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RESEARCH REPORT

Navigant Research Leaderboard Report: Building Energy Management Systems

Assessment of Strategy and Execution for 14 Building Energy Management System Vendors

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Section 1
EXECUTIVE SUMMARY

1.1 Market Introduction

The role of buildings in driving long-term strategies around operating cost reduction and reducing carbon emissions has grown in past years due to major advances in energy management technology. In particular, the rise of building energy management systems (BEMSs) has enabled new levels of insight into and analysis of energy and operational data that was not possible just 5 years ago.

With the surge in demand for energy management technology, hundreds of companies have entered the BEMS market. These range from industry stalwarts, such as Schneider Electric and Johnson Controls, to specialized control vendors and pure-play software startups. Today, Navigant Research tracks over 400 companies globally that are active in the BEMS market to one extent or another. This intensely competitive environment has led players to invest significantly in both technology and marketing efforts.

Navigant Research defines a BEMS as:

> *"IT-based monitoring and control systems that tie into existing energy-related data streams of a building's infrastructure, such as its heating, ventilation, and air conditioning (HVAC) and lighting systems, and provide visualization and analysis of that data to enable better energy-related decision-making."*

The global BEMS market represents a $2.4 billion market in 2014. The core of this market is software, which represents 52% of revenue, followed by services (40%) and hardware (8%). Although software will continue to form the foundation of the BEMS market, players in the market will ultimately succeed based on not only their software offerings but also the value-added services and products that allow users to make the best use of the buildings under management. By 2020, the BEMS market will reach $5.6 billion, growing at a compound annual growth rate (CAGR) of 15.3% from 2012 to 2020.

1.2 Criteria Overview

This *Navigant Research Leaderboard Report* offers an evaluation of leading players in the BEMS market that have demonstrated a track record of installations with major clients in multiple markets and regions. With over 400 players active in the BEMS market, mere inclusion in this study represents a significant achievement in terms of market penetration to date. Companies included in this *Leaderboard* meet the following qualifications:

- A broad set of enterprise-level BEMS software applications
- Global market aspirations

» Cloud-based platforms

» Staying power in the face of rapid market disruption

Although the 14 players included in this study do not represent all players that meet these criteria, those selected exhibit the breadth, depth, and longevity to merit inclusion in this report. BEMS vendors that do not meet all of the above qualifications have been excluded.

The criteria by which BEMS vendors are compared in this *Navigant Research Leaderboard Report* include:

» Strategy Criteria:
  › Vision
  › Go-to-Market Strategy
  › Partnership Strategy
  › Technology & Solution Portfolio
  › Geographic Coverage

» Execution Criteria:
  › User Interface
  › Breadth/Depth of Applications
  › Technology Openness & Interoperability
  › Customer Acquisition & Partnerships
  › Scalability & Staying Power

Detailed descriptions of each criterion are provided in the "Criteria Definitions" section of this report (Section 9.2.3). Although cost is a criteria reflected across multiple categories, it has not been considered as a standalone factor due to the complex nature of the relationship between price and value in the BEMS market, as well as the diversity of pricing schemes offered by single vendors.

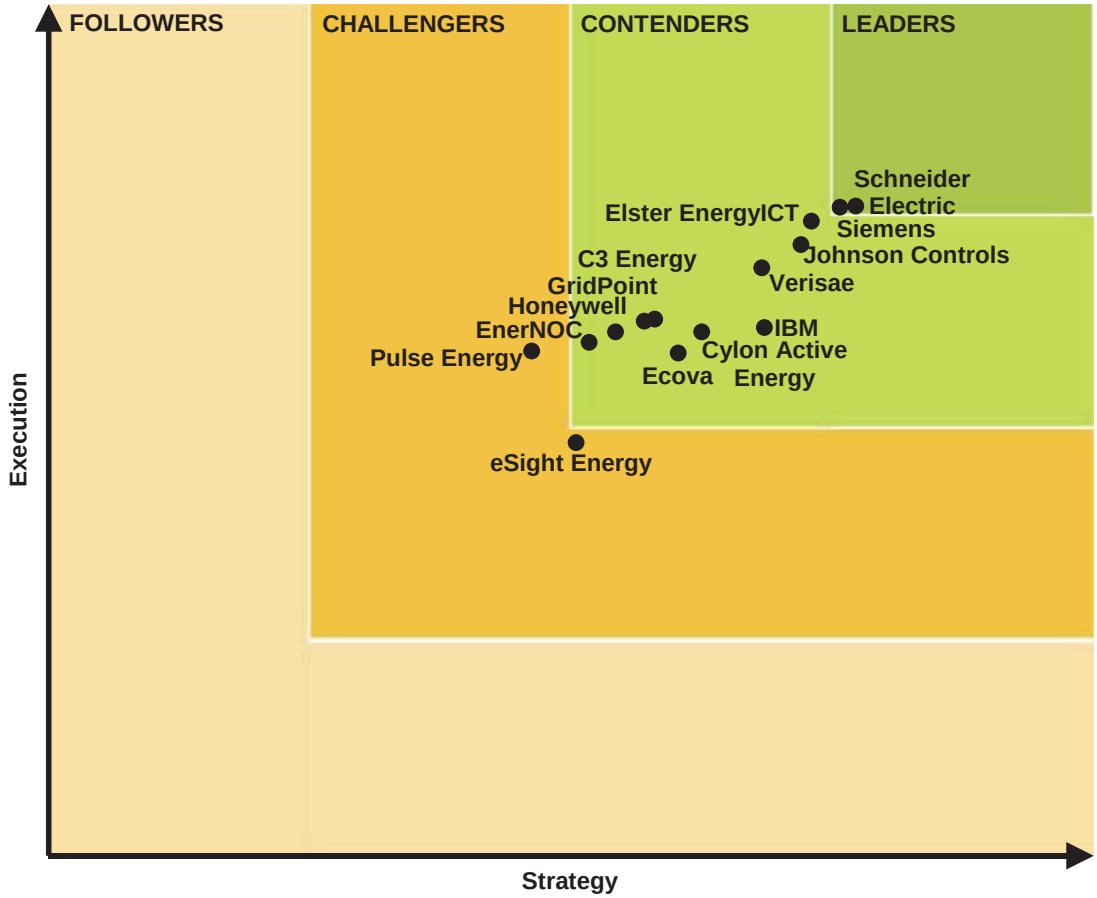
1.3 The Navigant Research Leaderboard Grid

The promise of data-driven energy management solutions has attracted a wide range of new and traditional players to the global market, each of which leverages a combination of tested technologies and innovative analytics capabilities to gain a foothold in this intensely competitive market. Unlike more mature markets, there is no ideal BEMS. Each vendor is playing to its strengths and the evolving needs of the buildings industry in the development of its BEMS.

Unsurprisingly, several buildings controls and equipment original equipment manufacturers (OEMs), such as Schneider Electric, Johnson Controls, and Siemens, that are seeing their traditional product and service businesses disrupted through the advent of BEMS offerings,

have invested significantly in this area through R&D as well as acquisitions. Several of the leaders in this market, however, have a track record of just a few years, a testament to the disruptive effect that BEMSs have had on the provision of building services to date.

Chart 1.1 The Navigant Research Leaderboard Grid



(Source: Navigant Research)

In the long term, success in the BEMS market will be based on both strategy and execution. The players considered in this *Leaderboard Report* have demonstrated an ability to compete effectively in this market to date. Continued investment in this market will be required in order to maintain differentiation and to remain in the sweet spot as it matures; some players profiled in this *Leaderboard* are better poised for this transition than others are.

In this evaluation, Schneider Electric and Siemens lead the market, with scores of 76.8 and 75.3 out of 100, respectively. They are followed by Elster EnergyICT (73.8), Johnson Controls (71.9), and Verisae (68.6). These companies have all developed comprehensive platforms, yet they excel in somewhat different areas.

Section 2
MARKET OVERVIEW

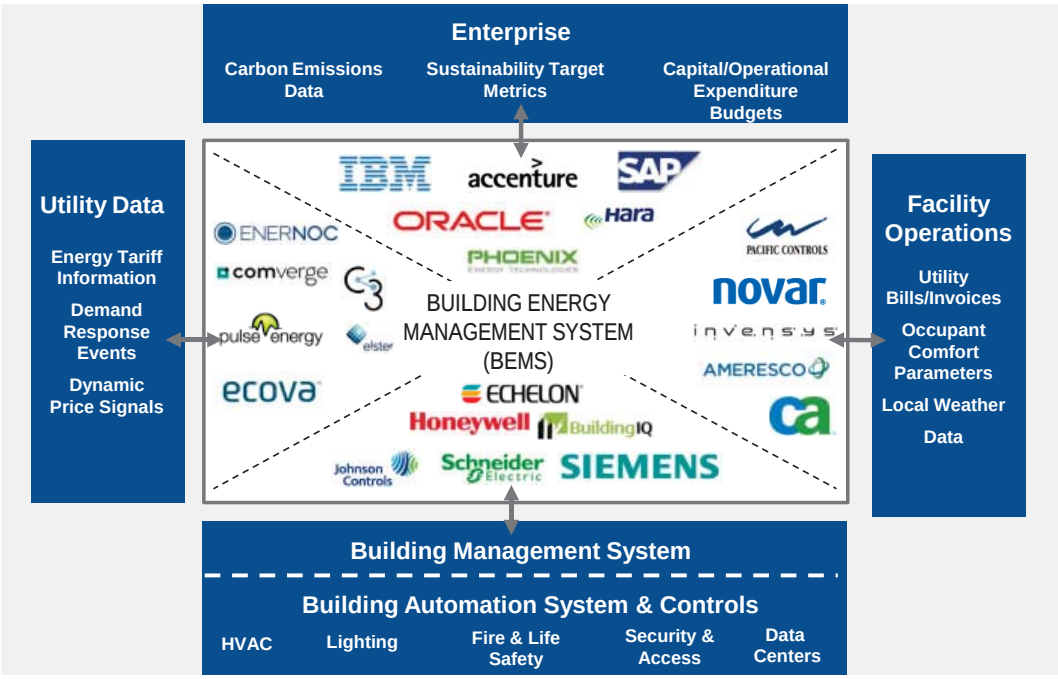
2.1 Market Definition

Navigant Research defines a building energy management system (BEMS) as:

> *"IT-based monitoring and control systems that tie into existing energy-related data streams of a building's infrastructure, such as its heating, ventilation, and air conditioning (HVAC) and lighting systems, and provide visualization and analysis of that data to enable better energy-related decision-making."*

The diversity of this market is evident in the different data sources upon which each player bases its platform. The foundation of most advanced BEMSs is the building management system (BMS), an area in which companies like Johnson Controls, Schneider Electric, and Siemens have historically focused. However, other vendors are entering the space with supervisory enterprise-level solutions that either tie into other enterprise IT systems (such as those provided by IBM and SAP) or serve on a standalone basis. On the utility side of the market, a number of BEMS vendors provide a range of utility-related services such as demand response (DR), energy procurement, and customer engagement. On the facility operations side, companies such as Invensys and Pacific Controls are layering energy-related applications onto their operations management platforms.

Figure 2.1 BEMS Vendors by Focus Area



(Source: Navigant Research)

In this report, most of the players base their platforms on data from the BMS, supported by additional data on the utility, enterprise, or facility operations sides. However, some companies have managed to provide a market-leading offering without relying too heavily on data from the building infrastructure.

2.2 Market Drivers

The market for BEMSs has grown due to advances in technology, regulation, and marketing. Many of the offerings in this market would not have been viable even 5 years ago due to unfavorable market conditions and the early stage of many of the technology offerings. In general, trends within the buildings industry support further growth and adoption of BEMSs globally.

2.2.1 The Growth of Smart Building Infrastructure

Many BEMSs depend on building automation systems (BASs), which consist largely of direct digital controls (DDCs) and other data-generating devices in buildings (e.g., smart meters and submeters), as the basis for their energy management solutions. The market for digital BASs is strong in North America, Western Europe, and the developed parts of Asia Pacific and the Middle East. As building codes become more stringent, more sophisticated controls will be installed in buildings, expanding the number of buildings that have a critical mass of digital infrastructure to support comprehensive BEMSs – also known as smart technology-ready buildings.

