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Green Quadrant: Integrated Workplace Management Systems 2022

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This version of the report contains Verdantix's summary of Planon's capabilities to help prospective customers evaluate whether the vendor is a good fit for their real estate and facilities requirements. It does not contain other vendor profiles.

SMART BUILDINGS

Green Quadrant: Integrated Workplace Management Systems 2022

This report provides a detailed fact-based comparison of the 13 most prominent integrated workplace management systems available on the market today. Applying the proprietary Verdantix Green Quadrant methodology, the analysis is based on two-hour live product demonstrations with pre-set usage scenarios and supplier responses to a 238-point questionnaire. To understand customer needs Verdantix reviewed the data from a survey of 285 real estate and facilities decision-makers. Our in-depth benchmarking concludes that eight suppliers lead the market and they demonstrated an excellent breadth of functionality and strong market momentum. The analysis also reveals that other providers offer strong propositions in workplace management, space management, mobile solutions and tenant-facing engagement.

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ORGANIZATIONS MENTIONED

Accruent, Addnode Group, Affidea Group, AgilQuest, Airbus, AMTdirect, Angus Systems, Archibus + Serraview, AREMIS, Asure Software, AurAir, Australian Accounting Standards Board (AASB), Autodesk, Avison Young, Axonize, Baskin-Robbins, Berkshire Partners, bGrid, Box+Dice, Calgary Board of Education, California Department of Motor Vehicles, California State University, Casey's General Stores, Castleton Technology, Catholic Health Care, Catholic Health Initiatives, CBRE, Centuria Capital Group, CheckPoint ID, Chick-fil-A, City of Helsinki, City of Hyvinkää, City of Kansas City, City of Sint-Niklaas, City of Vantaa, Clackamas County, Co3 Group, Connecticut State Colleges & Universities, Coventry University, Culemborg Municipality, Curtin University, Daiwa House, Deloitte, Derwent London, DEXMA, Disruptive Technologies, Duke University, Dunkin' Brands, Dussmann Group, eCIFM, eFM, Empact Group, ENERGY STAR, Envizi, eSight Energy, Excitech, EY, Fairbanks North Star Borough, Financial Accounting Standards Board (FASB), Findspace, Finnish Tax Administration, FM:Systems, Fortive, FSI, Google, Government Accounting Standards Board (GASB), Granlund, Gravicon, HCA Portsmouth Hospital, Het Facilitair Bedrijf (HFB), Highmark Health, Holland & Barrett, Horizant, Hospital for Special Care (HFSC), Housing Partners, IBM, Illinois Institute of Technology, Indus Systems, Ingy, Insight Partners, InterMed, Internal Revenue Service (IRS), International Accounting Standards Board (IASB), International Financial Reporting Standards (IFRS), International Performance Measurement and Verification Protocol (IPMVP), iOFFICE + SpaceIQ, ISS Facility Services, James Madison University, JLL, JMI Equity, Kaiser Permanente, KPMG, KVA Architects, LeaseEagle, Leverton, Lindsey Software Systems, MacMunnis, MazeMap, McGill University Health Centre, Microsoft, MRI Software, MSCI, Multifamily Insurance Partners, National Land Survey of Finland, Near, Nemetschek Group, Newmark, NHS Greater Glasgow and Clyde (NHSGGC), North Savo Hospital, Nuvolo, Oracle, Orchard Information Systems, Oregon Department of Transportation (ODoT), Oregon State Hospital, Ørn Software, Oxford Properties, Panera Bread, Parkland Health & Hospital System, Planon, PointGrab, Priority

Technology, ProLease, Rapal, Reasult, Refresco, Relogix, Rifiniti, Rockend, RSM, San Bernardino County, San Diego Gas & Electric, Schneider Electric, Scudo, Service Works Global, ServiceNow, Sigfox, Slack, Smithsonian Institution, Sony Pictures, Southern Health NHS Foundation Trust, Southwest Airlines, Spacewell, State of Florida, SWYCS, Tableau, Tango, Thoma Bravo, Tilburg Municipality, Trimble, U.S. Air Force, U.S. Environmental Protection Agency (EPA), University of Delaware, University of North Texas (UNT), University of Oxford, University of Texas System, US Department of Veterans Affairs, VergeSense, Vertex Pharmaceuticals, VLogic Systems, Waud Capital Partners, WhosOnLocation, WizzPass, zLink, Zoom.

The State Of The Market For Integrated Workplace Management Systems

Integrated workplace management systems (IWMS) are used by building occupiers and facilities services firms to centralize real estate and facilities data and drive operational improvements. The traditional audience of IWMS solutions were real estate and facilities professionals, but today the solutions are expanding their touchpoints to include all building occupants and visitors. Globally there are hundreds of specialist real estate and facilities software products available on market. IWMS solutions are distinct because they offer the broadest range of software functionality and are the leading contender to be the supervisory layer to consolidate a firm's real estate data in the future.

This report provides the individuals responsible for selecting, implementing and getting value from IWMS solutions with a detailed benchmark of the 13 most prominent solutions available on the market. These individuals include executives in facilities, information technology (IT), operations and real estate roles. Their questions include:

- Which IWMS solutions will meet the requirements of my organization?
- Which IWMS solutions are leading the market?
- How does my existing software compare to other products available on the market?
- How can I benchmark the functionality and depth of experience of IWMS providers and assess the ability of these providers to deliver value?

To answer these questions, Verdantix analysed 13 software solutions using a 238-point questionnaire and conducted two-hour live software demonstrations. We also analysed our global survey data sourced from hundreds of real estate executives, to understand their requirements and gather feedback on the solutions in the market. The resulting analysis is based on the proprietary Verdantix Green Quadrant methodology designed to provide an evidence-based, objective assessment of suppliers providing comparable products or services.

We note that the denomination of IWMS solutions is not consistent across the market and there are some regional variations. In some instances, suppliers and buyers use the term computer-aided facility management (CAFM) and IWMS interchangeably, while in other instances providers use the term CAFM to describe software products that offer narrower functionality focused on facilities management. To cut through the confusion, later in this report we set out the inclusion criteria for the solutions covered in this benchmark.

A Slew Of Strategic Mergers And Acquisitions Have Reshaped The IWMS Market

The evolution of IWMS solutions dates back to the 1980s with the launch of software products to help organizations collect, centralize and report real estate and facilities data efficiently and consistently. Over the past three years, the IWMS market has transformed with a slew of investments, mergers and acquisitions (M&A) activity and technology advances shaped by the Internet of Things (IoT) and open standards (see **Figure 1**). In recent years, IWMS suppliers have:

FIGURE 1

Three Phases Of The IWMS Market Development

		Pre-2010	2010-2021	2022 onwards
Supplier	Supplier landscape	Suppliers from different backgrounds evolve CAFM solutions into IWMS platforms by launching additional modules	Suppliers broaden IWMS functionality via organic development, partnerships and private equity-backed acquisitions	Diversification and consolidation of supplier landscape shaped by new entrants and acquisitions
	Software focus	Software supports real estate and FM functions with workflow management and data reporting	Vendors broaden functionality to complement existing strengths in areas such as space management Launch of more user-focused apps and enhanced user interfaces (UI)	Suppliers offer IWMS as part of a broader suite of smart building solutions, including IoT platforms and digital twins
	Software integration	Manual interfaces and document uploads Platforms import data from CAD and building information modelling (BIM) software	Integration with other enterprise software and systems Deeper integrations with sensors and smart building devices for real-time data collection and asset control	Software evolves to become an open platform integrating with IoT platforms, PropTech solutions and artificial intelligence (AI) applications
Customer	IT strategy for real estate and facilities management	Customers implement an IWMS platform across two or three modules often covering FM, portfolio management and asset management	Customers expand IWMS implementations to new areas such as employee experience and space management Focus on delivering mobile experiences for office users and technicians	Customers look to integrate IWMS platforms with IoT data sources such as sensors and building management system (BMS) offerings
	Purchase drivers	Manage the collection and reporting of real estate and facilities management information Drive cost savings through greater efficiency and IT consolidation	Enhance the employee experience of workplaces and optimize the utilization of spaces Support day-to-day management of buildings	Drive strategic programmes such as workplace transformation and decarbonization
	Key purchase criteria	Quality and breadth of IWMS platform to meet tactical needs	Quality of the UI and user-focused apps Ability of the IWMS platform to replace point solutions	Breadth of functionality from mobile apps Ease of integration with third-party workplace software and the broader smart building technology ecosystem

Source: Verdantix

- **Acquired point solutions to fill capability gaps and offer new products.**
  Since Verdantix ran the 2019 IWMS Green Quadrant benchmark there has been a high volume of investments and M&A between suppliers (see **Figure 2**). This is a departure from traditional practice where IWMS providers previously prioritized in-house platform development to extend their capabilities. Take FM:Systems acquiring WizzPass in June 2021 to offer visitor management solutions and boost its presence in South Africa. Another example is Spacewell acquiring DEXMA to offer an energy management software solution and gain a competitive edge. Buyers should be aware of the extent to which suppliers' new acquisitions have been integrated with existing systems; acquired offerings can often remain siloed with limited data flow or integration between systems.

- **Merged strategically with software providers to enhance capabilities.**
  Certain software firms have opted to strategically merge to grow their international reach and customer bases, deepen existing functionality and expand into new product areas. Witness iOFFICE and SpaceIQ merging in August 2021 following strategic investments in the firms by private equity firms Thoma Bravo and JMI Equity. The newly merged iOFFICE + SpaceIQ has greater global reach and a more comprehensive product portfolio covering enterprise asset management to workplace experience, and allowing the firm to grow into new industries and areas. The result for buyers? The M&A activity initially reduces the volume of IWMS providers in the marketplace, but it increases the choice of providers with international delivery expertise and broad platform capabilities.

