

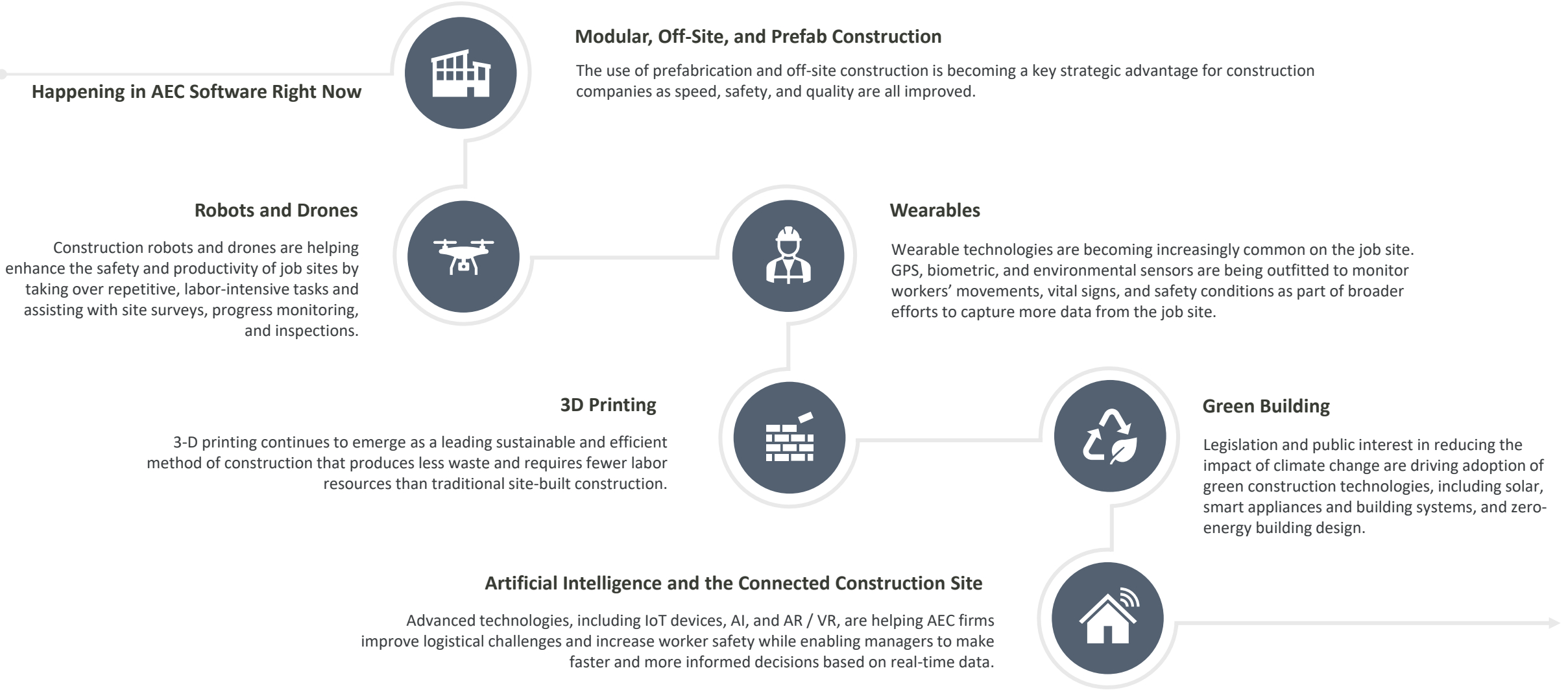


Architecture, Engineering, and Construction Software Sector Update

Harris Williams | Q1 2023

Key Trends in the AEC Software Market

The construction industry continues to embrace new technology and digital transformation efforts to improve safety, efficiency, and profitability.



Perspectives on AEC Software Landscape



What We're Reading

Will a Labor Crunch Derail Plans to Upgrade U.S. Infrastructure?

McKinsey & Company – October 17, 2022

With spending from the \$383 billion Bipartisan Infrastructure Law (BIL) expected to begin this year, and with it the creation of hundreds of thousands of jobs, construction companies and municipalities are concerned about their ability to fill these roles at each level of the value chain. While some sectors are expected to be impacted more, a larger labor force and an optimized supply chain will help them navigate these macro headwinds.

Read the full article [here](#).

Construction's Supply Chain Outlook: More Shortages, Price Hikes Ahead

Construction Dive – November 14, 2022

Although the construction industry has had nearly three years to recover from the price shocks induced by COVID-19, industry leaders still expect price escalation to reach 7% in 2023, down from an increase of about 10% in 2022. However, these increases are not standard across the board, as steel and lumber costs have started to taper while cement and concrete continue to prove expensive relative to historical levels.

Read the full article [here](#).

How Construction Is Getting Smarter With Data Intelligence

Construction Dive – November 16, 2022

Emerging from the cataclysmic shift to remote work during COVID-19, companies across the globe were forced to digitize their records and customer data to operate more nimbly away from the office or job site. Many in the construction industry, who transitioned from pen and paper to digital databases, are now seeing additional returns from this initiative by leveraging in-house data to drive decision making. Construction companies fluent in the language of data intelligence can use this resource to operate more profitability, reduce job site risk, and win more new business.

Read the full article [here](#).




Digital Workflows Help Design and Construction Companies Manage Their Projects and Companies Better

Business Wire – December 8, 2022

The ability to share digital data effectively is a critical factor that impacts the success of digital transformation in the design and construction industry. This includes the ability to share data within different departments in the same company or across multiple companies involved in the same project. More informed decision making, increased internal efficiency, and faster delivery are among the most cited benefits of engaging with digital workflows.

Read the full article [here](#).