Navigant Research estimates that smart technology-ready buildings represent about 20% to 30% of the building stock in developed areas such as North America, Western Europe, Japan, Australia, and other developed cities and regions. As control systems turnover allows digital controls to proliferate, this addressable market will continue to grow.

2.2.2 Corporate Sustainability and Energy Management Initiatives

Since 2008, sustainability, energy efficiency, and carbon reduction have become increasingly high priorities for many companies – particularly large, consumer-facing companies. In some cases, interest in these issues has been driven by regulatory pressure. For example, the Carbon Reduction Commitment (CRC) Energy Efficiency Scheme in the United Kingdom requires many of the largest energy users in the country to document and reduce their carbon emissions. As such, the ability of energy management systems to help companies reduce energy spend has become particularly compelling in the last few years. Recessions continue to plague many regions of the world and revenues are down, thus driving interest in reducing costs and improving profitability through energy efficiency.

The growth in interest in energy efficiency products and services has coincided with the growth of digital control systems in buildings and the entrance of new energy management providers. Moreover, many BEMSs are designed to collect and normalize energy data from any data source, be it office spaces, distribution centers, manufacturing sites, retail outlets, or other types of spaces. In the past, corporations had little ability to readily visualize and control

energy costs across diverse facility types. The BEMS represents one of the first and most compelling tools available to help corporations manage energy spend across the entire enterprise.

2.2.3 Energy Efficiency Regulatory Support

Most large economies are making significant strides in the area of energy efficiency regulation that support energy efficient technology markets across the board. These regulations take a range of forms, from sticks – such as national energy policy, building codes, and utility efficiency standards – to carrots – such as incentives, rebate programs, and other schemes.

Examples of supportive energy efficiency legislation include:

» Regional/national/local energy policy

» Building energy codes and energy management standards

» Utility energy efficiency programs

» Incentive programs

2.2.4 Cloud-Based Data Management

The rapid development of cloud-based data management systems designed to host and facilitate access to data from any Internet-connected device has boosted the functionality of smart building technology. BEMS vendors and service providers can now manage large volumes of data created by digital building systems. These systems, which have only been in place for 5 to 10 years at most, have allowed BEMSs to move from single-site applications maintained on a single server to scalable platforms that can rapidly collect and report data remotely.

Cloud-based, or software as a service (SaaS), platforms can also be updated more readily than energy management systems of the past, enabling building owners to access the most up-to-date software versions and easily add additional features. Although traditional software offerings (i.e., on premise, non-cloud-based) can still be found, the market is moving overwhelmingly to SaaS models, given the ease of updating versions and scaling offerings compared with traditional software.

Vendors of cloud-based BEMSs are starting to offer building owners and managers software solutions that can be obtained on a subscription basis rather than via an annual license. This flexibility is attractive to many firms, which may be more likely to opt for a platform that can be purchased on an incremental basis rather than one requiring a major investment.

2.3 Market Barriers

Despite overwhelming interest in BEMSs and the sophistication and scale of available offerings, a number of technical and marketing barriers that have slowed BEMS adoption remain. Continued innovation in the buildings industry will address some of the technical and market

barriers, though significant work remains to raise widespread awareness of the benefits of BEMSs, as well as other systemic barriers that have inhibited investment in BEMSs to date.

2.3.1 Lack of Buildings Primed for Smart Building Technology

As mentioned above, Navigant Research estimates that only about 20% to 30% of the building stock in developed markets has the critical mass of digital control infrastructure necessary to support advanced BEMS technology. This means, in turn, that the majority of buildings worldwide are not suitable for BEMSs that focus on BAS interconnections. The lack of digital control infrastructure is particularly pervasive in smaller buildings (<100,000 SF), which represent over 60%of the global building stock.

2.3.2 Split Incentives

In many commercial facilities, the responsibilities for maintaining energy-related infrastructure and paying bills are split among building owners and tenants. Building owners take responsibility for building and maintaining HVAC, lighting, and control systems, but the energy bills in many leases are passed to the tenants. This process results in a split incentive with regard to energy efficiency costs and benefits, and BEMS vendors looking to sell into buildings with leased space frequently come up against the issue. Although solutions to this problem exist, such as green leases, it remains a perennial issue in the buildings industry.

2.3.3 Lack of Familiarity with BEMSs and Perceptions of High Cost

Many customers are still unaware of the existence and capabilities of BEMSs. Even those who may be aware of BEMS technology and who have energy management processes in place may be skeptical of the ability of a BEMS to create additional energy savings opportunities. These types of mindsets often stem from a preconception that BEMS technology is prohibitively expensive – even among customers that have not been briefed on the costs of a particular system.

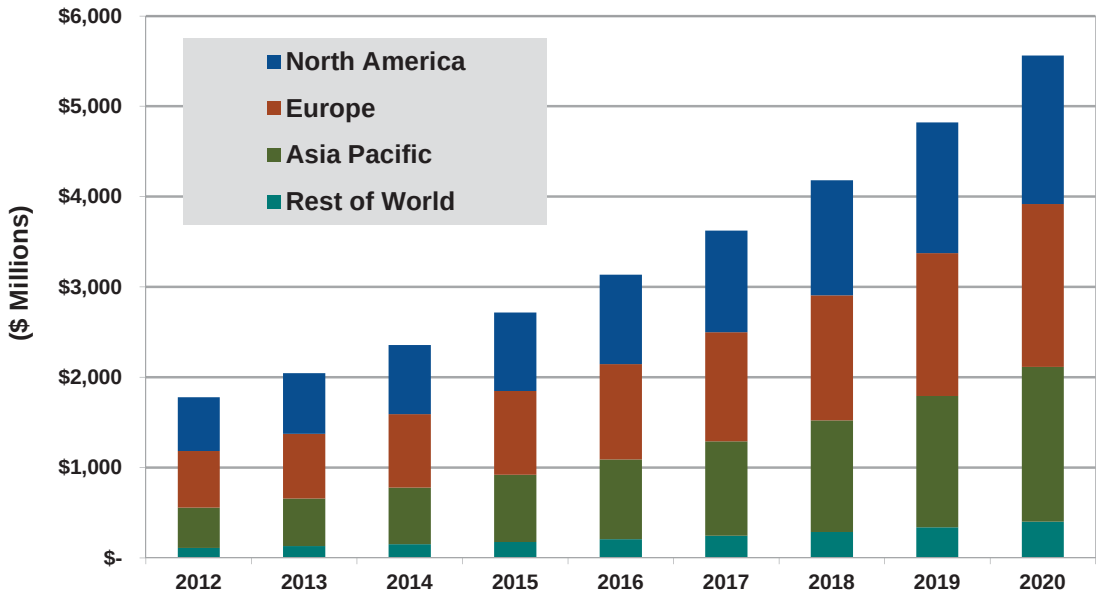
This lack of awareness and skepticism places significant importance on the marketing efforts of BEMS vendors. Regardless of a system's capabilities, a failure to convince building owners and managers of the value proposition and return on investment (ROI) achievable with BEMSs will lead to sluggish adoption.

2.4 Market Trends

The market overall is heading in the direction of increased building intelligence, deeper analysis of energy and operations within buildings, and, as a result, more sophisticated building services. The companies considered in this *Leaderboard Report* represent 14 of the companies at the forefront of this transformation within the buildings industry. These vendors will continue to innovate in this area while partnering with others – and often each other – to provide comprehensive offerings that meet the diverse needs of individual building owners and customers.

Overall, the global BEMS market represents a $2.4 billion market in 2014. The core of this market is software, which represents 52% of revenue, followed by services (40%) and hardware (8%). Continued innovation across software, hardware, and service offerings on behalf of vendors will help unlock this market and allow it to grow. By 2020, the BEMS market will reach $5.6 billion, growing at a compound annual growth rate (CAGR) of 15.3% from 2012-2020.

Chart 2.1 BEMS Revenue by Region, World Markets: 2012-2020



(Source: Navigant Research)

Section 3
THE NAVIGANT RESEARCH LEADERBOARD

3.1 The Navigant Research Leaderboard Categories

Navigant Research scored the vendors in this *Navigant Research Leaderboard Report* according to four categories: Leaders, Contenders, Challengers, and Followers. These categories are defined below.

3.1.1 Leaders

Leaders are BEMS vendors that scored 75 or above in both Strategy and Execution. These companies have demonstrated a broad technology and marketing vision for energy management, reaching a wide range of customer types through a diverse set of channels. In terms of Execution, these companies deliver that vision through a strong user interface that has been proven through existing customers, complementary partners, and a platform that can scale over time. In this evaluation, two vendors achieved a score qualifying them as a Leader.

3.1.2 Contenders

Contenders are BEMS vendors that scored between 50 and 75 in both Strategy and Execution. In this category, vendors deliver a critical mass of applications of significant interest to building owners, and they have made inroads with a number of large customers, including Fortune 500 companies. While many BEMS vendors within this category excel in one dimension or another, the complex nature of customer demand in the market today means many of these BEMS vendors still rely on partnerships – in some cases with each other – to maintain their market position. Most of the vendors considered for this study fell into this category.

3.1.3 Challengers

Challengers are vendors that scored higher than 25 in Strategy and Execution, but who are not yet contenders for market leadership. These companies offer a basic BEMS platform but lack the diversity of applications and analytical capabilities offered by many competitors. Some of these vendors also suffer from maintaining a narrow geographic focus, posing limits to long-term growth and scalability. Two vendors fell into this category.

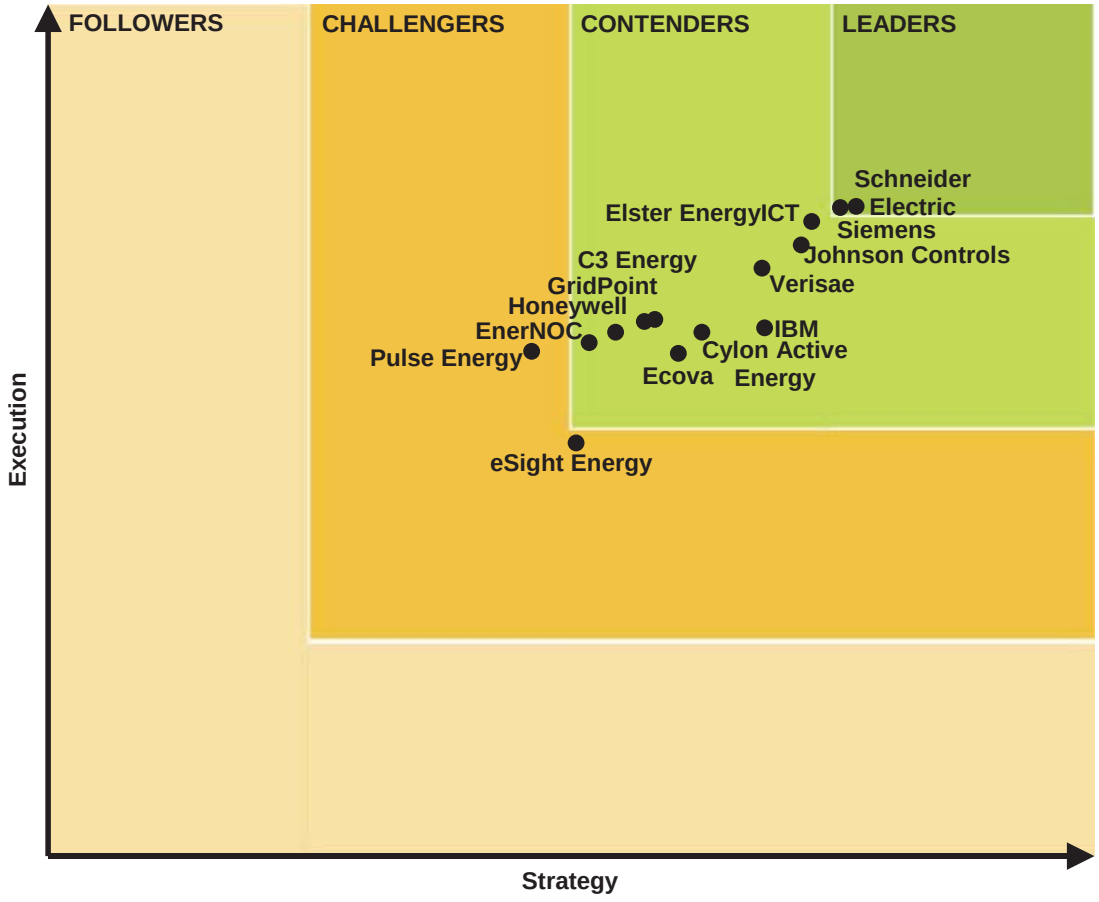
3.1.4 Followers

Followers are vendors that have failed to distinguish themselves and scored below 25 in Strategy and Execution. These vendors tend to have a narrow scope in terms of technology, as well as a platform that is weakly differentiated from others in the market. Although many of the over 400 vendors in the BEMS market would fall into this category, no vendors analyzed for this study were considered Followers.