- **Opened up IWMS solutions using open architectures and APIs.**
  Software suppliers are building more open architectures and application programming interfaces (APIs) to allow IWMS solutions to integrate with third-party software and hardware. This helps customers gain more value from deployments by improving solution extendibility and reduces key concerns around provider lock-ins. For instance, in June 2021 Planon launched an online marketplace that provides buyers with new add-on applications and integrations that extend Planon's solutions. This enables Planon to integrate with third-party positioning systems, such as MazeMap, and IoT solutions from AurAir, bGrid, Disruptive Technologies, Ingy, PointGrab, Relogix, SWYCS and VergeSense.

- **Converted customers to cloud-hosted deployments.**
  The data that Verdantix collected as part of our Green Quadrant benchmark show that IWMS suppliers are reducing on-premise deployments and switching customers to cloud-based solutions. Some IWMS suppliers, such as Nuvolo, Rapal, Tango and VLogic, primarily offer cloud-based solutions and only provide on-premise implementations in special scenarios. For instance, Nuvolo only provides on-premise options for government clients. Cloud-hosted deployments optimize solution scalability and long-term cost as updates can be immediately released and there is no physical maintenance required. This also enables buyers to quickly deploy new modules as needs arise rather than buying a full IWMS solution at the outset, reducing the upfront cost of solutions.

- **Allocated healthy portions of revenue towards product development.**
  The data that Verdantix collected as part of our Green Quadrant benchmark show that, on average, IWMS providers are reinvesting 25% to 30% of their annual revenue into product development. This has translated into providers developing the interoperability and functionality of solutions across areas such as maintenance, space, workplace and lease management. In 2020 and 2021, providers focused on improving space and workplace management capabilities by enhancing mobile apps and the ability to capture real-time data across utilization, the indoor environment, energy meters and asset status.

FIGURE 2

Market Transactions Impacting the IWMS Vendor Landscape July 2019 To January 2022

Date	Transaction	Description
July 2019	Acquisition	FM:Systems acquires workplace optimization solution provider Rifiniti
July 2019	Acquisition	MRI Software acquires data extraction and contract analytics platform Leverton
July 2019	Acquisition	MRI Software acquires lease management firm ProLease
July 2019	Investment	Nuvolo raises $12 million in a series B round of funding
Aug 2019	Acquisition	MRI Software acquires property management software firm Rockend
Oct 2019	Acquisition	FM:Systems purchases the workspace management business from Asure Software
Nov 2019	Acquisition	MRI Software acquires Multifamily Insurance Partners
Jan 2020	Acquisition	MRI Software acquires property management software firm Lindsey Software Systems
Mar 2020	Acquisition	MRI acquires social housing property management software vendor Orchard Information Systems
May 2020	Acquisition	Archibus + Serraview acquires space and workplace software vendor SpaceIQ
June 2020	Acquisition	MRI Software acquires Castleton Technology, a social housing software and services provider
Aug 2020	Acquisition	MRI Software acquires lease administration software firm MacMunnis
Aug 2020	Acquisition	MRI Software acquires Housing Partners, a social housing solutions firm
Sep 2020	Acquisition	MRI Software acquires Priority Technology's real estate payment brand RentPayment
Oct 2020	Acquisition	MRI Software acquires ID verification and fraud prevention solution provider CheckPoint ID
Nov 2020	Investment	Schneider Electric acquires a strategic minority shareholder position in Planon
Dec 2020	Acquisition	Spacewell acquires energy management software provider DEXMA
Jan 2021	Acquisition	MRI Software acquires lease and facilities management software provider AMTdirect
Jan 2021	Acquisition	Planon acquires a majority share in real estate software firm Reasult
Mar 2021	Investment	Nuvolo raises $31 million in series C funding led by Insight Partners
Mar 2021	Acquisition	MRI acquires employee, visitor and contractor management solution firm WhosOnLocation
Apr 2021	Acquisition	MRI Software acquires Trimble's real estate and workplace solutions division, Manhattan
June 2021	Acquisition	FM:Systems acquires visitor management software vendor WizzPass
June 2021	Acquisition	Planon acquires cloud-based IoT platform provider Axonize
June 2021	Acquisition	Ørn Software acquires IWMS firm Rapal
July 2021	Buyout by PE	Thoma Bravo buys out iOFFICE from Waud Capital Partners
July 2021	Acquisition	MRI Software acquires marketing and leasing platform Findspace
Aug 2021	Acquisition	MRI Software acquires CAFM provider FSI
Aug 2021	Merger	SpaceIQ and iOFFICE merge
Sep 2021	Investment	Autodesk makes strategic investment in iOFFICE + SpaceIQ
Sep 2021	Acquisition	MRI acquires customer relationship management (CRM) and transaction platform Box+Dice
Nov 2021	Acquisition	MRI Software acquires energy management software firm eSight Energy
Dec 2021	Investment	Tango secures equity investment from Berkshire Partners
Jan 2022	Acquisition	IBM acquires sustainability data management platform provider Envizi
Jan 2022	Acquisition	MRI Software acquires LeaseEagle, a commercial lease management solution provider
Jan 2022	Acquisition	MRI Software acquires building operations management software firm Angus Systems
Jan 2022	Acquisition	Tango acquires flexible and hybrid working solution provider AgilQuest

Source: Verdantix

- **Formed new alliances with workplace systems integrators.**
  IWMS suppliers are increasingly looking to partner with the 'Big Four' professional services firms and global IT firms that are expanding their workplace practices. Witness Deloitte becoming a strategic implementation partner for MRI's cloud-based ManhattanONE solution in May 2020. These alliances provide IWMS suppliers with access to a wider client base and with better visibility within the large real estate transformation strategy projects. Other examples include FM:Systems's strategic partnership with global real estate service firm JLL and KPMG's enterprise solutions team implementing Planon's IWMS solutions. Other prominent IWMS consultants and implementors include AREMIS, CBRE, eCIFM, eFM, Horizant and Newmark (see Verdantix Best Practices: Engaging A Systems Integrator To Drive Value From Your IWMS).

IWMS Solutions Are Undergoing A Revolution Driven By IoT Solutions, AI And Mobile Apps

The IWMS market today is being shaped by M&A activity and providers funnelling significant proportions of revenue into product development. The market continues to evolve driven by market trends, such as hybrid working, employee experience and emerging technologies. The next three years will be shaped by:

- **Improving mobile app capabilities for technicians and employees.**
  Although IWMS, CAFM and computerized maintenance management systems (CMMS) providers have offered mobile apps for over five years, the move to hybrid and distributed working strategies have put these apps in the spotlight. Since 2020, software providers have launched new health and safety capabilities for mobile apps, such as health questionnaires and contact tracing. Verdantix heard from IWMS providers that improving mobile apps is a priority for product roadmaps over the next three years. As such, we expect providers will continue to enhance apps with collaboration tools and virtual assistants for employees and with wayfinding and detailed asset information for technicians.

- **IWMS platforms forming integrations with the wider smart building ecosystem.**
  One of the major changes on the horizon is the greater integration of IWMS platforms with building management systems (BMS) and smart building devices. This development will enable IWMS solutions to capture more granular data on building equipment and indoor conditions, to run much smarter, data-enabled workflows. For example, by integrating real-time alerts on HVAC faults into an IWMS platform, IWMS solutions can automatically trigger workflows that direct interventions such as adjusting maintenance priorities. These strategies are already starting to emerge, such as FSI (part of MRI) which launched the IoT Hub so that it can process BMS data to shape the prioritization of technician tasks.

- **Inclusion of emerging technologies, such as artificial intelligence.**
  Verdantix expects IWMS providers will continue to include the latest technologies, such as artificial intelligence (AI), machine learning (ML) and virtual assistants, into IWMS platforms and mobile apps. IWMS providers have already developed functionality or formed partnerships to include new technology in their solutions. For instance, Tango's IWMS platform has AI and ML capabilities built into the platform for key areas of functionality, such as real estate investment and space scenario modelling. In January 2021, IBM launched TRIRIGA Assistant, an AI chatbot that reserves spaces, locates colleagues and reports service requests.

- **Continuing the fight for scale and richer functionality with further acquisitions.**
  We expect that IWMS suppliers will continue to acquire software solutions to grow the scale of their platforms. Private equity and investment firms are increasingly providing funds to IWMS suppliers, allowing them to acquire organizations to grow capabilities. Witness Tango receiving investment from Berkshire Partners in December 2021 and acquiring AgilQuest, a flexible and hybrid working solution provider, in January 2022.

Buyers Need To Watch Out For Variations In IWMS Platforms And Vendor Strategies

Even though IWMS platforms are a mature solution category, providers are continuing to invest in product innovation, supporting the growing impact of mobile apps and advanced technologies, such as AI and ML. Buyers should also be aware that the term 'IWMS' also masks the underlying variation in supplier strategies, product architecture and functionality offered by the prominent providers. No two IWMS solutions are the same. Buyers should be aware that IWMS suppliers are:

- **Pursuing diverse approaches to providing an integrated solution.**
  Traditionally IWMS providers have developed their suite of IWMS modules in-house to work on a single technology platform and data repository. This is still the case for suppliers such as IBM, Nuvolo, VLogic and zLink. An increasing array of suppliers now provide most of their IWMS functionality via a single platform with targeted integration to partner solutions or bolt-on acquisitions to expand functionality in targeted areas such as maintenance or energy management. For instance, Rapal provides its asset management functionality via a partnership with Granlund. Planon partners with Schneider Electric to offer advanced occupant mobile app functionality, such as occupant control of building systems.

- **Offering different depths of industry-focused functionality.**
  Some IWMS providers offer industry-focused configurations of their software. Take Tango offering specialist functionality for the retail industry, helping retailers identify the most profitable sites. Nuvolo offers configurations of its software focused on the healthcare and retail sectors. Similarly, FM:Systems offers configurations of its IWMS for healthcare and education facilities. Planon provides a configuration of its IWMS focused on the needs of facilities services providers.