Recent Harris Williams Publications

- Harris Williams | 2023 Outlook**

[Link to Read](#)
- Technology | 2023 Outlook**

[Link to Read](#)
- Industrials | 2023 Outlook**

[Link to Read](#)

Select Recent AEC Software Transactions

Battery's investment in Kojo Technologies



Closed: September 14, 2022

- Kojo is a provider of a cloud-based materials and procurement management platform for trade and self-performing contractors.
- The investment from Battery will be used by Kojo to further develop and expand its technology platform with new tools for managing project spend and streamlining the payments process.

Hexagon's acquisition of Avvir



Closed: October 6, 2022

- Avvir is a developer of a reality analysis platform that compares BIM models with real-time site conditions through the ingestion of imaging and data capture technologies (LIDAR) to track job progress, identify and correct critical issues, and maintain projects on schedule and on budget.
- The acquisition of Avvir strengthens Hexagon's leadership in digital reality solutions by expanding the solution set for industrial, commercial, and infrastructure construction professionals.

DroneDeploy's acquisition of Structionsite



Closed: November 4, 2022

- Structionsite is a provider of a ground and interior reality capture platform for the construction industry.
- The acquisition of Structionsite will complement DroneDeploy's aerial reality capture platform to create a unified, complete digital reality capture solution for customers in construction, energy, and other heavy industries to seamlessly document the entirety of their job sites.

Access' acquisition of COINS



Closed: December 1, 2022

- COINS is a provider of a construction management solution for general contractors, homebuilders, and other trade contractors.
- The acquisition of COINS expands Access' ability to provide software and services to organizations operating in the construction sector as well as delivering solutions to address the needs of an expanding international customer base.

Oracle's acquisition of Newmetrix



Closed: December 16, 2022

- Newmetrix is a developer of a cloud-based, AI-drive photo and video analysis platform to identify job site safety hazards and mitigate risk.
- Following the acquisition Newmetrix will be integrated into Oracle's Construction Intelligence Cloud where Oracle will benefit from Newmetrix's advanced AI and machine learning tools to deliver actionable data insights to customers to improve job site safety.

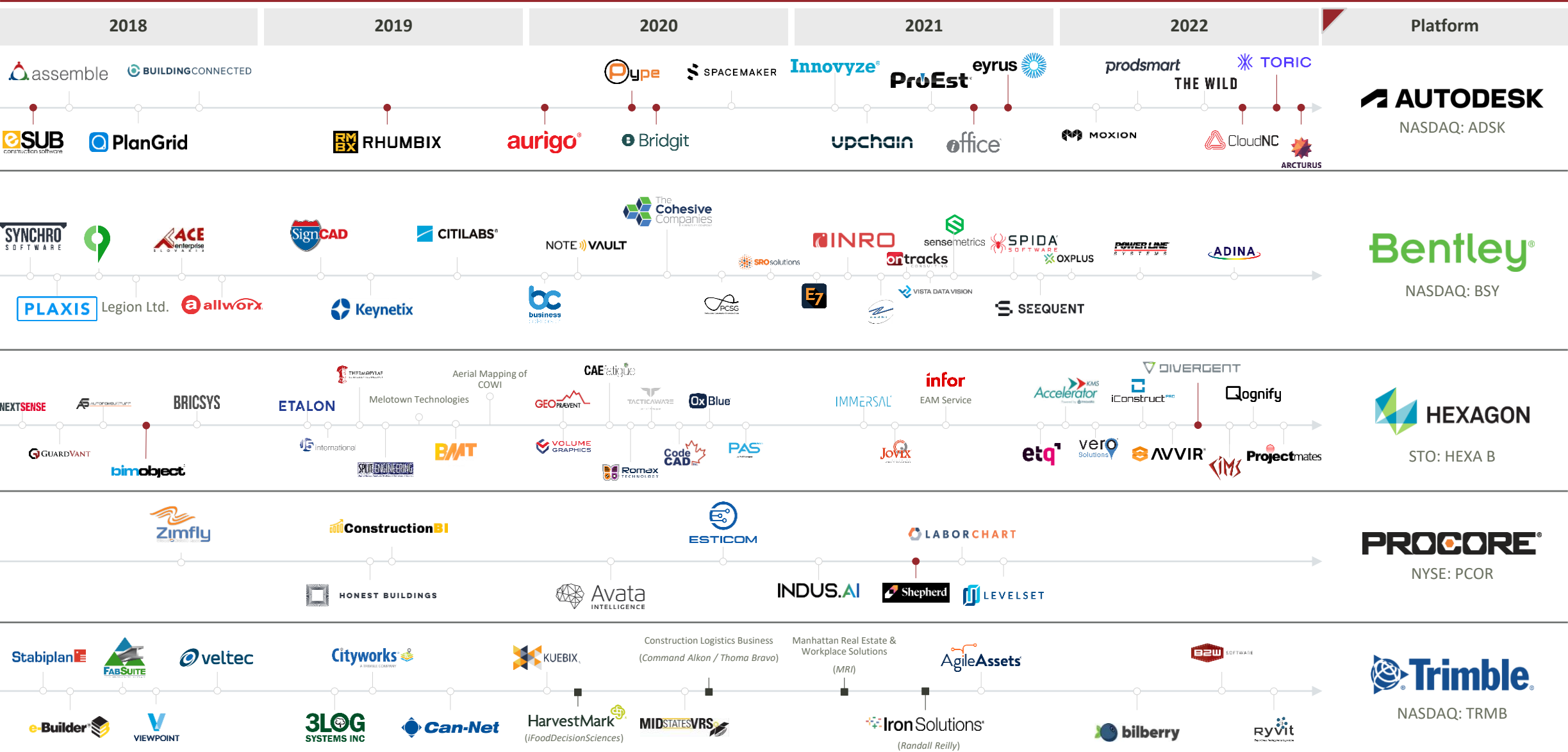
Trimble's acquisition of Ryvit



Closed: January 4, 2023

- Ryvit is a provider of an integration platform-as-a-service for data exchange between applications in the construction industry.
- The acquisition of Ryvit will enable Trimble to more completely unify its Construction One application suite while expanding extensibility for Trimble applications across the construction software ecosystem.