3.2 The Navigant Research Leaderboard Grid

Given the diversity of players in the BEMS market and the fragmented nature of demand for energy management products and services within the buildings industry, selecting a clear winner that surpasses others in all areas is difficult, if not impossible. In this study, Navigant Research strives to highlight the relative strengths and weaknesses of companies that have already demonstrated thought leadership and a successful track record within the BEMS market.

Chart 3.1 The Navigant Research Leaderboard Grid



(Source: Navigant Research)

Other vendors not profiled here may have been excluded due to a narrower focus in an area in which they excel. For example, BuildingIQ's platform provides a unique approach to building optimization and cost reduction through constant rationalization between a building's air handling system and external weather and dynamic pricing conditions. Optimum Energy, another BEMS vendor focused on chiller system optimization, can achieve and maintain deep levels of efficiency in a building's cooling system and is a partner with a number of the companies included within this report. Comparing these more narrowly-focused players against

players aiming for a much broader offering would have unfairly discredited those firms for choosing to specialize and excel, which, in this market, may be a winning strategy within a specific niche, yet less applicable to enterprise-level energy management.

Consideration of the top five players in this market reveals that a deep track record within the buildings industry, as exhibited by Schneider Electric, Siemens, and Johnson Controls, is important in the BEMS market, with Schneider Electric taking the leading spot. It is not, however, an insurmountable competitive challenge for newer entrants, such as Elster EnergyICT and Verisae, whose focus on software innovation has led to significant success within the BEMS market.

The remaining players within the Contenders category come from a diversity of backgrounds, yet they are starting to clash with each other competitively in the BEMS market. While EnerNOC's strategy is predicated on expanding its customer relationships beyond DR, IBM views smart buildings as a way of expanding the amount of data throughput it manages.

The Challengers, while still strong in relation to the broader BEMS market, offer platforms with less depth than many of the other players in this market. This strategy, while successful in the short term, may be risky in the long term if these companies fail to evolve with the market overall.

Table 3.1 contains the final scores for the 14 players considered in this *Leaderboard Report*.

Table 3.1 The Navigant Research Leaderboard Overall Scores

Rank	Company	Score
1	Schneider Electric	76.8
2	Siemens	75.3
3	Elster EnergyICT	73.8
4	Johnson Controls	71.9
5	Verisae	68.6
6	IBM	65.3
7	Cylon Active Energy	62.0
8	C3 Energy	60.6
9	GridPoint	59.9
10	Ecova	59.6
11	Honeywell	58.0
12	EnerNOC	56.2
13	Pulse Energy	53.1
14	eSight Energy	49.5

(Source: Navigant Research)

Section 4
COMPANY RANKINGS

4.1 Leaders

The Leaders category includes companies that scored 75 or more in both Strategy and Execution. Two vendors scored in the Leaders category of this *Navigant Research Leaderboard Report*: Schneider Electric and Siemens.

4.1.1 Schneider Electric

Overall Score: 76.8

Strategy: 77.3

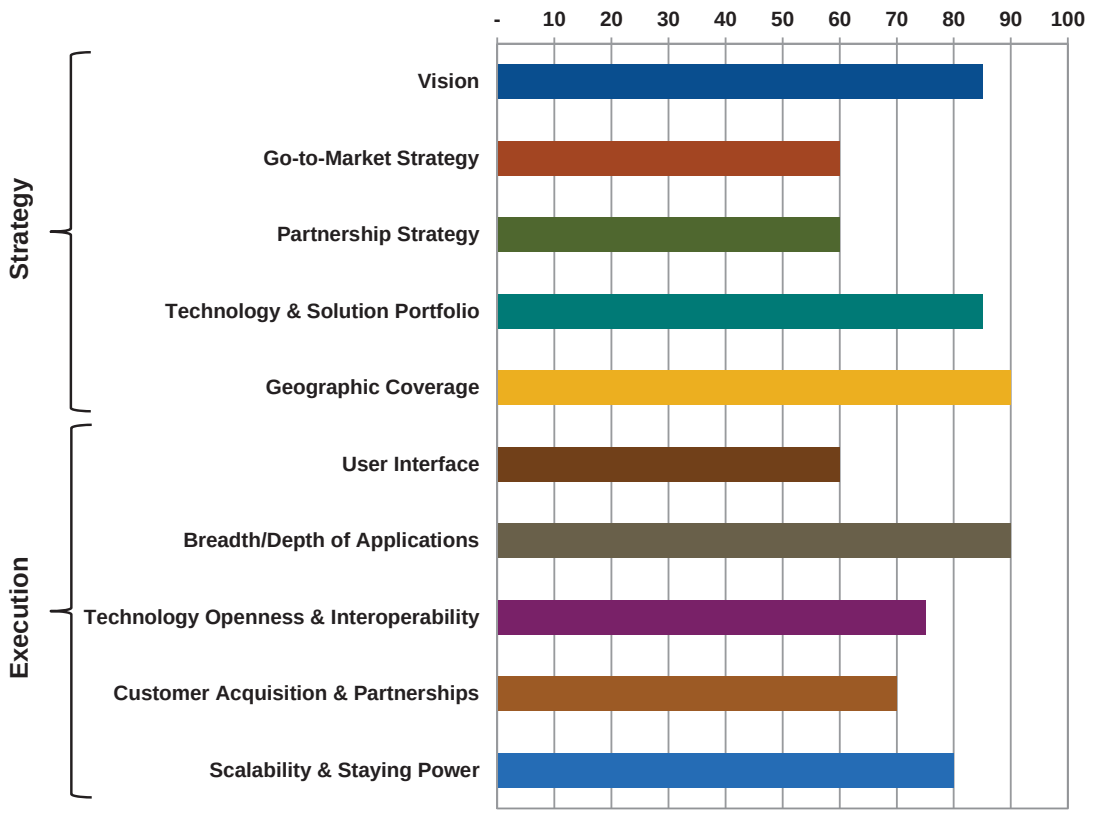
Execution: 76.3

Schneider Electric, known globally as a vendor of building control systems, has made significant inroads in the development of its StruxureWare BEMS platform and has emerged as the winner in this *Navigant Research Leaderboard Report*. Through StruxureWare, Schneider Electric aims to provide a shop floor to top floor BEMS offering that suits both its traditional market – facility managers and building owners – as well as its aspirations in providing enterprise-level energy management.

Although Schneider Electric's control systems have long been heavily dependent on software, it was not until the last 5 years that it leveraged its knowledge of individual building systems to provide much higher-level analytics capabilities. Most notably, it acquired Summit Energy, an enterprise energy management and energy procurement firm, in 2011. Summit Energy has allowed Schneider Electric to gain a foothold in enterprise-level energy management systems designed for a broad non-engineer audience. Schneider Electric has followed with other important acquisitions, including CAN2GO, a brand focused on building automation technologies that integrate wired, wireless, and web technology to improve the interoperability of automation systems operating across various standards and networking platforms.

Schneider Electric currently offers one of the broadest energy management platforms available. In addition, the company's global focus and continued expansion into high-growth markets in Asia Pacific will ensure that its legacy building customers have access to StruxureWare while the company goes after new customers. While the platform has many of the core functions of many BEMSs, including energy visualization and energy analytics platforms, it is also distinguished in its ability to provide recommendations to building owners on energy-savings projects and estimate ROI, a feature included in few other offerings. Given its focus on acquisition and its desire to serve as a master integrator, Schneider Electric has been less focused on developing partnerships and channel partners than some of its competitors, which could pose a threat in the long term.

Chart 4.1 Schneider Electric Strategy and Execution Scores



(Source: Navigant Research)

4.1.2 Siemens

Overall Score: 75.3

Strategy: 75.3

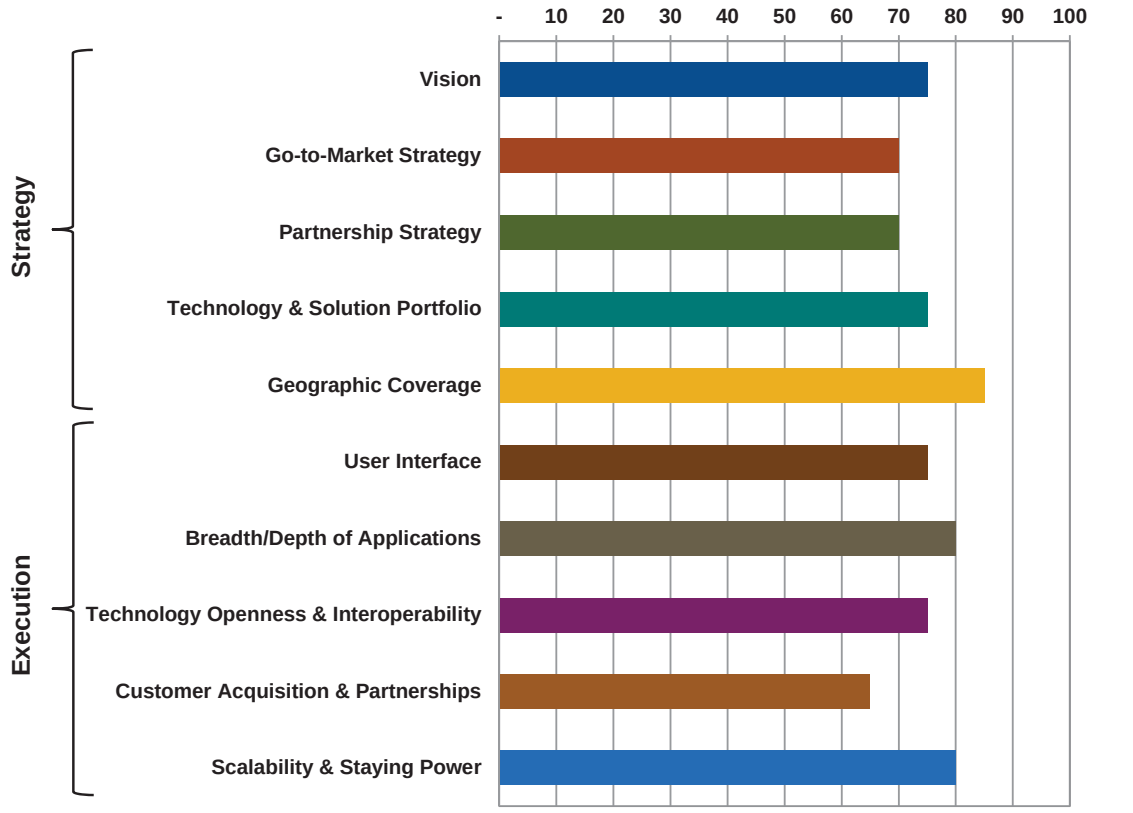
Execution: 75.3

Siemens, which has historically lagged behind other buildings industry stalwarts in the BEMS market, has significantly accelerated its position in 2012 through its acquisition of Pace Global Energy Services, a management software company and consultancy with a C-suite focus. After several years of focused integration efforts, Siemens launched Advantage Navigator, a platform that ties the company's deep expertise in building energy management with a range of demand- and supply-side capabilities in a format that meets the needs of the diverse stakeholders that it aims to connect with. The strength of this new platform, coupled with Siemens' large legacy customer base and trust within the buildings industry, has enabled it to achieve second place in this evaluation.