- **Targeting new industries and geographies.**
  IWMS suppliers are looking to increase their customer bases across new industries and geographies by offering specialist functionality or enriching their internationalization capabilities. Witness Rapal adding Swedish and French languages for out-of-the-box deployments, since Verdantix ran the 2019 Green Quadrant. IWMS providers are increasingly targeting firms across the public, healthcare and education sectors. For instance, throughout 2020 and 2021, Planon was implemented by the California State University, Coventry University, Illinois Institute of Technology and University of Texas System.

- **Pushing product investment into diverse areas.**
  Given the broad reach of IWMS solutions, suppliers naturally focus on different areas for product development. For example, MRI Software has built on its heritage in providing strong lease and financial management functionality, to focus its product investments on developing tools to automate lease classifications and management. Whereas Service Works Global (SWG) has elected not to build out accounting functionality, but to focus its product investment instead in developing tools for managing assets and maintenance plans. Buyers should refer to the provider profiles in this report to understand the strengths and weaknesses of each provider.

Buyers Turn To IWMS Platforms To Enhance All Facets Of Real Estate Decision-Making

To gain an objective understanding of buyer decision-making, value drivers, purchase preferences and functional requirements of an IWMS, Verdantix ran a series of interviews with facility and real estate directors at large organizations. We asked these individuals to explain the common purchase drivers for IWMS platforms and overall experience in engaging with vendors. We also leveraged data from our 2021 global corporate survey of 285 corporate facilities and real estate executives to gain insights into purchasing priorities and purchase criteria for IWMS solutions.

2022 Real Estate Strategies Will Be Shaped By Agile Working, Cost Reduction And ESG Trends

To establish the overall strategic priorities for real estate and facilities teams, we asked a global panel of 285 real estate and facilities directors to tell us their priorities for the next 12 months (see Verdantix Global Corporate Survey 2021: Smart Building Technology Budgets, Priorities & Preferences). The principal findings are that firms are:

- **Reducing real estate costs is top priority for firms.**
  When asked to rank real estate management objectives by importance over the next three years in the 2021 Verdantix survey of building occupiers, 30% of respondents rated reducing real estate costs as their top objective and 23% of firms rated it as their second priority. As COVID-19 and its financial impacts have lingered on longer than expected, business executives remain focused on seeking out quick fixes that will reduce operating costs and open up funding for more strategic business projects. Firms are more closely analysing existing real estate portfolios, facilities contractors' performance, maintenance plans and energy use to identify cost-cutting opportunities.

- **Implementing agile working to support the hybrid workplace is a high priority.**
  An increasing number of firms are implementing hybrid working programmes following the COVID-19 pandemic to meet employee demand and support space reduction goals. In the Verdantix 2021 Global Corporate Survey, 58% of firms indicated that increasing the amount of agile working is a high priority over the next year. As firms create flexible workplaces, they are investing in room and space booking systems that enable employees to plan productive days in the office and ensure that office attendance is evenly spread throughout the week. These tools will not only help enable agile working, but will also help managers understand space utilization to optimize real estate portfolios.

- **Sustainability has re-emerged as an important aspect of facilities management.**
  Executives are facing rising pressure from employees, investors and regulators to collect and report on sustainability and environmental, social and governance (ESG) data. According to the 2021 global survey, 44% of executives rate collecting sustainability and ESG data as a high priority for the next year. Furthermore, 47% of respondents in the 2021 Verdantix survey are planning to make new investments in reporting building-related ESG data to investors and stakeholders. Firms are investing in a range of devices to collect the data, such as IoT sensors and energy meters, and software solutions to combine these data into reports for stakeholders.

- **Increasing the use of mobile applications will shape building management strategies in 2022.** Mobile applications are becoming increasingly popular in smart office strategies, with 47% of firms in the 2021 Verdantix global survey rating increasing the use of mobile apps as a high priority for the year ahead, and 39% stating that improving on-site employee experience is a high priority. Mobile applications are being increasingly used in the workplace to improve employee productivity, engagement and overall experience (see Verdantix Smart Innovators: Smart Workplace Technology).

Real Estate Executives Seek To Manage A Small Portfolio Of Software Solutions

The Verdantix survey shows that firms will look to reduce real estate costs, optimize hybrid working programmes, improve employee experience and report on sustainability and ESG data in 2022. What are organizations' future plans for real estate and facilities management software? To get a better view into this, we analysed the findings from our global smart building survey with 285 firms. The results show that:

- **A quarter of firms want to use a few solutions that offer broad functionality.** According to the 2021 Verdantix global survey panel, 26% of respondents want to use a few solutions that have broad functionality (see **Figure 3**). Rather than invest in a single platform, these firms want to invest in various solutions that can manage a range of related processes. This approach allows firms to select the vendor that best meets their needs while keeping a simple technology stack with a few solutions.

- **Nineteen per cent want to roll out a single integrated solution for real estate needs.** In our global survey, there is medium underlying demand for strategies based on a single platform. We heard from 19% of firms that they want to use a single integrated solution for most of their real estate needs. The advantage of running all processes on a single system is that the data sets seamlessly flow between the modules and can be leveraged alongside different data sets in each module. For instance, asset condition data from the asset and maintenance modules can be combined with financial data to help plan capital projects. Moreover, 15% of respondents are looking to take this strategy further, with the ambition to install a single platform to meet their real estate, human resource (HR) and IT needs.

- **A further 19% want to use a single supervisory layer with point solutions.** Another vision for integrating real estate and facilities data is based on using a single supervisory and reporting layer that brings in data from best-of-breed software solutions. This is the preferred vision for 19% of the 2021 Verdantix global interview panel. These firms see a role for a single reporting layer but also want to use specialist software solutions when they offer more functionality depth. With IWMS vendors developing APIs that facilitate integrations with third-party software apps, IWMS platforms can also support this vision.

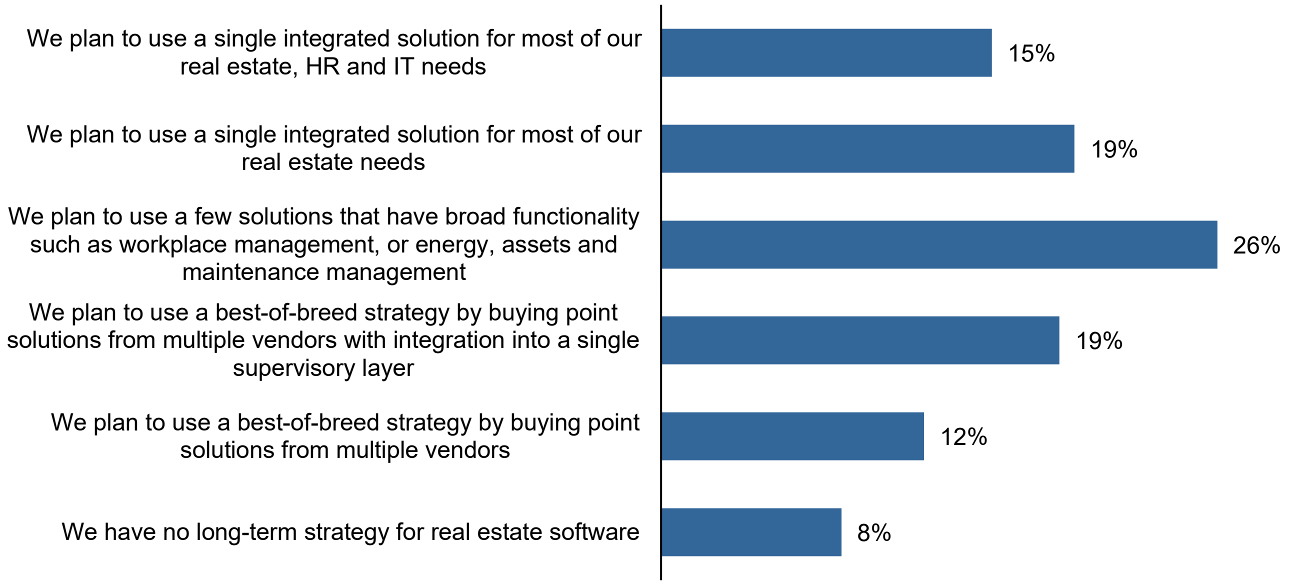
Firms Have Invested In IWMS Software To Tackle Multiple Usage Scenarios

Our global survey confirms there is strong appetite amongst firms to use a single or small set of solutions to manage their real estate and facilities operations. How are organizations using IWMS platforms to manage their real estate and facilities management data? To find out, we analysed 2021 Verdantix global corporate survey data from the 157 firms that already had IWMS solutions implemented at multiple sites. The results show that firms are:

FIGURE 3

Strategies For Real Estate And Facilities Software Over The Next Five Years

"Which of the following statements best describes your strategy for real estate and facilities software over the next five years?"



Note: Data labels are rounded to zero decimal places

Source: Verdantix Global Corporate Smart Building Survey 2021

N=285

- **Using software to manage financial and operational processes.**
  Our global survey panel subset is widely using software to manage the following areas: leasing and financial management (83% of the survey subset), maintenance management (63%), and space utilization (62%) (see **Figure 4**). This reflects the fact that executives are looking to reduce costs by optimizing leases, space utilization and maintenance plans. Firms are leveraging software solutions to aggregate building and equipment leases across a portfolio to easily keep track of critical dates and budgets. Managers are using asset and maintenance management solutions to optimize asset life cycles and capture more granular data on contractors to check performance against service level agreements (SLAs).