Select Public Company AEC Software Acquisition Activity



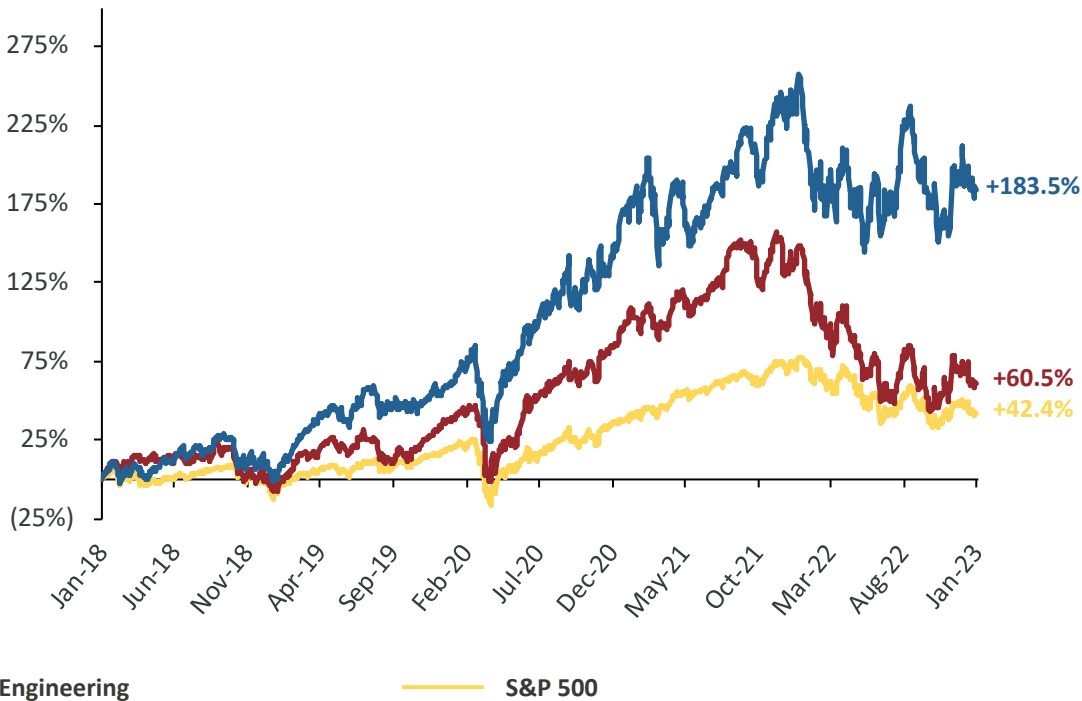
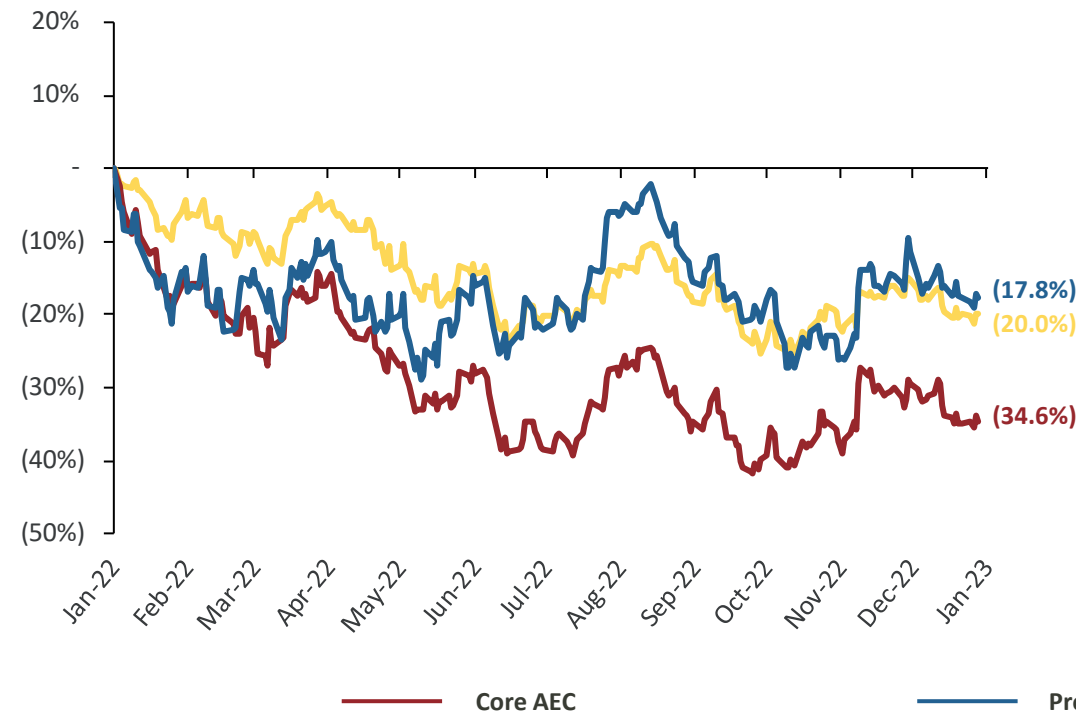
AEC Sector Public Company Trended Stock Performance

