpler decision-making—thereby helping every customer seize new growth opportunities. By offering ultimate flexibility in the field, ABB sets a new standard in the execution of automation projects. ABB will continue to stay ahead of developments in the DCS market because it takes inspiration directly from evolving customer needs and industry standards. Continuing its decades of innovation history, ABB is a pioneering leader in DCS market and leads the digitalization of the energy industry.

With its strong overall performance, ABB is recognized with Frost & Sullivan's 2017 Company of the Year Award.

(Photographs provided courtesy of ABB)

Significance of Company of the Year

To win the Company of the Year Award (i.e., to be recognized as a leader not only in your industry, but among your non-industry peers as well) requires a company to demonstrate excellence in growth, innovation, and leadership. This kind of excellence typically translates into superior performance in three key areas: demand generation, brand development, and competitive positioning. These areas serve as the foundation of a company's future success and prepare it to deliver on the two criteria that define the Company of the Year Award (Visionary Innovation & Performance and Customer Impact).

- Acquire competitors' customers
- Increase renewal rates
- Increase upsell rates
- Build a reputation for value
- Increase market penetration

- Earn customer loyalty
- Foster strong corporate identity
- Improve brand recall
- Inspire customers
- Build a reputation for creativity

DEMAND **BRAND**

Company of the Year

COMPETITIVE POSITIONING

- Stake out a unique market position
- Promise superior value to customers
- Implement strategy successfully
- Deliver on the promised value proposition
- Balance price and value

Understanding Company of the Year

As discussed above, driving demand, brand strength, and competitive differentiation all play a critical role in delivering unique value to customers. This three-fold focus, however, must ideally be complemented by an equally rigorous focus on Visionary Innovation & Performance to enhance Customer Impact.

Key Benchmarking Criteria

For the Company of the Year Award, Frost & Sullivan analysts independently evaluated two key factors—Visionary Innovation & Performance and Customer Impact—according to the criteria identified below.

Visionary Innovation & Performance

Criterion 1: Addressing Unmet Needs
Requirement: Implementing a robust process to continuously unearth customers' unmet or under-served needs, and creating the products or solutions to address them effectively

Criterion 2: Visionary Scenarios through Mega Trends
Requirement: Incorporating long-range, macro-level scenarios into the innovation strategy, thereby enabling "first-to-market" growth opportunity solutions

Criterion 3: Implementation of Best Practices
Requirement: Best-in-class strategy implementation characterized by processes, tools, or activities that generate a consistent and repeatable level of success.

Criterion 4: Blue Ocean Strategy
Requirement: Strategic focus on creating a leadership position in a potentially "uncontested" market space, manifested by stiff barriers to entry for competitors

Criterion 5: Financial Performance
Requirement: Strong overall business performance in terms of revenues, revenue growth, operating margin, and other key financial metrics

Customer Impact

Criterion 1: Price/Performance Value
Requirement: Products or services offer the best value for the price, compared to similar offerings in the market.

Criterion 2: Customer Purchase Experience
Requirement: Customers feel they are buying the most optimal solution that addresses both their unique needs and their unique constraints.

Criterion 3: Customer Ownership Experience
Requirement: Customers are proud to own the company's product or service and have a positive experience throughout the life of the product or service.

Criterion 4: Customer Service Experience
Requirement: Customer service is accessible, fast, stress-free, and of high quality.

Criterion 5: Brand Equity
Requirement: Customers have a positive view of the brand and exhibit high brand loyalty.

Best Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices

Frost & Sullivan analysts follow a 10-step process to evaluate Award candidates and assess their fit with select best practice criteria. The reputation and integrity of the Awards are based on close adherence to this process.

STEP		OBJECTIVE	KEY ACTIVITIES	OUTPUT
1	**Monitor, target, and screen**	Identify Award recipient candidates from around the globe	• Conduct in-depth industry research • Identify emerging sectors • Scan multiple geographies	Pipeline of candidates who potentially meet all best-practice criteria
2	**Perform 360-degree research**	Perform comprehensive, 360-degree research on all candidates in the pipeline	• Interview thought leaders and industry practitioners • Assess candidates' fit with best-practice criteria • Rank all candidates	Matrix positioning of all candidates' performance relative to one another
3	**Invite thought leadership in best practices**	Perform in-depth examination of all candidates	• Confirm best-practice criteria • Examine eligibility of all candidates • Identify any information gaps	Detailed profiles of all ranked candidates
4	**Initiate research director review**	Conduct an unbiased evaluation of all candidate profiles	• Brainstorm ranking options • Invite multiple perspectives on candidates' performance • Update candidate profiles	Final prioritization of all eligible candidates and companion best-practice positioning paper
5	**Assemble panel of industry experts**	Present findings to an expert panel of industry thought leaders	• Share findings • Strengthen cases for candidate eligibility • Prioritize candidates	Refined list of prioritized Award candidates
6	**Conduct global industry review**	Build consensus on Award candidates' eligibility	• Hold global team meeting to review all candidates • Pressure-test fit with criteria • Confirm inclusion of all eligible candidates	Final list of eligible Award candidates, representing success stories worldwide
7	**Perform quality check**	Develop official Award consideration materials	• Perform final performance benchmarking activities • Write nominations • Perform quality review	High-quality, accurate, and creative presentation of nominees' successes
8	**Reconnect with panel of industry experts**	Finalize the selection of the best-practice Award recipient	• Review analysis with panel • Build consensus • Select winner	Decision on which company performs best against all best-practice criteria
9	**Communicate recognition**	Inform Award recipient of Award recognition	• Present Award to the CEO • Inspire the organization for continued success • Celebrate the recipient's performance	Announcement of Award and plan for how recipient can use the Award to enhance the brand
10	**Take strategic action**	Upon licensing, company able to share Award news with stakeholders and customers	• Coordinate media outreach • Design a marketing plan • Assess Award's role in future strategic planning	Widespread awareness of recipient's Award status among investors, media personnel, and employees

The Intersection between 360-Degree Research and Best Practices Awards

Research Methodology

Frost & Sullivan's 360-degree research methodology represents the analytical rigor of our research process. It offers a 360-degree view of industry challenges, trends, and issues by integrating all 7 of Frost & Sullivan's research methodologies. Too often companies make important growth decisions based on a narrow understanding of their environment, leading to errors of both omission and commission. Successful growth strategies are founded on a thorough understanding of market, technical, economic, financial, customer, best practices, and demographic analyses. The integration of these research disciplines into the 360-degree research methodology provides an evaluation platform for benchmarking industry participants and for identifying those performing at best-in-class levels.

360-DEGREE RESEARCH: SEEING ORDER IN THE CHAOS

About Frost & Sullivan

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