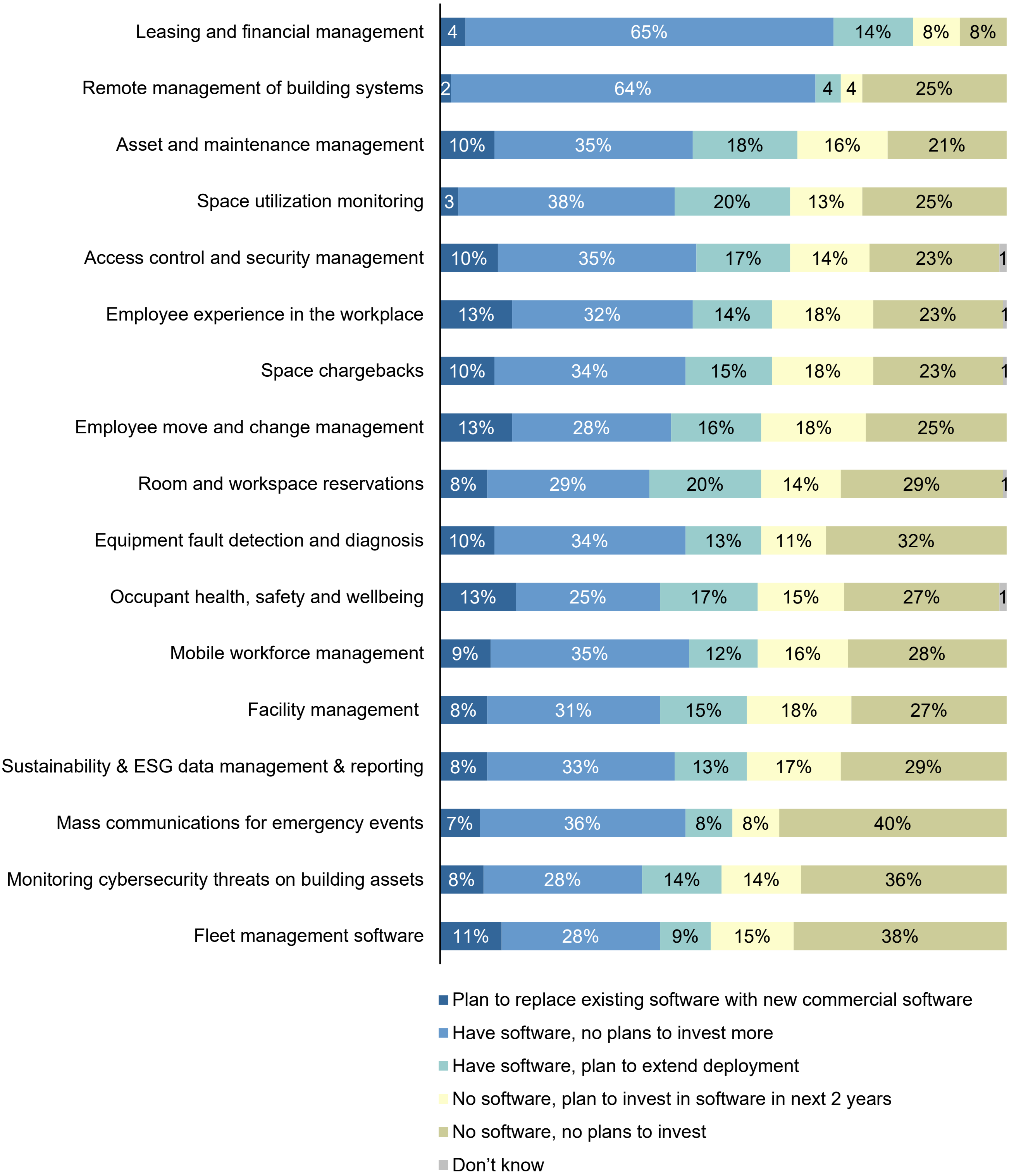
- **Planning to invest in software to manage space and the workplace experience.**
  Our global survey panel subset is planning to invest in software to manage the following areas: employee move and change management (47%), occupant wellbeing (46%) and employee experience in the workplace (45%). While most of the firms in the panel subset are already using software for workplace management, they are looking to further invest in innovative solutions that would optimize space usage and user experience. In particular, managers are looking to invest in solutions that simplify move and change management processes as they implement hybrid working scenarios and update portfolios.

- **Enhancing existing IWMS deployments with IoT solutions.**
  Of the 157 survey respondents with IWMS implementations, 34% currently have IoT platforms implemented and 51% of them plan to enhance investment in IoT platforms. Executives are increasingly using IoT platforms to augment existing IWMS solutions with real-time data. Firms want to leverage IoT sensors to collect more granular data on space utilization to improve real estate planning. Firms also want to collect workplace environment data, such as that provided by indoor air quality (IAQ) sensors, to ensure a safe and productive workplace for employees.

FIGURE 4

Usage Of Commercial Software By Real Estate And Facilities Process

"Do you use commercial software to support the following facilities and real estate processes?"



Note: Data labels are rounded to zero decimal places; percentages less than 5% are written as numbers; chart is ranked by the first three response options

N=157

Source: Verdantix Global Corporate Smart Building Survey 2021

Buyers Seek Out IWMS Solutions With High-Quality User Interfaces And Robust Mobile Capabilities

Large organizations run a wide range of strategies to manage real estate IT, but are generally seeking to simplify their IT application landscape with software products that support multiple processes. What do buyers look for when considering the purchase of real estate and facilities software solutions? How do buyers compare vendors during the software selection processes? This section of the report analyses the factors that make up the buyers' top purchase criteria.

Buyers Select IWMS Solutions Based On User Interfaces, Annual Costs And Integration Capabilities

What do buyers look for when reviewing and investing in real estate and facilities software solutions? To find out, we analysed survey data from the 157 firms that had IWMS solutions implemented at multiple sites. We heard that:

- **Buyers continue to view the quality of the user interface as a top purchase-decision criterion.**
  For our global survey panel subset, the quality of the user interface (UI) is the most significant factor influencing software vendor selection; 42% of the respondents rate it as very important and a further 54% rate it as important (see **Figure 5**). This was also the finding of the customer panel that Verdantix ran for the 2019 Green Quadrant with a different set of interviewees (see Verdantix Green Quadrant Integrated Workplace Management Systems 2019). In response to this customer desire, vendors have been investing to update and modernize their UIs. For example, in May 2020 a new version of Archibus was released, offering a refreshed platform that is more intuitive and visually engaging to improve the user experience.

- **Annual software cost is also a priority for buyers.**
  The annual cost of software solutions continues to be a key purchase criterion for buyers; 83% of firms said it was very important or important. This reflects that real estate cost reduction is a top priority for executives going forward. Customers are more focused on the ongoing licence costs than the initial implementation costs, with 77% of respondents rating implementation costs as very important or important.

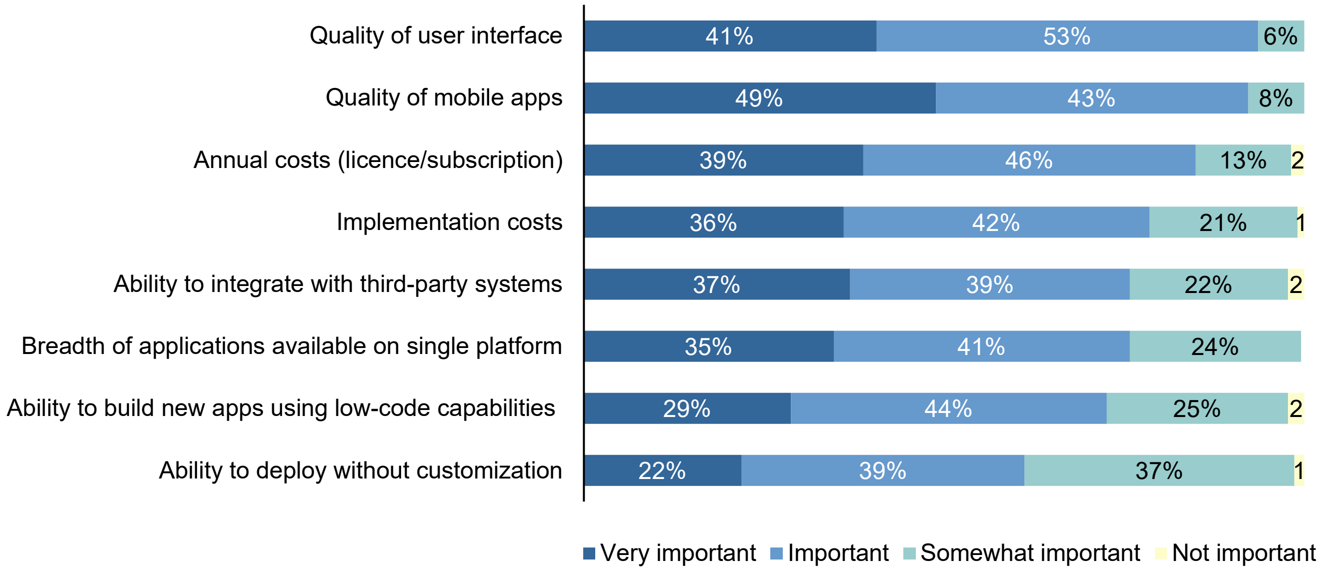
- **Quality of mobile apps continues to be very important.**
  The quality and functionality of mobile apps was very important or important for 93% of the global survey panel subset. This reflects that IWMS solutions are increasingly being leveraged by the end-users, such as occupants and technicians, in day-to-day activities. As a result of mobile apps becoming more important, vendors have been investing to update the UI and functionality of mobile apps. For instance, in April 2021 Spacewell launched a new workplace app that allows employees to access live sensor data and personalize the mobile app through start tiles.

- **Integration capabilities are emerging in importance.**
  The ability to integrate software solutions with third-party systems has emerged as an important purchase consideration, with 78% of survey respondents rating it as very important or important. Customers are looking to leverage third-party data from existing systems, such as enterprise resource planning (ERP) solutions, to enrich and digitize more processes. In response to this, vendors have been investing in APIs and making their platforms more open for integration. For example, in September 2020 Planon launched a new strategy to make its IWMS an open platform that easily integrates with third-party

FIGURE 5

Importance Of Real Estate And Facilities Management Software Purchase Criteria

"When evaluating a real estate and facilities management software vendor, how important are the following factors in your purchase decision?"



Note: Data labels are rounded to zero decimal places; percentages less than 3% are written as numbers; chart is ranked by the first two response options

N=157

Source: Verdantix Global Corporate Smart Building Survey 2021

systems and enables customers to customize it (see [Verdantix Planon Drives Forward Its Strategy By Opening Up Its IWMS Platform]).