Public Company Stock Performance – Last 12 Months

Indexed stock price performance for the period January 2022 – January 2023

Public Company Stock Performance – 5 Years

Indexed stock price performance for the period January 2018 – January 2023



Core AEC

AUTODESK

NEMETSCHKE GROUP

Bentley®

PROCORE

DASSAULT SYSTEMES

Schneider Electric

HEXAGON

Trimble®

Product Engineering / Design

ALTAIR

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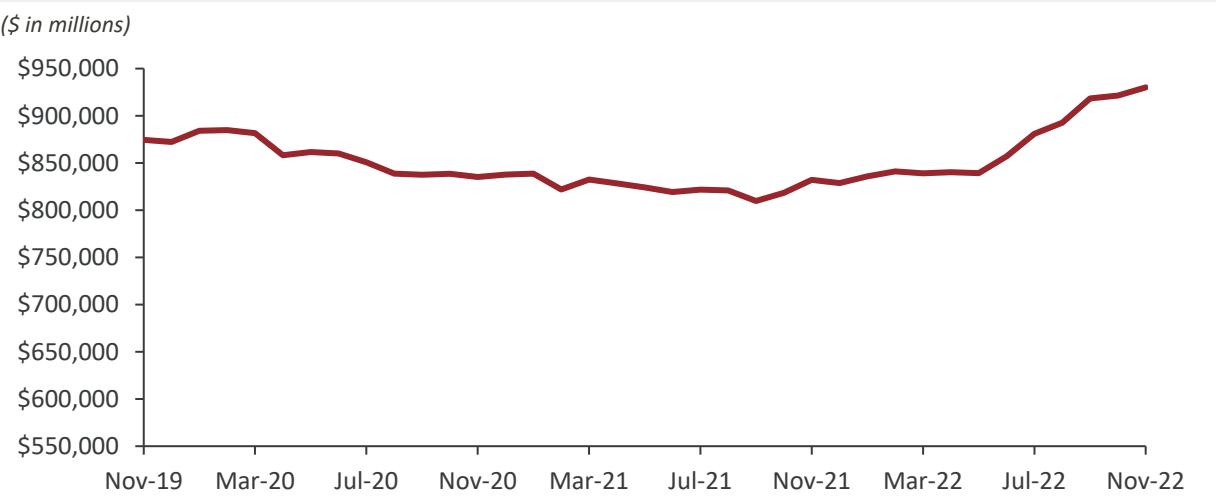
ANSYS

SYNOPSYS®

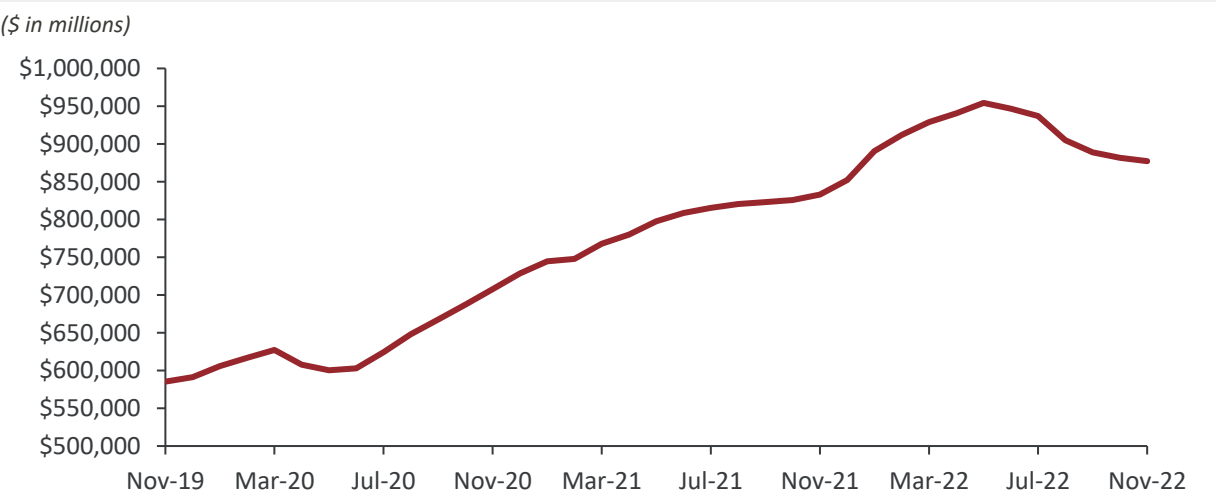
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Overall Construction Macroeconomic Environment

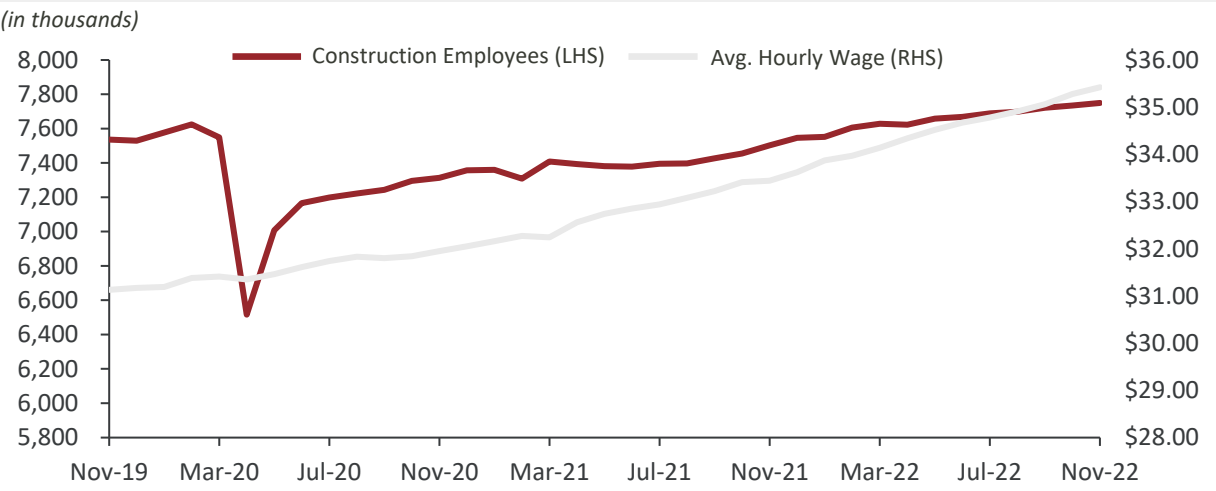
Value of Construction Put in Place – Non-Residential ⁽¹⁾