In comparison to Siemens' previous user interfaces, the Advantage Navigator user interface (UI) is much more accessible and balances preset views with customizability. While the foundation of the platform lies in basic energy reporting, the platform also offers forward-looking applications such as fault detection and diagnostics (FDD), a set of remote operations centers located around the United States, and others.

Siemens has made great strides in Advantage Navigator, and the coming years will determine the ultimate appeal and success of this platform within the market. Siemens' position is strengthened by virtue of its deep legacy relationships, particularly in North America and Europe. However, the company will have to demonstrate that its broad platform is well-differentiated from others, such as that of Schneider Electric, and that it offers innovative applications, such as those offered by Johnson Controls and its partners, as well as other software pure plays.

Chart 4.2 Siemens Strategy and Execution Scores



(Source: Navigant Research)

4.2 Contenders

To fall into the Contenders category, a company must score between 50 and 75 in both Strategy and Execution. Navigant Research identified 10 companies as Contenders in this *Leaderboard Report*.

4.2.1 Elster EnergyICT

Overall Score: 73.8

Strategy: 73.0

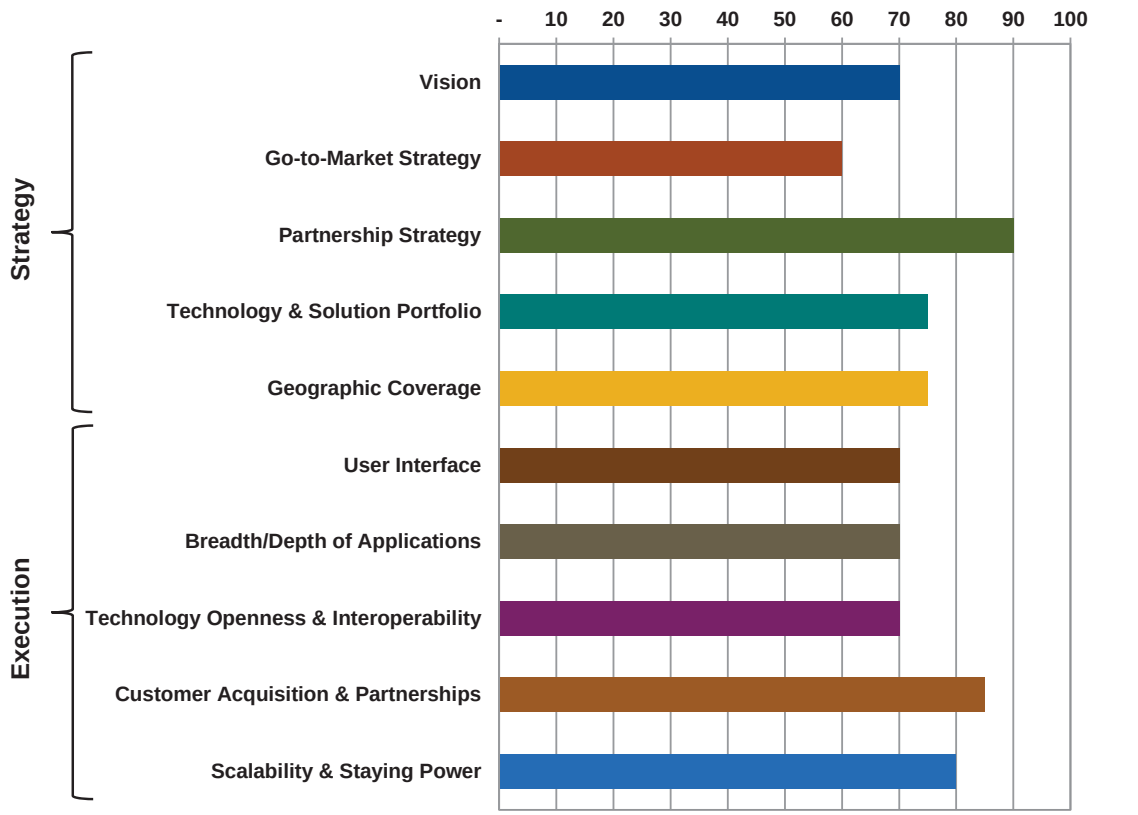
Execution: 74.5

Elster established a presence in the BEMS market primarily through the acquisition of EnergyICT in 2009. EnergyICT, which has been in operation since 1991, bundles its energy management offerings into a platform called EIServer. This platform allows for a wide range of energy management functions that help customers visualize, analyze, and report on energy.

In terms of strategy, EnergyICT ranks on the same level as Schneider Electric, Johnson Controls, and Siemens. Although it tends to focus more narrowly than those firms through specialization in certain key sectors such as retail, the capabilities offered in its Enacto platform are broad and also provide deep analytics. In addition to its base software platform, Elster EnergyICT also offers metering products and managed services to support customers with limited internal staff for energy management. The company has bolstered its market position in recent years through the expansion of its existing relationships with customers as well as its growing partnership channels. The Enacto platform's inclusion of non-energy applications focusing on facility and asset management set it apart from many other offerings on the market and will form a strong foundation as the market overall evolves beyond energy management into other adjacent solutions. Although the user interface is more basic than other offerings on the market (which may become an issue in the long term as the platform is used by more UI-sensitive audiences), it offers a range of mobile applications to more readily adapt it to the working processes of end-users.

Since Elster's acquisition by the private equity firm Melrose in August 2012, the company has been in a period of uncertainty, limiting investment in development of new technology and marketing resources. This has led to some slippage in terms of customer acquisition and, in the long term, could pose a threat as competitors launch platforms similar to Elster EnergyICT's software offerings. In the near term, however, the company continues to provide a strong technology platform and has achieved significant traction in the market.

Chart 4.3 Elster EnergyICT Strategy and Execution Scores



(Source: Navigant Research)

4.2.2 Johnson Controls, Inc.

Overall Score: 71.9

Strategy: 72.0

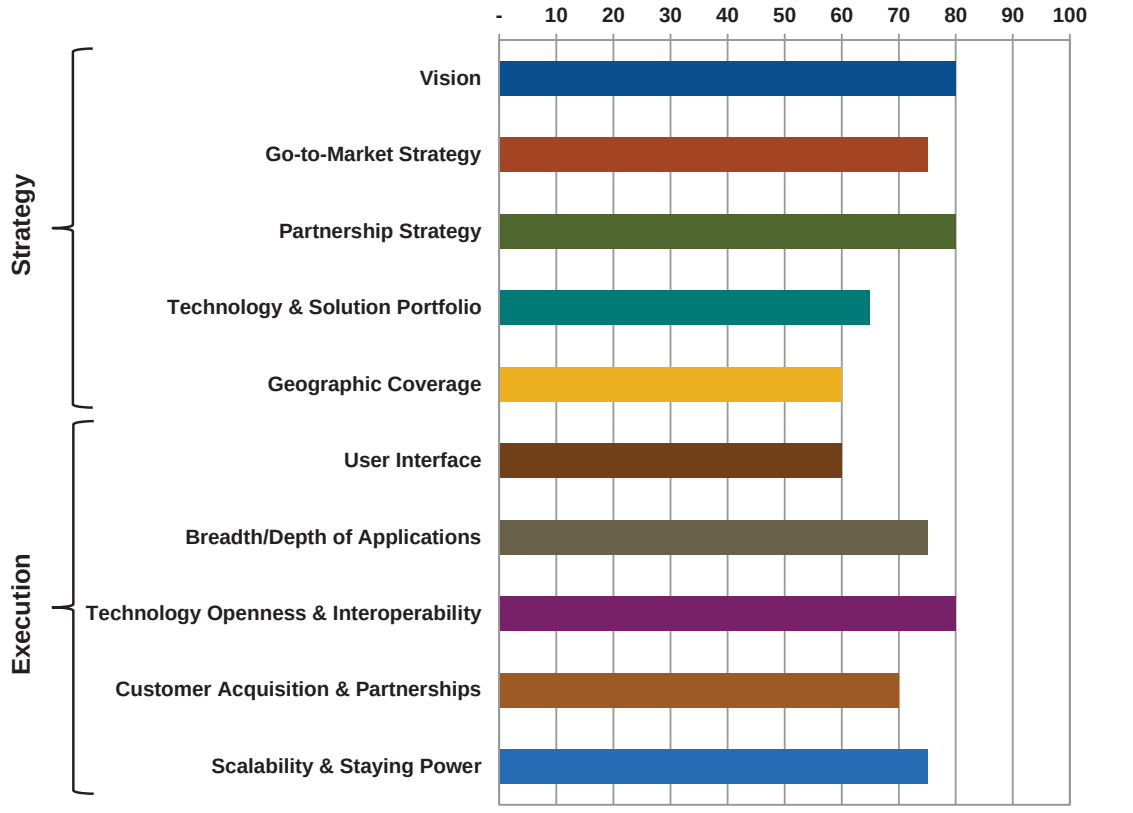
Execution: 71.8

Johnson Controls, a broad service provider in the building efficiency market, entered the BEMS market in 2011 with the launch of its unique platform, Panoptix. In contrast with other BEMS vendors, particularly some of the traditional building control vendors, Johnson Controls has set out to create a platform in which third parties contribute significantly to the development of tailored applications based on data made available to app developers and building owners through Panoptix. The appraisal of Johnson Controls' platform in this *Leaderboard Report* takes into account not only the capabilities of Panoptix itself but also the efficacy of the platform when combined with third-party applications.

In addition to providing a core of base applications, including an FDD system, a carbon and energy reporter, a monitoring system that measures and verifies energy use and savings, and a customizable energy analyzer, Johnson Controls offers a remote operations center staffed by customer service managers (known as Live Guides) that provide live support to clients. The company also provides access to its EnergyConnect DR portal through the Panoptix platform, a strength in comparison to other offerings that do not directly integrate with DR services.

Going forward, Johnson Controls will continue to benefit from the diversity of channels afforded to it by virtue of its complementary energy solutions business lines, such as its energy service company (ESCO) business. However, compared with some competitors, Johnson Controls' legacy customer base is heavily concentrated in North America, limiting its ability to upgrade existing customers in other regions to the Panoptix platform.

Chart 4.4 Johnson Controls Strategy and Execution Scores



(Source: Navigant Research)

4.2.3 Verisae

Overall Score: 68.6

Strategy: 68.3

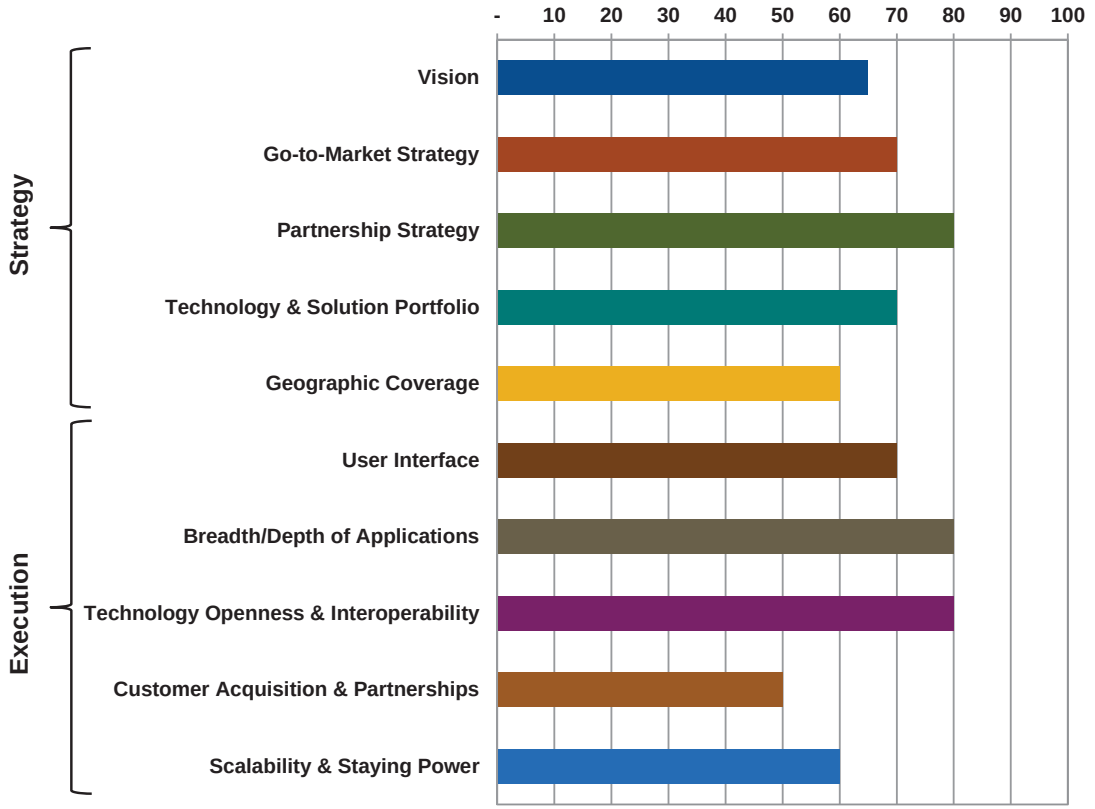
Execution: 69.0

Verisae is one of the highest ranked BEMS vendors that has been a pure-play software vendor from its initial founding. Its platform provides a wide range of capabilities in not only the area of energy management but also facility management, asset management, and others. Its platform is offered entirely through the cloud, offers real-time energy information, and is frequently accompanied by managed services. The company has traditionally focused on solutions for multisite clients in the retail sector.