Buyers Seek Workplace Apps To Support Space Booking And Collaboration

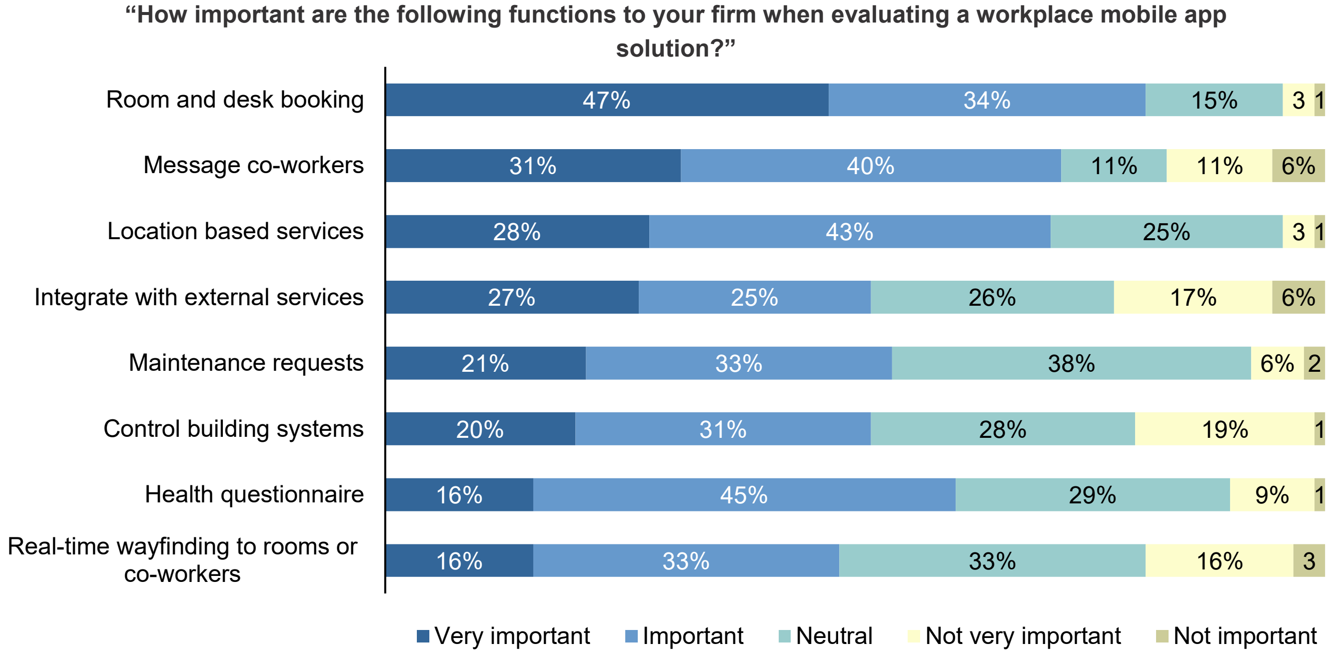
Buyers are primarily interested in software solution UIs, mobile app capabilities and annual costs during the vendor evaluation process. What do buyers look for when considering the purchase of workplace mobile apps? To find out, we analysed survey data from the 89 firms that are planning investments in mobile apps for employees in the 2021 Global Corporate Survey. We heard that:

- **Firms view space booking capabilities as a key functionality area for mobile apps.**
  According to the 2021 Global Corporate Survey, space booking functionality is the most important function when evaluating mobile apps; 47% of respondents rate it as very important and a further 34% rate it as important (see **Figure 6**). This reflects the fact that firms are predominately investing in mobile apps to support hybrid working programmes and the return to the office. For instance, in October 2020 real estate services firm Avison Young deployed MRI ManhattanONE FlexiDesk and mobile reservation modules to support its return-to-office strategy for employees.

- **Functionality to message co-workers is also an important feature.**
  The ability to message co-workers is an important mobile app functionality for 71% of respondents in the 2021 Verdantix Global survey. Employees leverage this capability to send quick messages to increase collaboration and productivity. Some IWMS vendors provide this capability within the workplace app; meanwhile other vendors have opted to leverage existing phone capabilities or integrations with common

FIGURE 6

Importance Of Mobile App Functionality When Evaluating Solutions



Note: Data represent a subset of firms that are planning investments in workplace mobile apps; data labels are rounded to zero decimal places; percentages less than 4% are written as numbers; chart is ranked by first response option

N=89

Source: Verdantix Global Corporate Smart Building Survey 2021

collaboration platforms, such as Slack and Microsoft Teams. For instance, the Planon Workplace Engagement App makes use of native smartphone functionality for messaging, calling or emailing colleagues.

- **Executives hold mixed opinions on mobile apps integrating with external services.** In the 2021 Verdantix global survey, 52% of firms rated the ability for mobile apps to integrate with external services to be important, while 22% of firms rated it as not very important or not important at all. Often firms that have offices in urban areas will look for integrations with external services, such as share-riding apps, public transportation information or nearby restaurant menus, to help employees maximize the value of going to the office.

Green Quadrant: Integrated Workplace Management Systems

Based on the insights provided by the independent customer panel and our in-depth interviews with suppliers, Verdantix defines building IWMS solutions as:

> *'Enterprise-scale software platforms to help organizations capture and analyse information, manage operations, and optimize and report on the management of real estate portfolios, including leases, capital projects, facility and space utilization, workplace services, employee experience, maintenance, energy and sustainability management.'*

We note that there is also broad range of software vendors that offer a subset of IWMS capabilities, such as software for space optimization or lease management. These solutions fall outside the scope of this study and will be covered in separate Verdantix research. In addition, we note that there are some software vendors offering broad IWMS solutions who continue to describe their products as CAFM, particularly in Europe.

Green Quadrant Methodology

The Verdantix Green Quadrant methodology provides buyers of specific products or services with a structured assessment of comparable offerings at a certain point in time. The methodology supports purchase decisions by identifying potential suppliers, structuring relevant purchase criteria through discussions with buyers, and providing evidence-based assessments of the products and services in the market. To ensure the objectivity and accuracy of the results of the study, the research process is based on the following principles and activities:

- **Transparent inclusion.**
  We aim to analyse all suppliers that qualify for inclusion in the research. For those suppliers that decline our invitation or fail to respond, we aim to include them in the report based on public information where this would provide an accurate analysis of their market positioning.

- **Analysis from the buyer's perspective.**
  We recruit a panel of individuals who have bought or plan to buy the product or service analysed in the Green Quadrant. Their role is to define relevant buying criteria and to weight the evaluation criteria in the model that drives the Green Quadrant graphic.

- **Reliance on professional integrity.**
  Since it is not feasible to check all of the data and claims made by suppliers, we emphasize the need for professional integrity. Assertions made by suppliers are put in the public domain in the Verdantix report and can be checked by competitors and existing customers.

- **Scores based on evidence.**
  To assess the expertise, resources, business results and strategy of suppliers, we gather evidence from public sources and conduct interviews with multiple spokespeople and industry experts. When suppliers claim to be 'best-in-class', we challenge them to present the evidence.

- **Comparison based on relative capabilities.**
  We construct measurement scales based on 'worst-in-class' and 'best-in-class' performance at a certain point in time. A provider's position in the market can change over time depending on how its offering and success evolves compared to that of its competitors. This means that, in some cases, even if a provider adds new modules, makes a strategic acquisition, or receives investment, its quadrant positioning may not move positively because the assessment is relative to the advancements of other software providers in the assessment. Green Quadrants are typically repeated every one or two years.

Inclusion Criteria For The IWMS Solution Benchmark

Globally, there are hundreds of software vendors providing solutions that manage different aspects of real estate and facilities. To ensure the Green Quadrant analysis only compares firms providing a similar breadth of functionality at a comparable level, we define inclusion criteria. The 13 software suppliers selected for this study are included because they have:

- **Broad real estate and facilities management functionality through an integrated solution.**
  Reflecting the customer buying trends of integrated solutions for real estate and facilities management, we included only suppliers with applications that can manage a broad spectrum of workplace processes. This eliminated applications that provide only facilities management or lease management functionality.

- **IWMS revenues exceeding $5 million.**
  This study only compares vendors that generate revenues from IWMS in excess of $5 million annually.

Based on the inclusion criteria above, this report looks in depth at 13 IWMS vendors: Accruent, FM:Systems, IBM, iOFFICE + SpaceIQ (Archibus), MRI Software (ManhattanONE), Nuvolo, Planon, Rapal, Spacewell (Axxerion and MCS), Service Works Global (SWG), Tango, VLogic and zLink (see **Figure 7**). Twelve software suppliers included in this study actively participated through interviews, product demonstrations and responses to a 238-point detailed questionnaire. The firm that declined to actively participate was scored based on publicly available information. Verdantix benchmarked vendors based on a questionnaire submitted in November 2021, so it does not consider the capabilities from acquisitions or new product launches and the momentum from investments made after November 2021.

Scope And Methodology Updates For The 2022 IWMS Green Quadrant

Verdantix studies reflect the current state of customer requirements and product capabilities. As such, Verdantix updates the assessment criteria to ensure that they are in line with the current state of the market. Updates to the 2022 Green Quadrant include the:

- **Expansion of the high-level capabilities criteria from 25 to 26.**
  The 2022 Green Quadrant includes one additional high-level capability criterion compared to the previous study published in 2019. This is a result of an entirely new criterion and the reorganization of existing criteria. The notable addition assesses the application and data centre security provided by IWMS vendors. In addition, we have reorganized the business intelligence (BI), platform configurability, and ESG and sustainability management criteria categories. This 2022 Green Quadrant is a more stringent assessment of a vendor’s ability to innovate to meet the emerging needs of buyers.

- **Deepening of the sub-criteria under functionality and platform capability areas.**
  The 2022 IWMS Green Quadrant builds on the 2019 assessment by deepening the data we gather from vendors on their platform capabilities and software functionality. The most notable changes are that we expanded the sub-criteria under workplace services from six areas to nine areas. We also expanded the sub-criteria under asset and maintenance management from eight areas to 10 areas. Overall, the assessment of IWMS solutions functionality is much more detailed than in 2019.