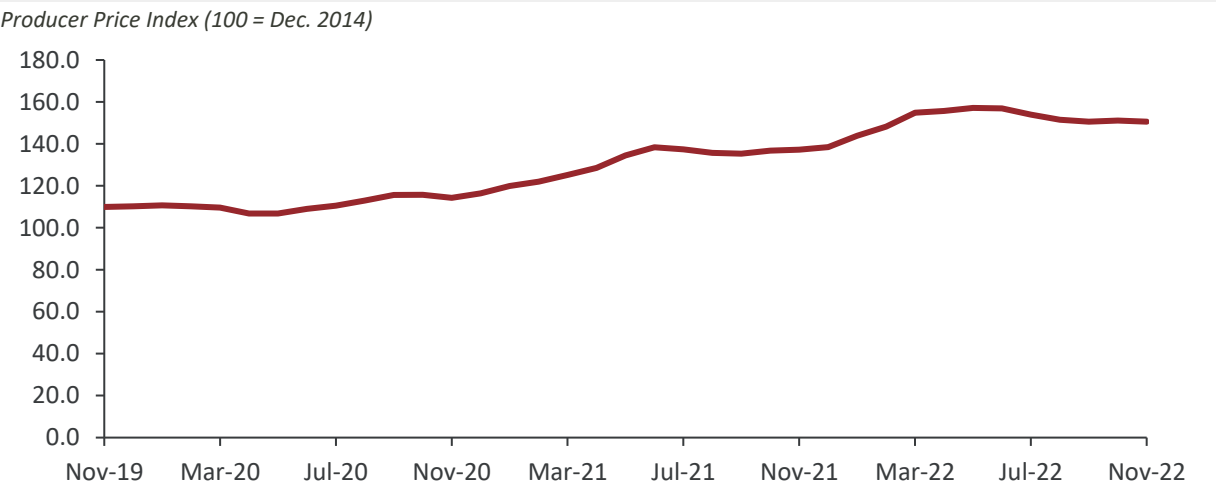
Value of Construction Put in Place – Residential ⁽¹⁾