The breadth of Verisae's offering distinguishes it from many competitors. In addition to providing energy visualization and analytics capabilities similar to other offerings on the market, Verisae offers supply-side analytics that reduce pricing risk and uncertainty. The company's facility management offering ties into existing workflow management systems and processes. The adaptability of Verisae's platform to entrenched resource management procedures is bolstered through its network of partners, which include firms focused on facility management, asset management, and energy supply consulting.

Verisae has further solidified its market position through a number of recent acquisitions. For example, in 2013, it acquired Hara, an energy and sustainability software company, and WorkOasis, a maintenance and energy management provider focused on specific sectors such as food service, specialty retail, and hospitality. These acquisitions expand Verisae's technology portfolio and expose it to new market segments as it aims to increase the breadth of its customer base.

Chart 4.5 Verisae Strategy and Execution Scores



(Source: Navigant Research)

4.2.4 IBM

Overall Score: 65.3

Strategy: 68.5

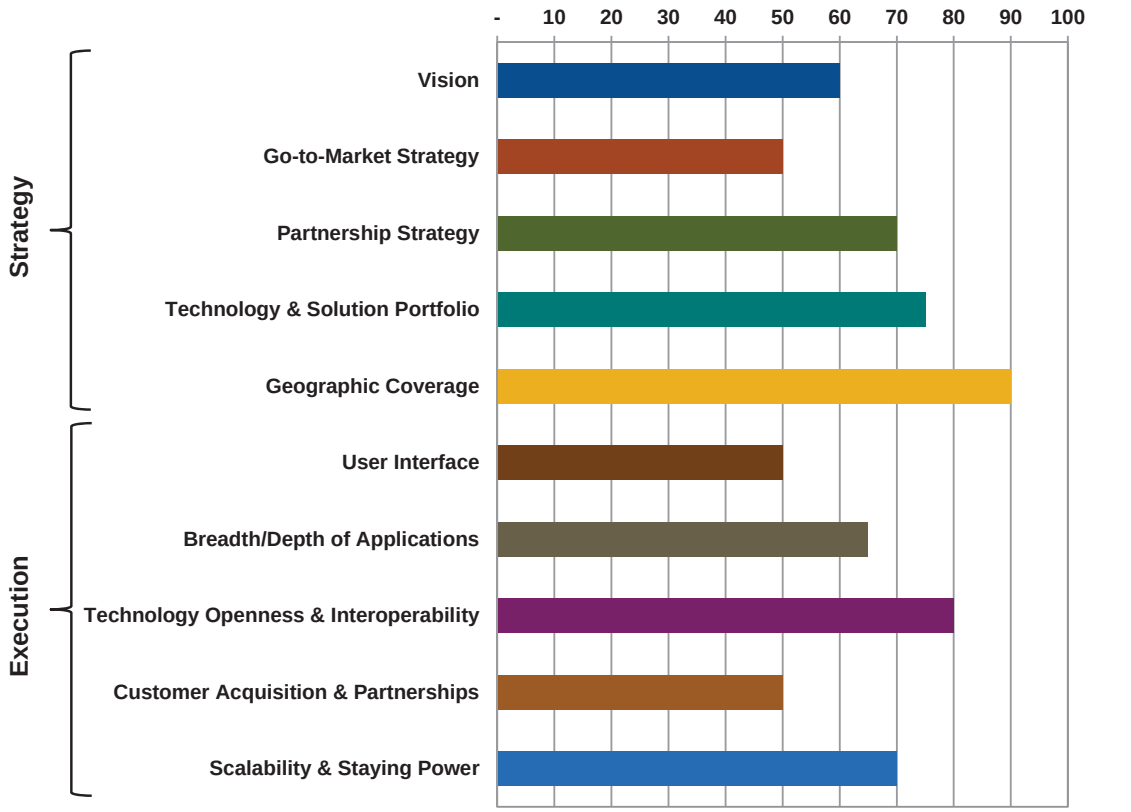
Execution: 62.0

IBM's Smarter Buildings solution, which is an integral part of its Smarter Planet initiative, aims to bring the firm's deep expertise in managing large volumes of data relating to business operations to the energy management and buildings industry. Although it lacks the deep knowledge of building control systems that buildings industry stalwarts such as Johnson Controls and Schneider Electric have, it has managed to establish a complementary relationship with such players through partnership while forging a strategy based on a few key applications that differentiate its platform from many others in the market.

The foundation of IBM's energy and facility data acquisition capabilities resides in the technology that it acquired when it purchased TRIRIGA, a facility and energy management software company, in 2011. TRIRIGA's system provides business analytics, critical alerts, and automated processes to increase visibility into, and control and automation of, real estate management, capital projects, space management, facility maintenance, and energy management. A number of these applications, such as space management, have formed an important part of IBM's value proposition and set it apart from other vendors more focused on data specifically related to energy costs.

Questions remain regarding the readiness of the market for IBM's broad vision for tying building-level data from thousands of sensors into enterprise-level operational decision-making at a time when many customers remain focused on addressing pain points on a more piecemeal, incremental basis. However, the strength of its partnerships, its well-differentiated system, its global presence, and its expertise in managing large volumes of data will support the company's growth in the energy management space in the long term.

Chart 4.6 IBM Strategy and Execution Scores



(Source: Navigant Research)

4.2.5 Cylon Active Energy

Overall Score: 62.0

Strategy: 62.5

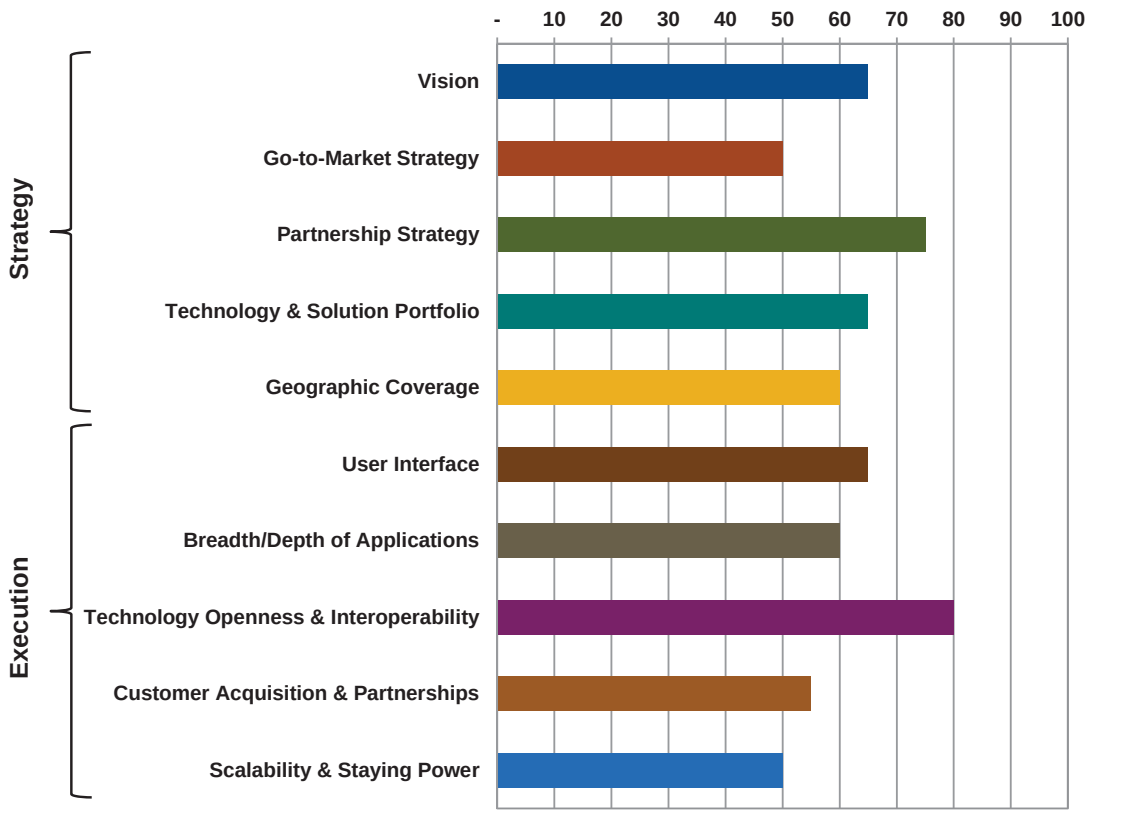
Execution: 61.5

Cylon Active Energy, the energy management platform offered by Cylon Controls, has been on the market since 2009. It leverages Cylon's automation capabilities to provide building- and enterprise-level energy management. Although it has achieved the most success to date in the United Kingdom and other markets in Europe, it has begun entering other markets, particularly North America, through partnership.

The three main functions of Cylon Active Energy's platform are the Remote Energy Manager, Energy Alerts and Prompts, and Green Screen Public Energy Display. All of these functions leverage Cylon's SaaS platform to provide real-time information and analysis on building-related energy consumption to key decision makers such as facility managers and building occupants. The company continues to add analytical capabilities, such as FDD, to its platform, delving deeper into analysis of BMS data.

Although Cylon Active Energy is a relatively new entrant into the energy management space, it has adopted a light-footed strategy that has increased its appeal to a broad range of customers. It offers its system both through traditional software licenses as well as through subscriptions that can be purchased on an operating expenditure (OPEX) basis. It works extensively through partners, such as utilities, facility management firms, and ESCOs, to maximize its reach across a range of customer types and building sizes.