- **Adjusted weightings to reflect current market trends and customer priorities.**
  The Verdantix Green Quadrant considers the evolution of the market and customer requirements to ensure the weighting of all high-level criteria mirrors the current importance of all software components to users globally. For example, in the 2022 IWMS Green Quadrant, IT systems integration capabilities are worth a 3% weighting of the total capabilities score, versus a 1.5% weighting in the 2019 study. This reflects growing customer interest in software platforms that can integrate with third-party systems.

FIGURE 7

Suppliers And Software Assessed

Vendor	IWMS Solution Name
Accruent	Lucernex, FAMIS 360, EMS, vx Observe, VFA
FM:Systems	FMS:Workplace
IBM	TRIRIGA
iOFFICE + SpaceIQ	Archibus
MRI	ManhattanONE
Nuvolo	Nuvolo Connected Workplace
Planon	Planon Universe
Rapal	IWMS360°
Service Works Global (an Addnode Company)	QFM
Spacewell	MCS
Tango	Tango
VLogic	VLogicFM
zLink	zLinkFM

Source: Verdantix

Evaluation Criteria For IWMS Solution Providers

Verdantix defined the evaluation criteria using a combination of interviews with practice managers, discussions with customers and existing expertise. The Green Quadrant analysis compares the offerings of 13 IWMS providers using weighted criteria grouped under the following categories:

- **Capabilities.**
  This dimension, captured in the vertical axis of the Green Quadrant graphic, measures each software supplier on the breadth and depth of its software functionality. To assess performance on this dimension, Verdantix collected data on 188 criteria grouped into 26 areas: application and data centre security; automated data input; IT systems integration; database design; master data management; mobile applications architecture; mobile applications portfolio; business intelligence; configurability; customizability; implementation options; user interface; internationalization; real estate investment

management; real estate, leasing and portfolio management; capital project management; space management; workplace services; occupant wellbeing and engagement; occupant safety; asset and maintenance management; asset monitoring; facilities management services firm operations; ESG and sustainability management; enterprise reporting; and breadth of customer focus.

- **Market momentum.**
  This dimension, captured in the horizontal axis of the Green Quadrant graphic, measures each software supplier on a range of strategic success factors including publicly announced customers and internal sustainability performance. We collected data on 50 criteria grouped into seven areas: brand awareness; market vision and product strategy; customer time to value; installed customer base; recent deal volume and size; organizational resources; and IWMS revenues.

The evidence provided by all IWMS vendors is captured in a quantitative model that starts with the sub-criteria scores. Each sub-criterion has a percentage weighting that dictates how much of a contribution it makes to the high-level capability score. For example, real estate, leasing and portfolio management is one of the high-level criteria considered in the capabilities section, but is itself composed of five weighted sub-criteria that determine the overall score. All participants are scored between zero and three for each sub-criterion. Subsequently, each high-level criterion is allocated a percentage weighting which then determines how much that score contributes to the overall score. The combination of high-level criteria scores in the capabilities and momentum sections generates the Green Quadrant graphic. **Figure 8** and **Figure 9** provide details of the study criteria; **Figure 10** and **Figure 11** provide the scoring for all participants against the criteria. The figures also present the weighting of each primary criterion, shown inside the parentheses. Weightings are based on customer survey data regarding what IWMS software functionality is most widely used and analyst views on the broader IWMS landscape. **Figure 12** provides the Green Quadrant graphic summarizing the positioning of all software providers in this benchmark study.

FIGURE 8-1

Capabilities Criteria For IWMS Solutions

Capabilities	Questions
Application & Data Centre Security (1%)	What is the security framework for the enterprise application? What vulnerability assessments does the vendor perform and how often? Does the vendor use third-party providers to perform vulnerability assessments? Which standards and certifications does the vendor's hosting environment adhere to? What is the SLA for data recovery, RPO (recovery point objectives) and RTO (recovery time objectives)?
Automated Data Input (3%)	What functionality is provided to integrate with and capture data from different sensors, electricity meters, building management systems, building equipment and security systems deployed in buildings? What is the range of indoor positioning systems into which your solution can integrate? What functionality is provided to capture data from a site's IT system and network, external sources, building occupants and other data feeds?
IT Systems Integration (3%)	What functionality is provided to integrate with computer-aided design (CAD) and building information modelling (BIM) (or import the relevant data), other enterprise systems, third-party real estate, energy and facilities information management systems, and online third-party worker collaboration tools?
Database Design (2%)	What scalability/clustering can the vendor demonstrate with customer deployments? What functionality is provided to support data audits, ensure and enhance data quality, and deal with data gaps? How does the solution provide extensible, flexible and interoperable data access to customers?
Master Data Management (2%)	What functionality is provided to define and/or upload the organizational structure and hierarchy? How are users able to configure and reconfigure the organizational hierarchy data? How does the system enable users to aggregate data in a data warehouse?
Mobile Applications Architecture (1%)	What architecture and security framework does the app have? With which operating systems is the mobile app compatible?
Mobile Applications Product Portfolio & Use Cases (5%)	How many scenario-specific mobile apps does the vendor offer? How many active monthly users are there for the mobile apps?
Business Intelligence (2%)	Does the app have its own business intelligence (BI) tool or is it sold with a third-party BI tool? How can a customer export data to their own BI tool? What tools are available for benchmarking, dashboarding and forecasting?
Platform Configurability (3%)	How can elements such as forms and metric libraries in the system be changed or reconfigured? How can business rules, workflows, role definitions and other elements be changed, reconfigured or added to?
Platform Customizability (2%)	What tools and processes are available to version, package and promote changes across systems?

Figures in brackets represent the weighting given to each criterion in the flexible multi-criteria model that generates the Green Quadrant graphical analysis.

Source: Verdantix analysis

FIGURE 8-2

Capabilities Criteria For IWMS Solutions

Capabilities	Questions
Implementation Options (2%)	Do the implementation options include multi-tenant hosted, single-instance hosted and on-premise models?
User Interface (4%)	What is the quality of the user interface for the desktop application and mobile app? What integrations does the vendor offer with digital signage and voice-based user interface options?
Platform Internationalization (2%)	How many user interface languages are provided? What is the multi-currency functionality? How does the software manage multiple time zones? What range of international accounting guidelines can the software manage?
Real Estate Investment Management (3%)	What functionality is provided for real estate transaction management? What functionality is provided to support intelligent site selection for a new office or retail site? What functionality is provided to support day-to-day accounting for investment portfolios? What functionality is provided to analyse the performance of an investment portfolio?
Real Estate, Leasing And Portfolio Management (15%)	What functionality is provided for the management and analysis of real estate portfolios? What functionality is provided for transaction management? What functionality is provided for lease administration and analysis? What are the capabilities to create lease ledger entries compliant with lease accounting standards? What functionality is provided to manage real estate tax payments across different geographies?
Capital Project Management (8%)	What functionality is provided to support capital project planning and analysis? What are the capabilities to help organizations support ongoing, day-to-day management of various capital projects? What are the capabilities to manage the financial elements of capital projects?
Space Management (10%)	What are the tools to import and update facility drawings? What is the functionality to manage the allocation of workers to desks or agile working environments? What is the functionality to manage space chargebacks? What functionality is provided for collecting and analysing data on space allocations and space utilization? What is the functionality for restacking and scenario modelling? What are the capabilities to support move management within organizations?
Workplace Services (6%)	What are the capabilities to provide self-service applications to building occupants for reserving meeting rooms, spaces and workstations? What are the capabilities to enable agile workers to book lockers? What functionality is provided for occupants for real-time wayfinding to locate desks and co-workers? What functionality is provided to support visitor management? What functionality is provided for occupants to more efficiently collaborate in the office?

Figures in brackets represent the weighting given to each criterion in the flexible multi-criteria model that generates the Green Quadrant graphical analysis.

Source: Verdantix analysis

FIGURE 8-3

Capabilities Criteria For IWMS Solutions

Capabilities	Questions
Occupant Wellbeing & Engagement (3%)	What functionality is there for building occupants to provide feedback on their workspace? What functionality is there to enable building occupants to directly control their workplace in connected buildings? What is the functionality to provide location-based services? What is the functionality to provide amenity booking services? What virtual personal assistant functionality is available? What functionality is provided for analysing data gathered from meters and sensors related to occupant wellbeing? What functionality is provided to support the data collection and reporting to different standards for wellbeing?
Occupant Safety (1%)	What functionality is there to support workplace health and safety? What functionality is there to implement social distancing rules on floor plans to manage occupancy and ensure compliance with regulations? What functionality is there to manage contact tracing in the workplace? What capabilities are there to support the touchless office? What functionality is there to manage the safety of visitors/contractors on site?
Asset & Maintenance Management (10%)	What functionality is provided for managing data on facility assets, spare parts and warranties? What functionality is provided to track the life cycle total cost of ownership (TCO) of assets? What are the capabilities to support the management of work orders for scheduled, planned and reactive maintenance? What are the capabilities to support condition-based maintenance and predictive maintenance? What is the functionality for vendor performance management? What are the tools to support asset management and maintenance standards? What is the functionality for EHS management of maintenance workers?
Asset Monitoring (3%)	What are the capabilities to support condition-based and predictive maintenance? What are the capabilities to enable the automated identification and diagnosis of equipment faults? What functionality is provided to analyse the power factor of a facility or asset? What is the functionality to locate and track assets and equipment in real time?
Facilities Management Services Firm Operations (5%)	What is the functionality to support facilities services firms with customer interactions? What is the functionality to produce invoicing for facilities services carried out for a client? How are customer data managed and segregated to enable the management of multiple customers and service providers from one system?
ESG & Sustainability Management (3%)	What functionality is provided to support the collection and management of ESG and sustainability data? What is the functionality for energy trend analysis and reporting? What functionality is provided to identify energy efficiency opportunities? What functionality does the software have to help firms measure and verify cost savings? What functionality is provided to automatically optimize the performance of energy-consuming assets? What functionality is provided for utility bill validation and auditing?