Construction Employment ⁽¹⁾



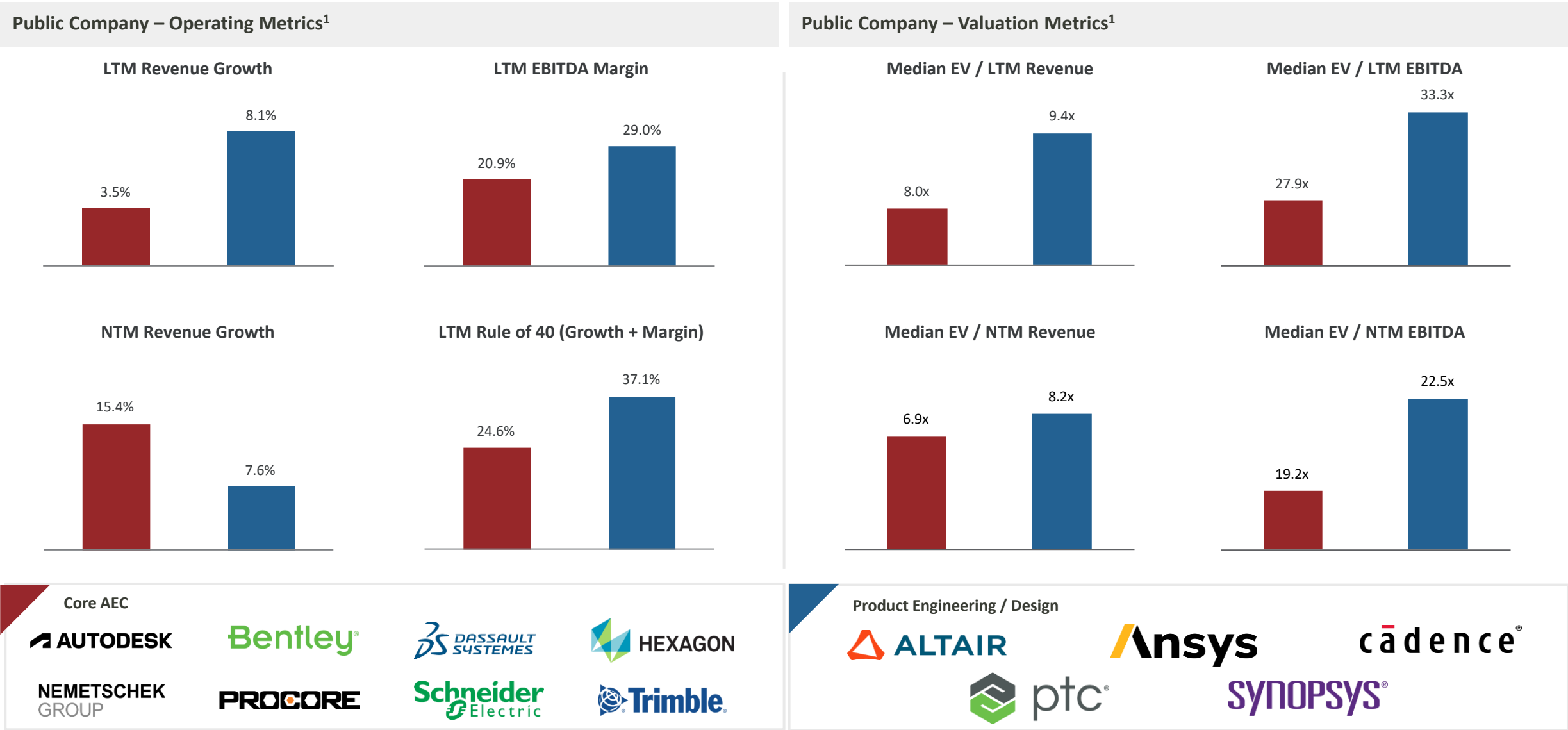
Net Inputs to New Construction ⁽²⁾



(1) Source: Federal Reserve Bank of St. Louis – Economic Research Division

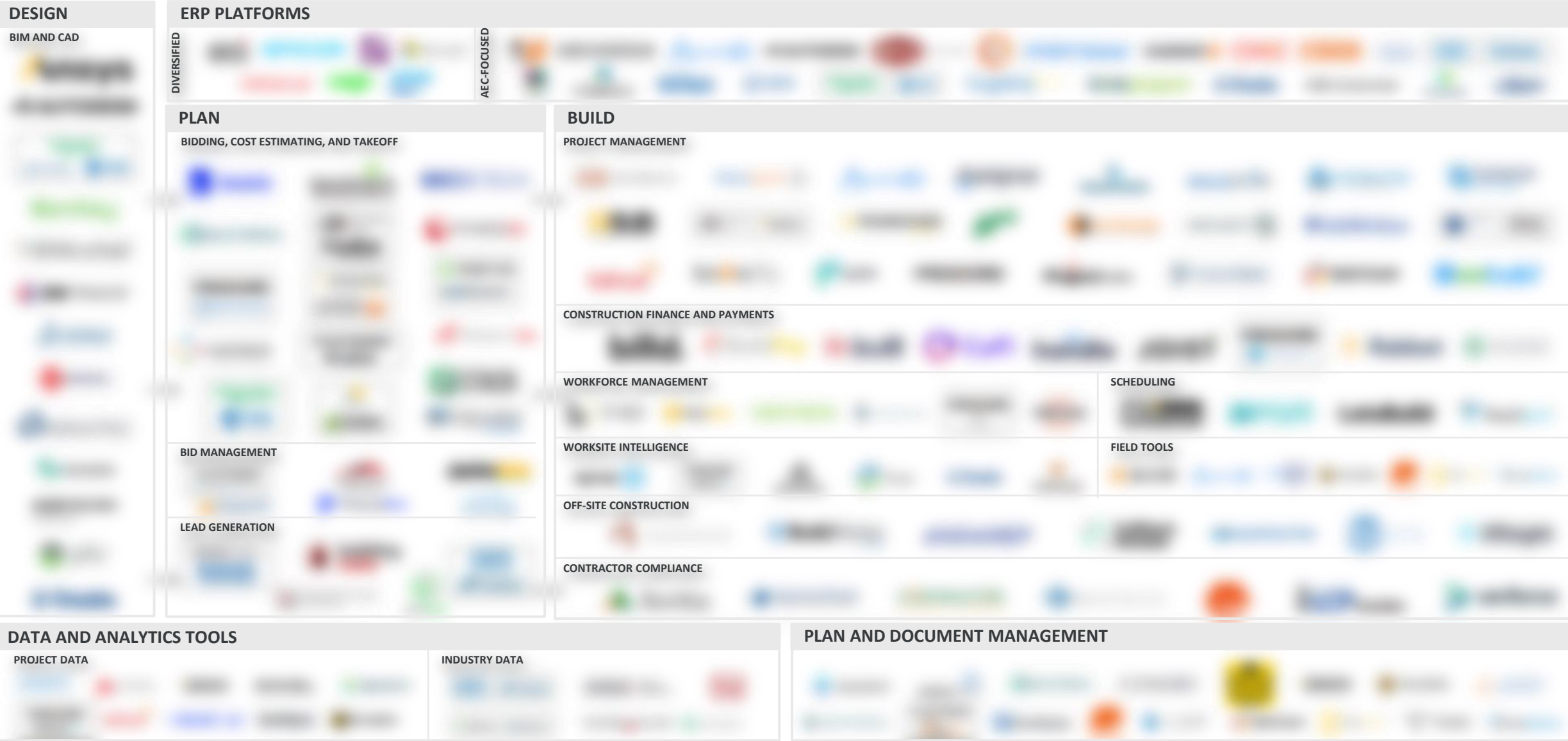
(2) Source: U.S. Dept. of Labor – BLS PPI Index for net inputs to new construction, excluding capital investment, labor, and imports (WPUIP231000)

AEC Public Company Operating and Valuation Metrics



AEC Market Landscape

To view full market map, please contact:
TechnologyInsights@harriswilliams.com



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- › Human Capital Management
- › Office of the CFO
- › Supply Chain Logistics

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- › Specialty Materials
- › Engineered Components
- › Building Materials
- › Engineered Equipment
- › Industrial Technology
- › Chemical Materials
- › Engineered Products
- › Packaging