Chart 4.7 Cylon Active Energy Strategy and Execution Scores



(Source: Navigant Research)

4.2.6 C3 Energy

Overall Score: 60.6

Strategy: 58.0

Execution: 63.0

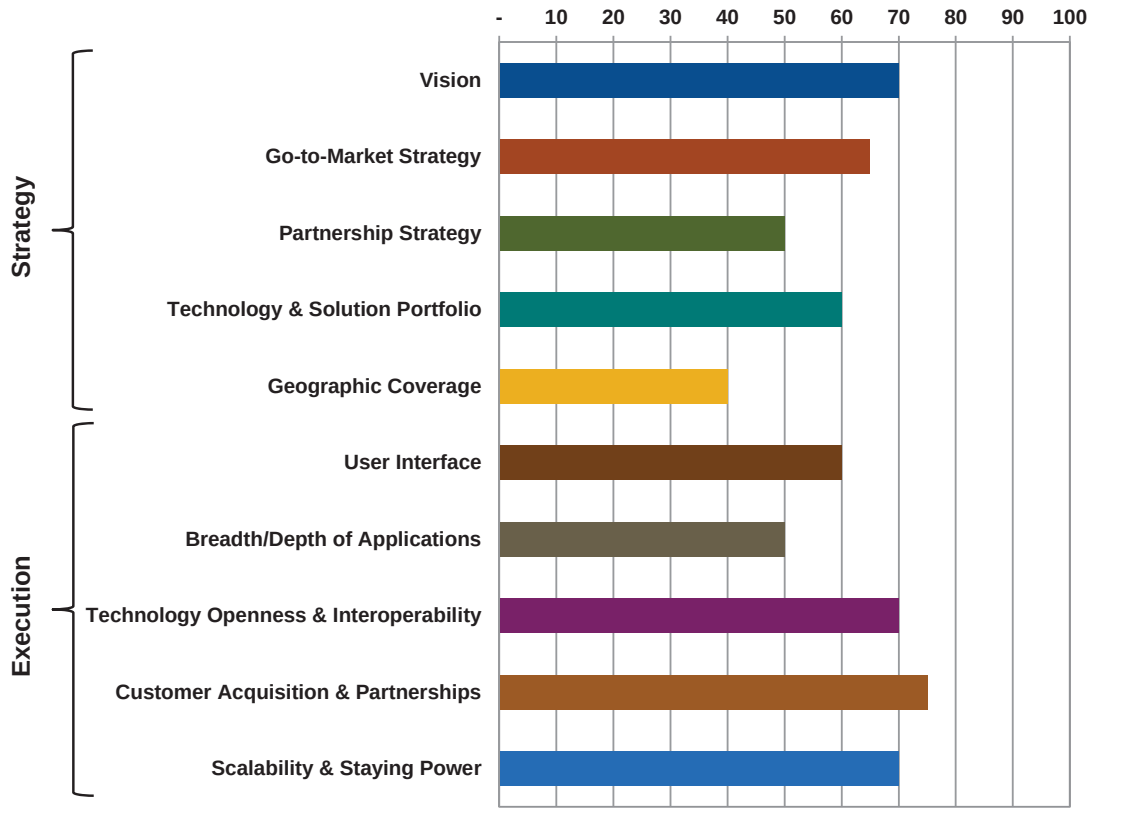
C3 Energy has been aggressively developing a platform that goes beyond corporate energy management and into a broad solution for energy and operations management that extends from the utility transmission and distribution system to individual sites, targeting utilities as their main customer type. Although the firm originally targeted commercial and industrial (C&I) customers, its current BEMS represents just one piece of a broader SaaS platform that includes solutions for the residential sector and for utilities as part of its smart grid management solutions. In most cases, C3 Energy works through utilities as its main channel to market.

On the commercial side, the firm's C3 Enterprise and C3 Commercial offerings help utilities achieve energy efficiency gains through customers. C3 Enterprise, C3 Energy's original product, allows large enterprises to analyze, benchmark, and report on energy-related issues

across an enterprise building portfolio. C3 Commercial is designed for small and medium businesses, with specialized applications that meet the needs of smaller organizations (e.g., basic energy profiling and energy tips). This broad focus allows the company to provide its technology to a wide range of utility customers and programs as well as to expand utility relationships over time. Given the broad range of users targeted by C3 Energy, its platform allows for a diverse set of user interfaces and has attractive mobile and tablet applications.

C3 Energy's unique go-to-market strategy as a provider of comprehensive energy management solutions for utility customers is both an asset and a potential risk as the market continues to evolve. The model has worked effectively so far, as evidenced by deals between C3 Energy and major utility customers such as Pacific Gas & Electric and Baltimore Gas & Electric. However, C3 Energy may face challenges in terms of geographic expansion, given that the utility regulatory environment in the United States is vastly different from that of other regions, in addition to challenges from competitors with solutions tailored specifically for specific sectors such as retail.

Chart 4.8 C3 Energy Strategy and Execution Scores



(Source: Navigant Research)

4.2.7 GridPoint

Overall Score: 59.9

Strategy: 57.0

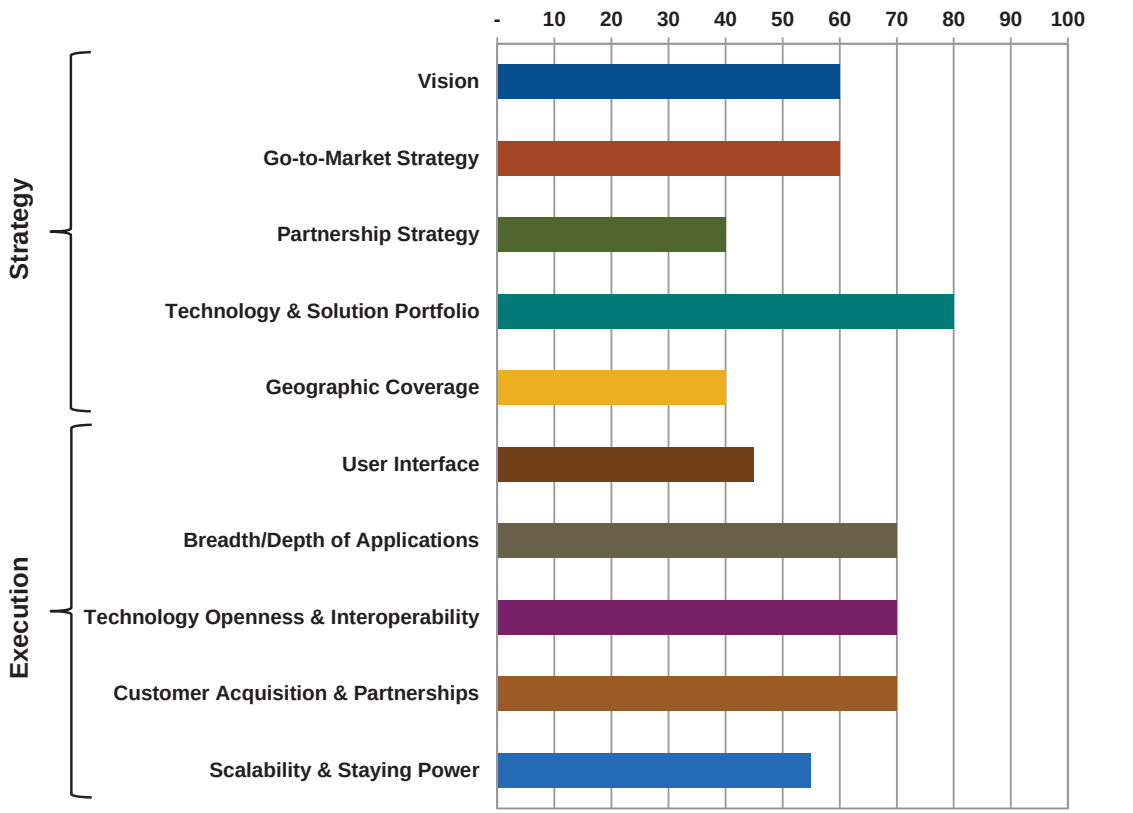
Execution: 62.8

GridPoint provides energy management solutions for the commercial and government sectors, among others. Its main energy management solution, the GridPoint Energy Management System, consists of hardware, software, and services. Hardware products offered by GridPoint include controllers, meters/submeters, thermostats, sensors, and other devices that develop a comprehensive picture of energy use in a building. These devices, though similar in functionality to many devices on the market, were purpose-built for the GridPoint Energy Management System in order to provide tailored capabilities for the needs of GridPoint's customers, such as large chains with many small facilities.

GridPoint Energy Manager, the software system, is designed to provide enterprise-level visibility into energy consumption across multiple sites. It includes several well-differentiated features such as intelligent recovery algorithms and efficiency project tracking. GridPoint also offers a range of services, including energy advisory services, control services, and technical support, to help customers make better use of the software. The user interface is somewhat better suited to technical audiences, which works for some building managers but poses challenges in cases where energy is managed by a layperson.

GridPoint has achieved significant traction in the retail and restaurant chain sectors, with customers that include 6 of the top 10 retailers by total sales, 4 of the top 10 casual dining restaurants, and 7 of the top 20 quick-serve restaurants. Although it remains focused mostly on the North American market, it also has installations in Latin America and Europe, particularly with global retail chains.

Chart 4.9 GridPoint Strategy and Execution Scores



(Source: Navigant Research)

4.2.8 Ecova

Overall Score: 59.6

Strategy: 60.3

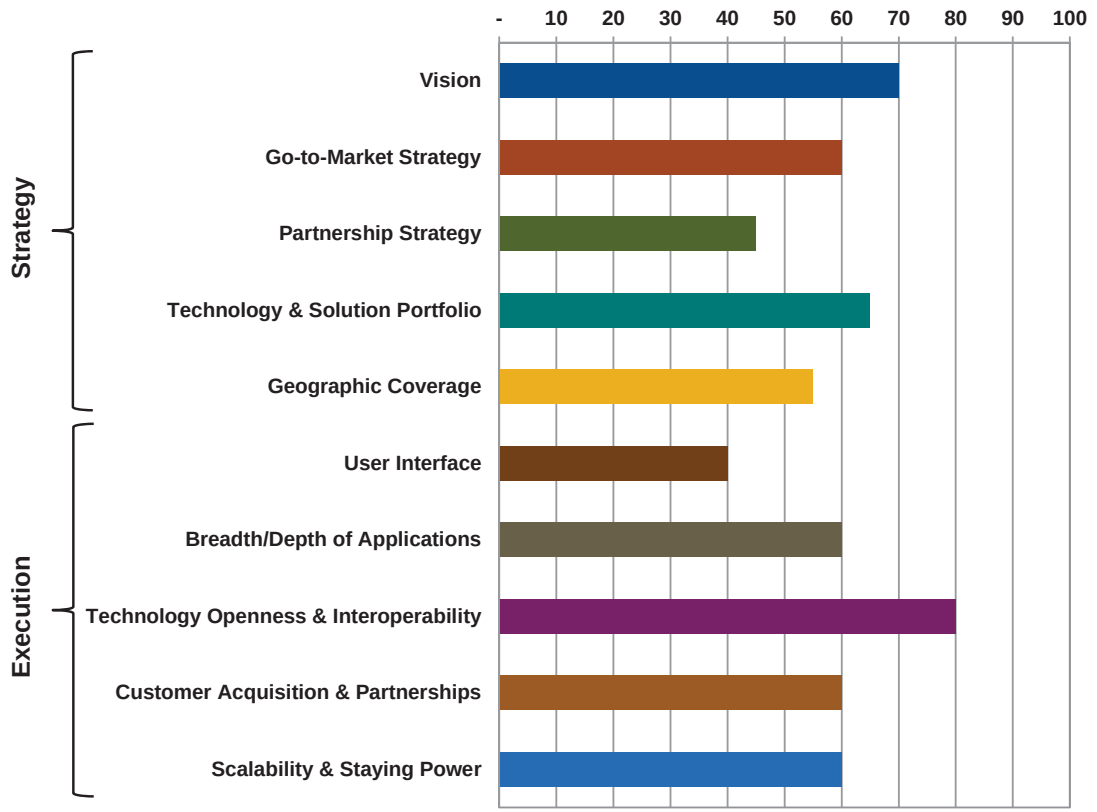
Execution: 59.0

Over time, Ecova has grown through organic expansion into a wide range of businesses relating to energy and resource management. Traditionally, the company has focused on energy consulting services such as energy procurement and utility bill management. In recent years, it has expanded its capabilities in the area of building intelligence, particularly since its 2011 acquisition of Prenova, a BEMS vendor. By that point, Ecova had already attracted dozens of customers, including a number of Fortune 500 companies, and its enhanced technological capabilities have allowed the company to expand the scope of its energy management relationships with clients.

Ecova's current BEMS platform leverages a broad set of data to provide insights to customers. Its expertise in utility bill management allows it to provide these insights in the absence of a BMS, though its deeper analytics capabilities do require a BMS connection. Ecova's user interface is clean and offers presets to meet the needs of individual users while offering customization capabilities for savvy energy managers. Its close relationships with utility customers will also serve as an additional channel to market beyond C&I customers.