Figures in brackets represent the weighting given to each criterion in the flexible multi-criteria model that generates the Green Quadrant graphical analysis.

Source: Verdantix analysis

FIGURE 8-4

Capabilities Criteria For IWMS Solutions

Capabilities	Questions
Enterprise Reporting (2%)	What functionality exists to create reports for external reporting or benchmarking schemes? Does the software incorporate benchmarking data from external benchmarking services such as ENERGY STAR? What is the quality and flexibility of the dashboard to view, chart and analyse data?
Breadth Of Customer Focus (2%)	What is the functionality or out-of-the-box workflows to support the needs of corporates? What is the functionality or out-of-the-box workflows to support the needs of services providers? What is the functionality or out-of-the-box workflows to support the needs of investors?
Figures in brackets represent the weighting given to each criterion in the flexible multi-criteria model that generates the Green Quadrant graphical analysis.	

Source: Verdantix analysis

FIGURE 9

Momentum Criteria For IWMS Solutions

Capabilities	Questions
Brand Awareness (5%)	Based on survey data collected from the Verdantix 2020 Smart Building Global Corporate Survey which comprised interviews with 285 real estate and facilities managers.
Vision & Strategy (10%)	What is the firm's vision for the evolution of customer requirements over the next three years? What is the firm's strategy to meet the needs of customers and develop its product over the next two years? What is the current product development roadmap?
Customer Time To Value (10%)	What is the implementation methodology to bring forward customer time to value?
Installed Customer Base (15%)	At the close of 2020, how many IWMS customer contracts did the supplier have?
Recent Deal Volume And Size (10%)	How many deals did the supplier make in 2020? What was the total value of these deals?
Organizational Resources (15%)	In how many countries does the vendor have offices, provide technical support and host the software? How many employees does the supplier have dedicated to IWMS?
IWMS Revenues & Revenue Growth (35%)	What are the vendor’s revenues for IWMS? What percentage of IWMS revenue did the vendor spend on IWMS R&D in 2020? By how much did the vendor’s total IWMS revenue grow in 2020 compared to 2019? How much capital did the vendor raise?
Figures in brackets represent the weighting given to each criterion in the flexible multi-criteria model that generates the Green Quadrant graphical analysis.	

Source: Verdantix analysis

FIGURE 10-1

Vendor Capabilities Scores (1/2)

	Accruent	Archibus (iOFFICE+SpaceIQ)	FM:Systems	IBM	MRI	Nuvolo	Planon	Rapal
Application & Data Centre Security	1.7	1.6	1.6	2.4	1.7	2.3	1.9	1.6
Automated Data Input	1.8	1.7	1.8	2.5	2.1	1.4	2.7	0.7
IT Systems Integration	1.4	1.9	2.3	2.7	1.7	1.3	2.0	1.3
Database Design	2.0	2.3	2.5	2.3	2.0	1.5	2.3	1.8
Master Data Management	1.5	3.0	2.0	3.0	2.0	1.5	2.5	1.0
Mobile Applications Architecture	1.7	1.7	2.3	1.3	2.3	2.0	2.0	1.0
Mobile Apps Product Portfolio & Use Cases	2.0	2.0	2.0	1.8	1.4	2.2	2.4	1.8
Business Intelligence	1.7	2.4	1.8	1.8	2.4	2.9	2.5	1.4
Platform Configurability	1.3	2.4	2.2	2.7	2.3	2.5	2.0	1.1
Platform Customizability	1.0	3.0	3.0	2.0	0.0	2.0	2.0	0.0
Implementation Options	2.0	3.0	2.0	2.0	1.3	2.0	3.0	1.0
User Interface	1.3	1.6	2.1	2.3	1.2	2.4	2.5	1.7
Platform Internationalization	2.0	2.5	2.3	2.8	2.8	1.5	2.3	0.5
Real Estate Investment Management	0.8	1.3	0.5	0.7	2.3	0.0	1.2	0.1
Real Estate, Leasing & Portfolio Management	1.9	2.0	1.2	2.2	2.9	1.0	2.5	1.7
Capital Project Management	2.0	1.9	2.0	2.6	2.3	1.6	2.1	0.6
Space Management	1.6	2.2	2.7	1.9	2.0	1.6	2.3	2.1
Workplace Services	1.6	1.6	1.9	1.2	1.6	0.7	2.2	1.0
Occupant Wellbeing & Engagement	0.6	1.6	1.1	1.2	0.8	0.7	1.7	0.6
Occupant Safety	1.2	1.2	1.8	1.9	1.6	0.2	1.9	0.5
Asset & Maintenance Management	1.7	2.2	1.9	1.7	1.9	2.2	2.2	1.3
Asset Monitoring	1.7	1.6	1.3	1.7	1.0	1.6	1.7	1.2
Facilities Services Firm Operations	1.0	1.3	1.0	1.8	1.5	1.5	2.5	1.0
ESG & Sustainability Management	0.7	1.9	1.0	2.2	1.3	0.1	1.4	1.3
Enterprise Reporting	1.2	1.6	1.6	2.5	2.2	0.6	2.5	0.9
Breadth Of Customer Focus	1.3	2.0	1.3	1.7	2.0	1.7	2.7	2.3

Scoring Framework

3	Vendor provides evidence of market-leading functionality, supported by a broad set of references to customer examples
2	Vendor provides evidence of strong functionality, supported by a broad set of references to customer examples
1	Vendor provides evidence of moderate functionality, with limited references to customer examples
0	No response provided or publicly available, or supplier has a weak offering

Source: Verdantix analysis

FIGURE 10-2

Vendor Capabilities Scores (2/2)

	Spacewell	SWG	Tango	VLogic	zLink
Application & Data Centre Security	2.1	2.1	2.3	2.0	1.6
Automated Data Input	2.8	1.3	1.5	0.5	1.4
IT Systems Integration	2.2	1.7	1.2	1.3	1.2
Database Design	1.8	1.3	2.3	1.5	1.8
Master Data Management	2.0	1.0	1.5	1.5	0.5
Mobile Applications Architecture	1.7	1.7	1.0	1.0	1.0
Mobile Apps Product Portfolio & Use Cases	2.4	1.0	2.2	1.4	1.2
Business Intelligence	2.1	1.3	2.9	1.4	1.2
Platform Configurability	2.4	1.5	2.1	1.1	1.4
Platform Customizability	2.0	0.0	0.0	0.0	0.0
Implementation Options	3.0	3.0	1.0	3.0	3.0
User Interface	2.3	1.7	1.5	1.3	1.5
Platform Internationalization	1.5	1.3	2.3	0.0	0.3
Real Estate Investment Management	1.2	0.0	1.3	0.0	0.4
Real Estate, Leasing & Portfolio Management	1.7	0.3	2.5	0.5	0.7
Capital Project Management	1.2	1.0	2.0	0.0	1.0
Space Management	1.6	1.6	2.4	1.9	1.4
Workplace Services	1.5	1.6	1.8	0.7	1.3
Occupant Wellbeing & Engagement	1.5	1.2	0.6	0.4	0.8
Occupant Safety	0.9	1.2	1.6	1.2	1.5
Asset & Maintenance Management	1.6	2.5	1.5	1.4	1.2
Asset Monitoring	1.5	1.2	0.4	0.4	0.6
Facilities Services Firm Operations	2.3	2.5	1.5	0.3	1.0
ESG & Sustainability Management	1.4	0.9	0.7	0.0	1.3
Enterprise Reporting	1.6	1.5	1.5	0.3	1.3
Breadth Of Customer Focus	2.3	1.7	1.3	1.7	1.7

Scoring Framework

3	Vendor provides evidence of market-leading functionality, supported by a broad set of references to customer examples
2	Vendor provides evidence of strong functionality, supported by a broad set of references to customer examples
1	Vendor provides evidence of moderate functionality, with limited references to customer examples
0	No response provided or publicly available, or supplier has a weak offering

Source: Verdantix analysis

FIGURE 11

Vendor Momentum Scores

	Accruent	Archibus (iOFFICE+SpaceIQ)	FM:Systems	IBM	MRI	Nuvolo	Planon	Rapal
Brand Awareness	2.0	2.0	3.0	3.0	2.0	1.0	2.0	1.0
Vision & Strategy	1.5	1.5	2.0	2.5	2.0	1.5	3.0	1.0
Customer Time to Value	2.0	2.0	3.0	2.0	3.0	2.0	2.0	2.0
Installed Customer Base	3.0	2.0	1.0	2.0	2.0	1.0	3.0	1.0
Recent Deal Volume And Size	1.6	1.0	0.7	1.6	1.1	1.6	1.2	0.9
Organizational Resources	3.0	3.0	1.5	2.3	3.0	2.3	3.0	1.0
IWMS Revenues & Revenue Growth	1.7	2.3	2.5	2.4	2.2	2.7	2.3	1.4

	Spacewell	SWG	Tango	VLogic	zLink
Brand Awareness	1.0	1.0	3.0	1.0	1.0
Vision & Strategy	2.0	1.5	2.5	2.0	1.0
Customer Time to Value	3.0	2.0	2.0	1.0	2.0
Installed Customer Base	2.0	1.0	1.0	1.0	1.0
Recent Deal Volume And Size	1.1	2.1	1.5	0.5	0.5
Organizational Resources	2.5	2.3	1.3	1.0	1.0
IWMS Revenues & Revenue Growth	1.6	1.9	1.9	0.8	1.1