Contacts

Thierry Monjauze

Head of Technology Group

Managing Director

tmonjauze@harriswilliams.com

+44 20 7518 8901

Tim Webb

Head of Industrials Group

Managing Director

twebb@harriswilliams.com

(804) 915-0128

Priyanka Naithani

Technology Group

Managing Director

pnaithani@harriswilliams.com

(617) 654-2115

Erik Szyndlar

Technology Group

Managing Director

eszyndlar@harriswilliams.com

(415) 217-3418

Mike Hogan

Industrials Group

Senior Advisor

mhogan@harriswilliams.com

(804) 915-0104

Ryan Costa

Technology Group

Director

rcosta@harriswilliams.com

(617) 654-2120

Greg Waller







Energy, Power & Infrastructure Group

Director

gwaller@harriswilliams.com

(804) 887-6138

HW Technology Group Transaction Experience

 a portfolio company of RLH Equity Partners has been acquired by 	 a portfolio company of  KEENSIGHT has been acquired by 	 a portfolio company of  has acquired 	 a portfolio company of RLH Equity Partners has been acquired by 	 Prima Compliance divisions of  a portfolio company of  have been acquired by 	 has received a significant investment from  	 a portfolio company of  has received a strategic investment from 	 has made an investment in 	 a subsidiary of  a division of  has been acquired by 	 a portfolio company of  has received a significant growth investment from 
SAP Utilities Software & Services	AutoTech / Data	Compliance Software	Oracle Supply Chain Software & Services	Financial Technology	Education Technology	Supply Chain / Logistics Technology	Compliance Software	Industrial Software	Supply Chain / Logistics Technology
 has acquired  a business division of 	 has recapitalized 	 has acquired 	 a portfolio company of  has been acquired by 	 a portfolio company of  has been acquired by 	 a portfolio company of  has been acquired by 	 a portfolio company of  has been acquired by 	 a portfolio company of  has been acquired by 	 has acquired  a portfolio company of  	 a portfolio company of  has been acquired by  
Compliance / Education Technology	Healthcare IT	Healthcare IT	IT Services	Compliance Software	IT Services	Pharma IT	eCommerce / Retail Technology	Education Technology	Healthcare IT
 a portfolio company of  has received a significant investment from 	 a portfolio company of  has been acquired by  a portfolio company of 	 has acquired 	 a portfolio company of  has been acquired by 	 the artisans of erp software has been acquired by  a portfolio company of  and funds managed by 	 a portfolio company of  has been acquired by 	 a portfolio company of  has been acquired by 	 a portfolio company of  has been acquired by 	 has invested in 	 has acquired 
Supply Chain / Logistics Technology	Education Technology	Compliance Software	Retail Technology	Industrial Software	Property Technology	Industrial Software	Vertical Software	Healthcare IT	Education Technology
 has acquired  a portfolio company of 	 has acquired  a portfolio company of 	 a portfolio company of  has been acquired by 	 a portfolio company of  has been acquired by 	 has made a significant investment in 	 a portfolio company of  has been acquired by 	 has acquired 	 has invested in 	 a portfolio company of  has been acquired by 	 has acquired 
Infrastructure / Security Software	Healthcare IT	Healthcare IT	Legal Technology	Property Technology	Legal Technology	Government Technology	Human Capital Management Software	Pharma IT	Supply Chain / Logistics Technology

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Business Services



Consumer



Energy, Power &
Infrastructure



Healthcare &
Life Sciences



Industrials



Technology



Transportation
& Logistics

70% Revenue from repeat clients

83% Managing directors promoted from within the firm

30+ Year history



Sources and Disclosures

Sources

1. S&P Capital IQ
2. PitchBook

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Appendix

Recent Sector M&A Transactions Detail

<u>Closed Date</u>	<u>Target</u>	<u>Acquirer</u>	<u>Business Description</u>	<u>Enterprise Value (\$M)</u>	<u>Implied EV / Revenue</u>	<u>Implied EV / EBITDA</u>
Pending	Projectmates	Hexagon	Provider of construction project management software for owners.	NA	NA	NA
Pending	LocLab Consulting	Hexagon	Provider of information technology solutions that develops 3D digital twin content creation tool that serves transportation, construction, and design consultant companies.	NA	NA	NA
Pending	AVEVA	Schneider Electric	Provider of engineering design, information management, and software solutions for the AEC, energy, and other end markets.	\$12,294.1	8.3x	78.7x
01/04/23	Ryvit	Trimble	Developer of integration software that delivers seamless flow of data between premise and software used in the construction industry.	NA	NA	NA
01/03/23	ServiceMax	PTC	Developer of cloud-based field service management software solutions that help companies to manage contracts, scheduling, and parts.	\$1,485.0	NA	NA
12/16/22	Newmetrix	Oracle	Developer of enterprise-class SaaS platform that enables users to manage, collaborate, and analyze industrial videos and photos from mobile devices.	NA	NA	NA
12/13/22	CIM3	Hexagon	Distributor of ESPRIT CAM software products in Italy.	NA	NA	NA
12/01/22	COINS	Access UK (GIC / Hg / TA)	Provider of enterprise software solutions for the construction industry, including contracting, home building and property development, engineering, service and facilities management, and equipment/plant management.	NA	NA	NA
12/01/22	Mistral Group	Aptean (Insight / TA / Vista)	Developer of enterprise resource planning (ERP) software for dealers, renters, and resellers of agricultural equipment and construction equipment in France.	NA	NA	NA
11/30/22	Poolarserver	Eos Partners	Developer of a collaboration software platform for cross-office project collaboration in the construction sector.	NA	NA	NA
11/04/22	StructionSite	DroneDeploy	Provider of a ground and interior reality capture platform for the construction industry.	NA	NA	NA
10/18/22	NavStar Geomatics	Vance Street Management	Developer of hardware and software for automated detection of movement on slopes and structures.	NA	NA	NA
10/06/22	Avvir	Hexagon	Developer of a reality analysis platform that compares BIM models with real-time site conditions through the ingestion of imaging and data capture technologies (LIDAR) to track job progress, identify and correct critical issues, and maintain projects on schedule and on budget.	NA	NA	NA
10/05/22	fielddata.io	BAUER Aktiengesellschaft	Developer of a construction data management software platform, enabling users to save, link, and analyze foundation construction projects.	NA	NA	NA
09/28/22	Computer Line Associates	CADMATIC	Provider of SaaS-based material and construction management software and engineering data management solutions.	NA	NA	NA
09/14/22	B2W Software	Trimble	Provider of construction software for the heavy construction industry.	NA	NA	NA
09/14/22	Kojo Technologies Inc.	Battery Ventures	Provider of a cloud-based materials and procurement management platform for trade and self-performing contractors.	NA	NA	NA
09/13/22	BIM SPOT	smino	BIM SPOT provides a software solution that supports the BIM-based process of building design, construction, and operation.	NA	NA	NA
09/02/22	Quest Construction Data Network	BuildCentral	Quest Construction Data Network develops SaaS-based bid management systems for public construction, RFPs, and general goods and services procurement.	NA	NA	NA
09/01/22	Cloudmilling	PTC	Cloudmilling develops and operates a cloud-native CAM platform for machinists and engineers.	NA	NA	NA
09/01/22	Cartegraph Systems	OpenGov	Cartegraph Systems is a provider of asset management software for government agencies, utilities, and educational institutions.	\$400.0	NA	NA