In May 2014, Ecova was acquired by GDF Suez, the French energy giant. Through the acquisition, GDF Suez aims to leverage Ecova's intelligent, software-based platform to complement its more traditional energy efficiency retrofit business, allowing it to provide enterprise-level energy management for GDF Suez's legacy customers. The acquisition provides mutual benefit from a geographic perspective, exposing Ecova to more clients in Europe and GDF Suez to clients in North America, where it continues to grow, thereby strengthening its score in this evaluation.

Chart 4.10 Ecova Strategy and Execution Scores



(Source: Navigant Research)

4.2.9 Honeywell

Overall Score: 58.0

Strategy: 54.3

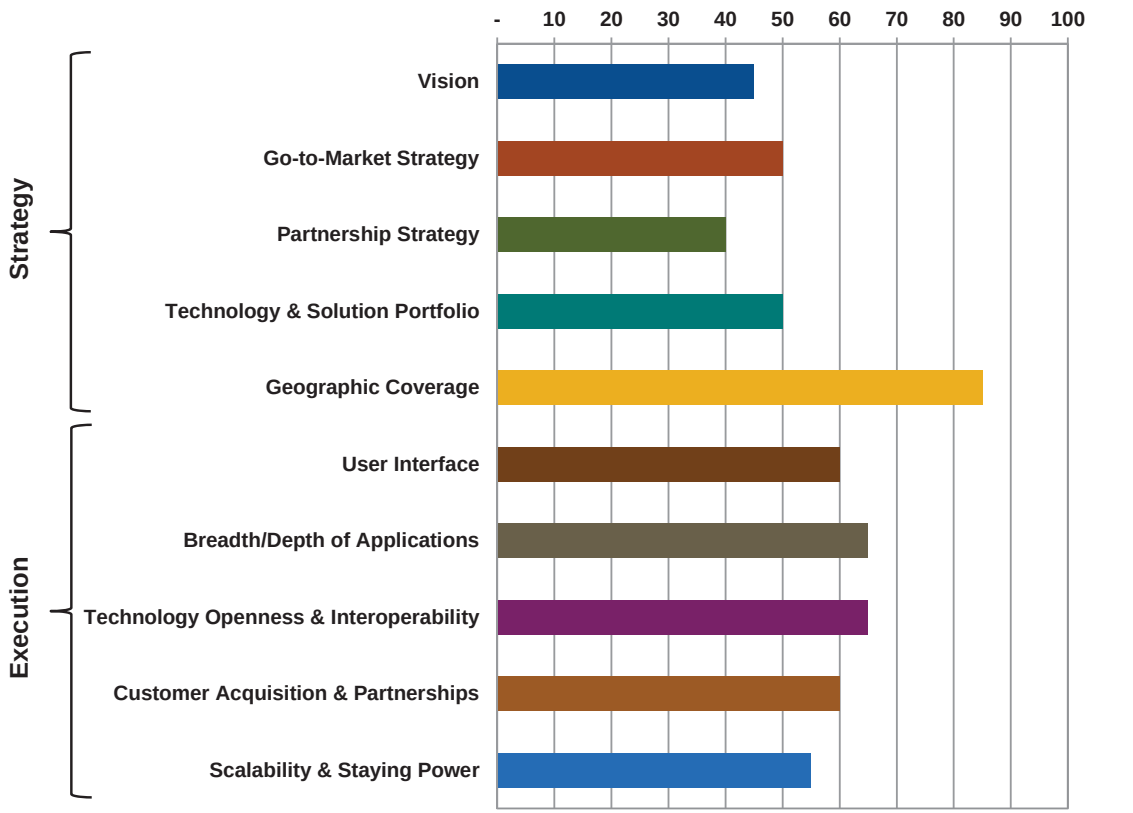
Execution: 61.5

In March 2012, Honeywell launched its cloud-based BEMS platform, Attune Advisory Services. Attune allows customers to develop energy consumption baselines, identify energy conservation and cost reduction measures in facilities, and establish an ongoing facility management strategy. The Attune Energy Optimization application, for example, gathers data from a wide range of systems and uses a cloud-based FDD application to identify malfunctioning and underperforming equipment. However, the system is overall best tailored to provide basic energy visualization and energy analytics.

The system is tied in with Honeywell's traditional service business, and facility improvement measures identified by Attune are passed to local service technicians to respond to and repair equipment. The service is provided on an ongoing basis and allows facility managers and building owners to engage in continuous commissioning for facilities through a managed service arrangement.

Overall, Attune is less comprehensive as a BEMS than the offerings of Honeywell's traditional competitors as well as many BEMS pure plays. As with its competitors, Honeywell is aiming to engage with customers on an enterprise level and shift its focus from a product original equipment manufacturer (OEM) to a broader service provider, but additional work will be required before Honeywell can claim to offer a BEMS that is as comprehensive as others are.

Chart 4.11 Honeywell Strategy and Execution Scores



(Source: Navigant Research)

4.2.10 EnerNOC

Overall Score: 56.2

Strategy: 51.8

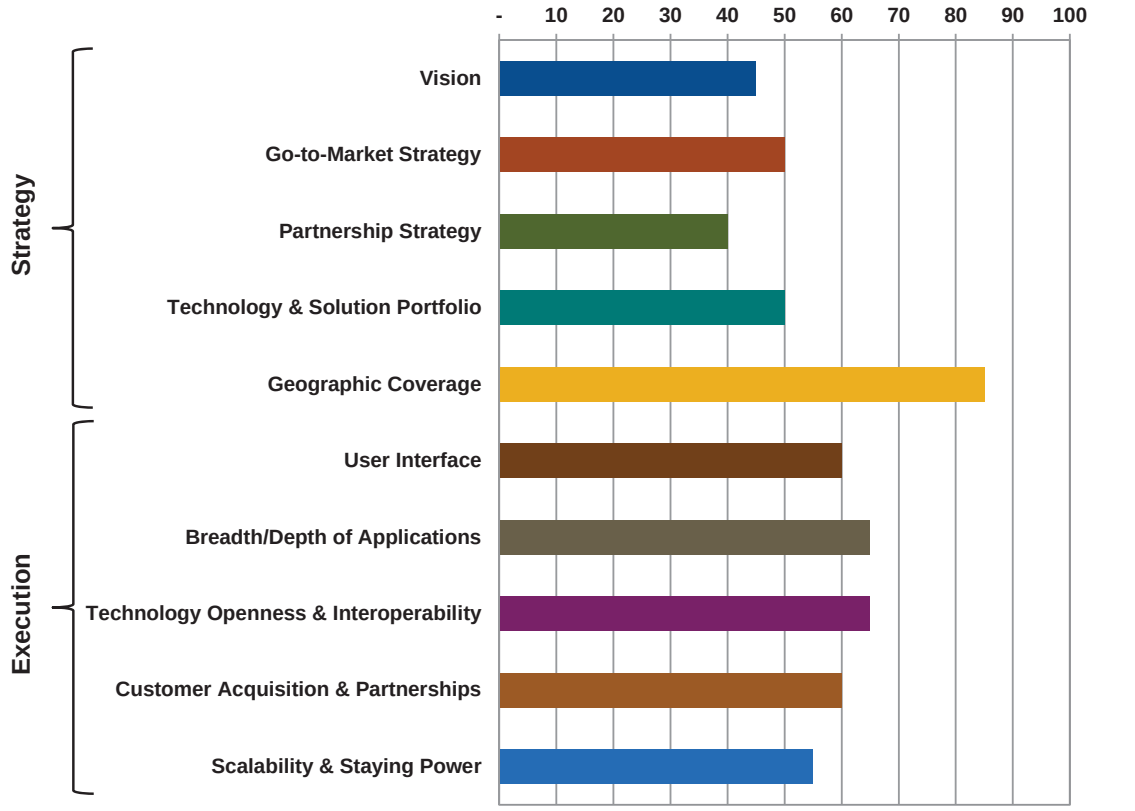
Execution: 60.3

EnerNOC, best known as a DR aggregator, develops and implements energy management software applications for the commercial, industrial, and institutional markets. Beyond its core DR platform, EnerNOC's broader enterprise energy management offerings include energy efficiency (EfficiencySMART), energy supply management (SupplySMART), and greenhouse gas (GHG) emissions management (CarbonSMART). The company is a leader in developing and embracing open standards, such as OpenADR (an automated DR protocol), Green Button (an initiative focused on creating open source building data), and BACnet, a building automation protocol.

Strategic acquisition outside of the United States has been an important part of EnerNOC's strategy to expand globally. These acquisitions include Energy Response (Australia and New Zealand), Entelios (Germany), and Autovation (Ireland). EnerNOC has also established a joint venture with Marubeni to develop DR offerings in Japan.

Although EnerNOC's diversification beyond DR represents a sound strategy, its current technology platform and execution lags behind other players in the BEMS space. In particular, its platform, which is heavily focused on energy visualization, provides a less comprehensive set of analytics offerings than other competitors do. In addition, real-time energy management is more difficult using EnerNOC's platform than with others'. As EnerNOC aims to expand its DR-based relationships to a broader suite of technologies, services, and enterprise-scale energy management, it will need to enhance the capabilities of its BEMS platform.

Chart 4.12 EnerNOC Strategy and Execution Scores



(Source: Navigant Research)

4.3 Challengers

To fall into the Challengers category, companies must score between 25 and 50. In this *Navigant Research Leaderboard Report*, two companies are identified as Challengers: Pulse Energy and eSight Energy. These are companies that have developed and deployed a BEMS successfully but tend to lack the breadth of applications or the scalability of other players in the market.

4.3.1 Pulse Energy

Overall Score: 53.1

Strategy: 46.3

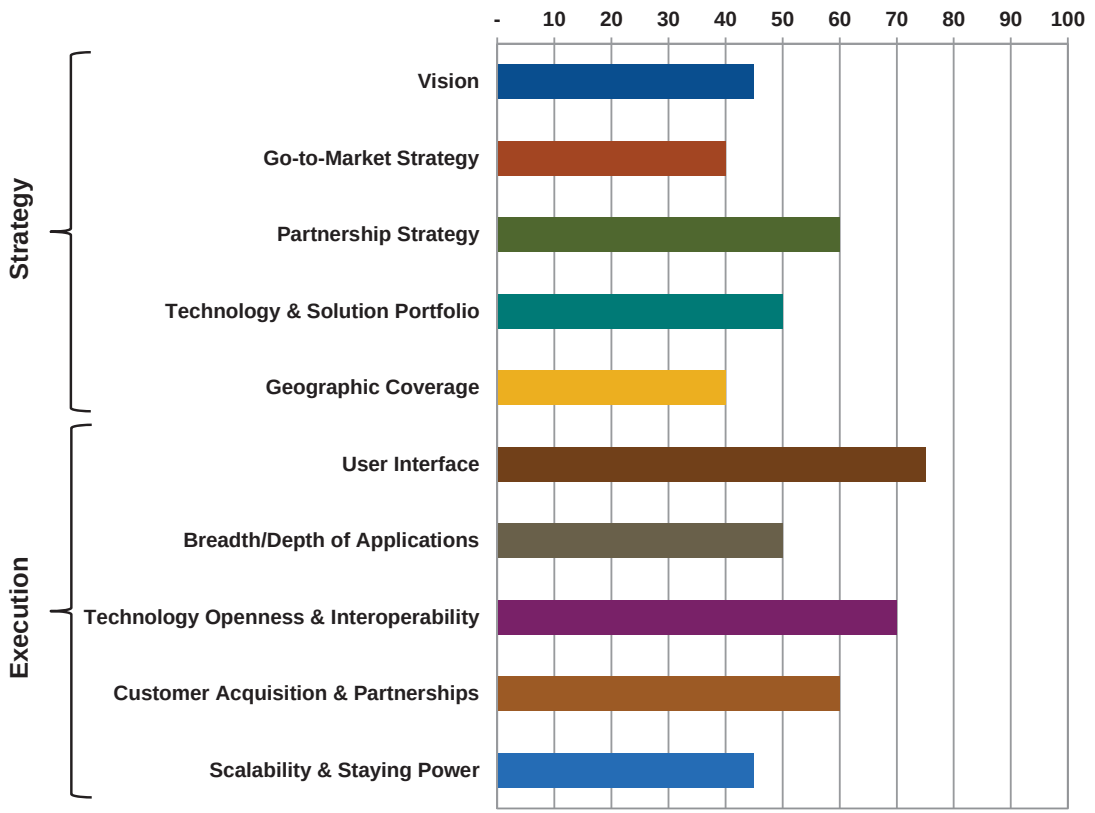
Execution: 59.3

Pulse Energy focuses on providing energy efficiency platforms for utility customers using energy efficiency, retrocommissioning, and DR capabilities. The company's software consists of four main products: Pulse Check, Energy Manager, Engagement Dashboard, and Utility Program Manager. Overall, the system provides tailored solutions for both large and small commercial sites, delivering information and insights about the energy consumption in a particular building by leveraging as much existing data (from smart meters and other sources) as possible.