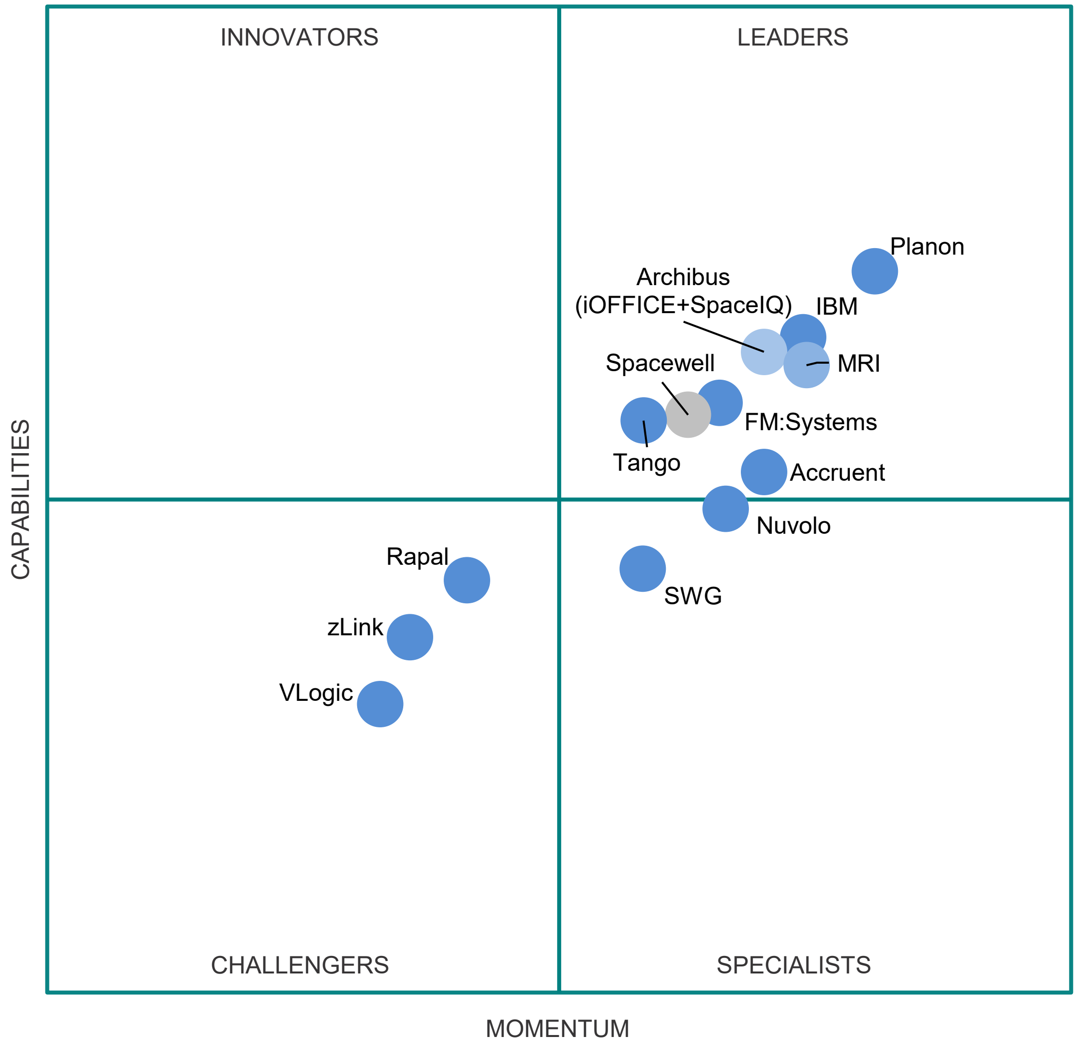
Scoring Framework

3	Vendor provides evidence of market-leading presence, supported by a broad set of references to customer examples
2	Vendor provides evidence of strong functionality, supported by a broad set of references to customer examples
1	Vendor provides evidence of moderate functionality, with limited references to customer examples
0	No response provided or publicly available, or supplier has a weak offering

Source: Verdantix analysis

FIGURE 12

Green Quadrant Integrated Workplace Management Systems 2022



Capabilities	This dimension measures each software supplier on the breadth and depth of its software functionality across 26 capability areas, as outlined in Figure 8.

Momentum	This dimension measures each software supplier on seven strategic success factors, as outlined in Figure 9.

Note: A grey plot indicates a non-participating vendor, light blue shows an overlapping plot

Source: Verdantix analysis

Planon Delivers A Comprehensive Platform Solution For Real Estate And Workplace Optimization

Founded in 1982, Planon is a Netherlands-headquartered provider of real estate and facility management software. The 880-employee IWMS vendor has over 2,750 customers using its IWMS solution and has facilities management service providers using its solution to manage thousands of buildings and hundreds of sites. In September 2020 Planon launched a new product strategy that aims to make its IWMS an open platform that easily integrates with third-party systems and enables software developers to add new functionality. In November 2020 Schneider Electric acquired a minority shareholder position in Planon and extended their partnership to jointly deliver software and services that support the digitization of buildings. In January 2021 Planon acquired a majority share in real estate software provider Reasult B.V, and in June 2021 it acquired cloud-based IoT platform Axonize to enhance its existing capabilities and offer new ones.

This Green Quadrant analysis focuses on Planon Universe – Planon's IWMS platform covering real estate portfolio and financial management, lease management, asset and maintenance management, capital project management, space management, workplace services, occupant wellbeing and safety, and energy management.

Strengths And Differentiators:

Based on the IWMS Green Quadrant analysis, Verdantix finds that Planon has strengths in:

- **End-to-end real estate management.**
  In the Green Quadrant analysis, Planon is one of the highest performers, achieving an aggregate score of 2.2/3.0 on the capabilities axis and a score of 2.4/3.0 on the momentum axis. Planon has remained in the Leaders' Quadrant since Verdantix first ran the IWMS Green Quadrant report in 2017. Planon's capabilities score is above the average score of 1.5, exemplifying that it has strong functionality across many of the core IWMS applications, such as portfolio management, workplace services, space management and capital project management, making it a consistently strong performer across the benchmarks. Planon also has one of the largest IWMS user bases, with 2,750 organizations using its platform across various industries, such as corporates, healthcare and universities.

- **Advanced business intelligence integrations that enable advanced analytics.**
  In July 2019 Planon released Planon Connect for Analytics, which enables common BI solutions, such as Microsoft Power BI or Tableau, to directly connect to the Planon data lake. This connector allows users to bring datasets into their existing analytical tools to create innovative dashboards and run advanced analytics on the data without impacting the business environment. The dashboards and reports created in the BI tool can be viewed within the Planon Universe solution and shared with stakeholders. In 2021 Planon added decision-engine functionality to the platform, enabling automated decision making through custom-built algorithms based on any event.

- **Providing comprehensive workplace services tools for employees.**
  In this analysis, Planon is amongst one of the highest scorers for its workplace services capabilities, scoring 2.2/3.0, with the average score being 1.4/3.0. Planon demonstrated strong functionality for employees to plan their day in the office; it offers capabilities for favouring certain co-workers, viewing co-worker location on a floorplan (if opted-in) and integrating with local traffic sites and weather forecasts to help with commuting. Furthermore, Planon can display the indoor air quality of a space, such as temperature, humidity and CO_2, when booking a room via kiosks, panels or web interface. Finally, Planon provides advanced visitor management functionality; visitors will receive an email with information on their reserved parking space, a map of the property and a QR code to allow for self-service check-in.

- **Broad functionality for facilities services providers.**
  Planon continues to lead in functionality for facilities service providers with a score of 2.5/3.0 when the average score is 1.4/3.0. Planon Universe for Service Providers is specifically configured for FM service providers and offers advanced functionality across customer management, sales invoicing and contract management. The solution enables services firms to provide customers with specialized self-service portals for requests, equipment malfunction reporting, quotations, room/desk reservations, catering bookings and visitor announcements. Furthermore, services firms can ensure the correct workflow is consistently used for different customers as the SLA and financial agreements in contracts tie directly into the order process workflows, planning priorities and billion criteria.

Improvement Opportunities

Based on the IWMS Green Quadrant analysis, Verdantix finds that Planon could improve on:

- **ESG and sustainability management tools.**
  Although Planon scores above average in this area, to take a market-leading position, Planon should consider further investment to improve its capabilities across energy benchmarking, trend analysis and forecasting. Some of Planon's IWMS competitors have refreshed their energy and sustainability tools over the past year, such as integrating with energy benchmarks, which is raising the bar on customer expectations in this area.

- **Specialist functionality for real estate investors and asset managers.**
  Since the 2019 IWMS Green Quadrant, Planon has made significant enhancements to its real estate investment management capability, allowing it to score 1.2/3.0, which is above the average 0.7/3.0 score. While Planon achieves an above-average score for its real estate investment management functionality, it is not the top scorer in this area as it lacks capability across site selection tools and real estate tax management. We believe Planon would benefit from deepening its capability in site selection, allowing it to support customers with real estate consolidation by identifying the ideal building to transform into a new strategic HQ or identifying the least value-adding sites.

Selection Advice For Buyers

Considering all supplier offerings assessed in the Green Quadrant analysis, we believe that Planon should be included on shortlists by the following buyers:

- **Global firms that need to track and report on assets around the world.**
  The breadth and quality of the Planon Universe platform make it well suited to supporting large organizations track and manage leases and assets worldwide. For instance, Refresco uses Planon's solution to monitor lease contracts from its 60 production sites and 1,800 leased assets, as well as to become IFRS 16 compliant in four months. Similarly, Affidea Group selected Planon's lease accounting solution to get a 360-degree view of its 260 centres across 16 countries and to help comply with IFRS 16.

- **Facilities services firms looking for new software to improve productivity and manage operations.**
  Planon's solution is used by facilities management services firms around the world, such as Empact Group in South Africa and Dussmann Group in Germany. The scale and diversity of its customer base has enabled it to develop considerable pre-built out-of-the-box specialist functionality to support the needs of services providers in different sectors, such as subcontractor contract and assignment management, and mobile field-services tools.

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Verdantix is an independent research and advisory firm with expertise in digital strategies for **Environment, Health & Safety, ESG & Sustainability, Operational Excellence** and **Smart Buildings**. Our mission is to anticipate the insights and data that our clients need so you can succeed with growth strategies, invest wisely and optimize performance.

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