Public Market Operational and Valuation Metrics⁽¹⁾

\$ in Thousands									
Company	Market Capitalization	Enterprise Value	% of 52-Week High	LTM Gross Margin	LTM EBITDA Margin	Enterprise Value/			
						LTM Revenue	NTM Revenue	LTM EBITDA	NTM EBITDA
Core AEC									
Schneider Electric	\$77,551,575	\$91,123,601	73.1%	40.6%	18.6%	2.8x	2.5x	15.0x	12.4x
Dassault Systèmes	47,066,299	47,702,400	64.0%	83.8%	33.8%	7.9x	7.4x	23.3x	19.3x
Autodesk	40,320,471	41,551,471	65.6%	91.6%	21.1%	8.5x	7.8x	40.1x	21.2x
Hexagon	28,124,886	31,782,255	74.0%	65.1%	33.8%	5.8x	5.5x	17.1x	15.2x
Trimble	12,469,344	13,823,444	57.4%	59.6%	19.4%	3.8x	3.6x	19.3x	14.1x
Bentley Systems	11,454,956	13,207,564	75.6%	78.3%	18.9%	12.2x	11.3x	NM	33.1x
Nemetschek	5,886,710	5,855,652	41.9%	54.5%	27.2%	7.6x	6.4x	27.9x	20.2x
Procore Technologies	6,511,270	6,038,943	58.4%	79.3%	NM	9.1x	7.3x	NM	NM
Core AEC Median	\$20,297,115	\$22,802,849	64.8%	71.7%	21.1%	7.7x	6.9x	21.3x	19.3x
Product Design / Engineering									
Synopsys	\$48,665,285	\$47,799,600	81.6%	80.4%	26.3%	9.4x	8.2x	35.8x	22.5x
Cadence Design Systems	44,066,122	43,837,870	82.4%	89.9%	34.9%	12.8x	11.7x	36.5x	27.8x
ANSYS	21,045,446	21,295,800	59.9%	90.6%	34.0%	10.5x	10.0x	30.9x	22.5x
PTC	14,183,221	15,346,722	90.2%	80.1%	29.5%	7.9x	7.8x	26.8x	19.2x
Altair Engineering	3,644,076	3,670,843	58.0%	78.1%	3.8%	6.6x	6.2x	NM	36.1x
Product Design / Engineering Median	\$21,045,446	\$21,295,800	81.6%	80.4%	29.5%	9.4x	8.2x	33.3x	22.5x
Comp Set Median	\$21,045,446	\$21,295,800	65.6%	79.3%	26.7%	7.9x	7.4x	27.4x	20.7x

Public Market Operational and Valuation Metrics⁽¹⁾

<i>\$ in Thousands</i>									
Company	Market Capitalization	Enterprise Value	% of 52-Week High	LTM Gross Margin	LTM EBITDA Margin	LTM Revenue	NTM Revenue	Enterprise Value/ LTM EBITDA	NTM EBITDA
Residential									
D.R. Horton, Inc.	\$30,713,003	\$34,792,303	82.1%	30.1%	23.2%	1.0x	1.2x	4.5x	7.4x
Lennar Corp.	26,350,576	25,921,613	77.8%	27.3%	20.5%	0.8x	0.9x	3.8x	6.3x
NVR, Inc.	14,741,298	14,012,536	78.4%	26.5%	21.5%	1.4x	1.6x	6.5x	8.7x
PulteGroup, Inc.	10,372,632	12,949,897	78.4%	29.4%	20.9%	0.8x	0.8x	4.0x	4.8x
Residential Median	\$20,545,937	\$19,967,075	78.4%	28.4%	21.2%	0.9x	1.1x	4.2x	6.9x
Engineering, Procurement, and Construction									
Jacobs Solutions Inc.	\$15,202,214	\$18,903,882	79.9%	22.3%	8.8%	1.3x	1.2x	14.4x	13.0x
WSP Global Inc.	14,445,209	17,348,228	85.6%	19.3%	9.5%	2.1x	2.3x	22.2x	13.0x
AECOM	11,775,568	13,678,284	97.7%	6.4%	6.6%	1.0x	1.0x	15.7x	14.2x
Skanska AB (publ)	6,514,559	6,780,204	66.0%	10.2%	6.0%	0.5x	0.4x	7.8x	8.0x
KBR, Inc.	7,243,960	8,750,960	92.7%	11.5%	7.1%	1.2x	1.3x	16.6x	12.7x
Hochtief	4,233,127	5,216,807	71.4%	23.6%	1.1%	0.2x	0.2x	19.7x	4.1x
SNC-Lavalin Group Inc.	3,094,918	4,651,917	72.1%	5.6%	4.7%	0.8x	0.8x	17.8x	9.6x
John Wood Group PLC	1,103,344	3,211,044	53.0%	11.7%	3.5%	0.5x	0.6x	14.2x	8.0x
EP&C Median	\$6,879,260	\$7,765,582	76.0%	11.6%	6.3%	0.9x	0.9x	16.1x	11.1x
European Public - Private Partnerships									
Vinci SA	\$56,155,498	\$83,938,270	89.9%	14.5%	14.9%	1.4x	1.3x	9.6x	7.4x
Ferrovial SA	19,210,779	28,117,323	87.5%	82.8%	8.1%	3.8x	3.5x	46.6x	30.7x
Bouygues SA	11,222,197	19,416,941	83.2%	54.8%	9.9%	0.5x	0.4x	5.0x	4.2x
Eiffage SA	9,365,578	22,148,350	92.3%	82.8%	15.4%	1.1x	1.0x	6.9x	5.9x
Euro Median	\$15,216,488	\$25,132,837	88.7%	68.8%	12.4%	1.2x	1.1x	8.2x	6.7x
Construction Median	\$11,074,100	\$13,314,091	78.4%	20.8%	7.9%	0.9x	1.0x	14.3x	8.4x