Pulse Energy's software is delivered through a clean and attractive user interface. Some of its applications, such as retrocommissioning, are well-differentiated within the market and target energy conservation measures with attractive paybacks. Overall, though, its analytics do not go as far as many other players in this market.

The company shifted its focus a few years ago to serve utility customers primarily, though it has also designed its platform in a way that can be easily bundled with other products offered by third-party resellers. Pulse Energy's major utility clients include BC Hydro/FortisBC (a major power and distribution company in British Columbia), Pacific Gas & Electric, and Southern California Edison. Its focus to date has been primarily on clients in North America, though it has made inroads with utility clients in Europe, as well.

Chart 4.13 Pulse Energy Strategy and Execution Scores



(Source: Navigant Research)

4.3.2 eSight Energy

Overall Score: 49.5

Strategy: 50.5

Execution: 48.5

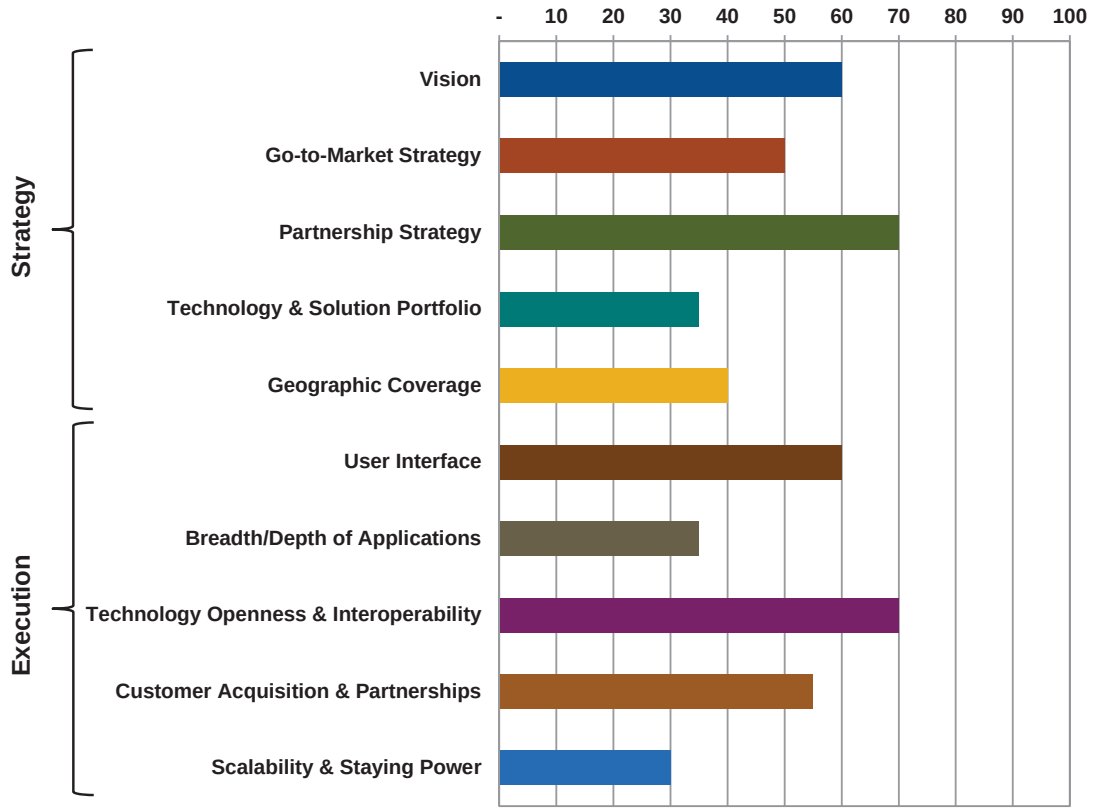
eSight Energy provides a BEMS that allows building owners to aggregate and manage energy-related data at a building or portfolio level. The company's offerings range from basic bill management and verification to more sophisticated energy analytics and alarms. The platform is effectively based on software, supported by remote operations center capabilities.

One of the key features of eSight Energy's platform is its simplicity. It offers two editions (Commercial and Industrial) and two dashboards (a Facilities dashboard, destined for a technical facility manager audience, and eZdash, an energy visualization dashboard). In the United Kingdom, this simplicity has been an asset, as many large organizations have leveraged eSight Energy's platform to comply with the requirements of the CRC Energy Efficiency Scheme (discussed further in Section 2.2.2). However, in the meantime, competitors have developed

more sophisticated platforms, which may prove more attractive in the long term than eSight Energy's platform.

eSight Energy's strategy is heavily focused on partnerships, which have helped accelerate its penetration of the BEMS market in the United Kingdom. It has pursued partnerships with ESCOs, OEMs, facility management firms, and other types of channel partners. This has enabled the company to access a broad range of customer types, though most of its major customers to date are based in the United Kingdom. Global expansion and scalability will remain a challenge for eSight Energy, as other competitors in the United Kingdom and Europe have effectively attracted large clients in North America, Latin America, and other regions.

Chart 4.14 eSight Energy Strategy and Execution Scores



(Source: Navigant Research)

4.4 Followers

The Followers category includes companies that scored 25 or below. No companies scored in the Followers category of this *Leaderboard Report*.

Section 5
COMPANY DIRECTORY

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Section 6

Acronym and Abbreviation List

Building Automation System	BAS
Building Energy Management System	BEMS
Building Management System	BMS
Carbon Reduction Commitment	CRC
Commercial and Industrial	C&I
Compound Annual Growth Rate	CAGR
Demand Response	DR
Direct Digital Control	DDC
Energy Service Company	ESCO
Fault Detection and Diagnostics	FDD
Greenhouse Gas	GHG
Heating, Ventilation, and Air Conditioning	HVAC
Information Technology	IT
Operating Expenditure	OPEX
Original Equipment Manufacturer	OEM
Research and Development	R&D
Return on Investment	ROI
Software as a Service	SaaS
User Interface	UI

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SCOPE OF STUDY AND METHODOLOGY

9.1 Scope of Study

The scope of this report is limited to the strategy and execution associated with leaders in the global market for BEMSs. These systems tend to be based on software (often via SaaS), though often associated with value-added services and hardware. The companies active in this market are diverse, ranging from building control and equipment OEMs to software pure plays.

Note that company rankings capture the vendor's standing at the time of the report and are not a retrospective of past accomplishments or an indication of future success. The ratings are likely to change rapidly as this market matures and business models continue to evolve. Moreover, the report is not exhaustive, as there are other global and smaller players in the market that were not included because of their specific focus on one aspect of the market or their lack of geographic reach.

9.2 Sources and Methodology

Navigant Research's industry analysts utilize a variety of research sources in preparing research reports. The key component of Navigant Research's analysis is primary research gained from phone and in-person interviews with industry leaders including executives, engineers, and marketing professionals. Analysts are diligent in ensuring that they speak with representatives from every part of the value chain, including but not limited to technology companies, utilities and other service providers, industry associations, government agencies, and the investment community.

Additional analysis includes secondary research conducted by Navigant Research's analysts and its staff of research assistants. Where applicable, all secondary research sources are appropriately cited within this report.

These primary and secondary research sources, combined with the analyst's industry expertise, are synthesized into the qualitative and quantitative analysis presented in Navigant Research's reports. Great care is taken in making sure that all analysis is well-supported by facts, but where the facts are unknown and assumptions must be made, analysts document their assumptions and are prepared to explain their methodology, both within the body of a report and in direct conversations with clients.

Navigant Research is a market research group whose goal is to present an objective, unbiased view of market opportunities within its coverage areas. Navigant Research is not beholden to any special interests and is thus able to offer clear, actionable advice to help clients succeed in the industry, unfettered by technology hype, political agendas, or emotional factors that are inherent in cleantech markets.

9.2.1 Vendor Selection

Navigant Research tracks over 400 companies active in the global BEMS market, each of which could have been considered for inclusion in this report. By necessity, this report focuses on a subset of players that have both demonstrated a strong track record within the BEMS market, as well as the scalability and staying power to continue to grow over time. Although there are a number of very strong players that offer excellent solutions focused on a specific type of system (e.g., HVAC, lighting, etc.), this report focuses on companies that provide platforms with enterprise-level energy management capabilities.

Although revenue was not used as one of the criteria, most of the companies active in this market are selling at least $5 million per year of BEMS software and the associated services and hardware. In some cases, BEMS represents just a small fraction of a company's revenue; in others, it represents virtually all of a company's revenue.

9.2.2 Ratings Scale

Companies are rated relative to each other using the following point system. The ratings are a snapshot in time, showing the current state of the company. These scores are likely to be fluid as new competitors enter the market and customer requirements evolve.

- Very Strong 91 – 100
- Strong 76 – 90
- Strong Moderate 56 – 75
- Moderate 36 – 55
- Weak Moderate 21 – 35
- Weak 11 – 20
- Very Weak 1 – 10

9.2.2.1 Score Calculations

The scores for Strategy and Execution are weighted averages based on the subcategories. The overall score is calculated based on the root mean square of the Strategy and Execution scores.

9.2.3 Criteria Definitions

9.2.3.1 Strategy

- Vision: Measures the company's stated goals in providing energy management solutions through a software-intensive platform. Clear and compelling visions that are effectively communicated to the industry result in higher scores.
- Go-to-Market Strategy: Evaluates the company's strategy for reaching the target market, including the sales and marketing channels to be used and the processes established for informing the target market about brand differentiation and unique value.

» Partnership Strategy: Measures the company's strategy for working with partners to deploy BEMSs. These partners provide an advantage to vendors in customer reach and in terms of complementary product and service offerings.

» Technology & Solution Portfolio: Evaluates the components of the system, particularly value-added services and hardware that support the BEMS deployment and allow building owners to realize additional value through a BEMS.

» Geographic Coverage: An evaluation of companies' ability to achieve scale across regions, particularly their ability to expand internationally. Scores are lower if the company does not have a sales or dealer strategy suitable for sales in multiple regions.

9.2.3.2 Execution

» User Interface: Measures the aesthetic and functional appeal of the BEMS user interface, particularly its ability to suit the broad audiences targeted by most BEMSs while being simple to configure and use without significant set-up or training.

» Breadth/Depth of Applications: Companies are evaluated in this category based on their ability to provide more than the basic energy visualization and energy analytics capabilities offered by many vendors in the market. Offerings such as DR, facility optimization, ongoing commissioning, energy procurement, and others help vendors achieve a higher score in this category.

» Technology Openness & Interoperability: Measures the ability of the BEMS offerings to be readily integrated with existing infrastructure and complementary offerings on the market. Companies that have embraced open standards, such as BACnet, Green Button, and OpenADR, tend to score highest in this category.

» Customer Acquisition & Partnerships: Evaluates a company's success in executing on its customer acquisition and partnership strategy. In terms of customers, counting major building owners and corporations as customers tends to result in a higher score. The number, quality, and complementary potential of partners results in a higher score, as well.

» Scalability & Staying Power: Considers a BEMS vendor's ability to expand into new markets as well as scale solutions within existing customers. These are the two key expansion strategies, and a company that has positioned itself for growth outside of its initial or home markets is likely to receive a higher score in this category.

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