

DBIA



Design-Build Utilization Update

September 2021

fmiconsulting.com



Project Overview

DBIA partnered with FMI to conduct an update of the 2018 Design-Build Utilization Study. To that end, the research provided in this report aims to provide updated information related to the following areas:

1. Design-Build Market Sizing and Growth
2. Design-Build Trends and Drivers

Key elements in the development of this information include:

- Market Modeling and Sizing – FMI developed custom market models based on the research, proprietary internal databases and industry experience.
- Secondary Research – Experienced researchers conducted an extensive search of existing industry data and information, including both print and electronic media.
- Primary Market Research – Forty-six interviews were scheduled and conducted with industry stakeholders. Additionally, 279 industry stakeholders participated in a related electronic survey.
- Analysis and Documentation – Market observations have been developed based on analysis of the research findings together with the experience of FMI's research team.

Our research and interpretations are only valid under the assumptions stated in this report and based on the investigations described therein, especially regarding the accuracy of the information based on publicly available sources and interviews/surveys conducted with qualified industry stakeholders and subject matter experts.

Forecast Methodology

To derive a market forecast, FMI uses a triangulation method that utilizes multiple sources to develop and validate the market's size and direction. The following diagram represents the methodology used for developing construction put in place estimates.

Quantitative Market Model:

Utilizing multiple sources, both historical and forward looking, FMI generates a baseline forecast for construction put in place spending at a local level for each of the various segments examined in this study. For example, historical construction spending put in place is reported by the U.S. Census and is then forecast at a local level using local economic indicators, such as population growth, GDP, unemployment rate, etc.

Anticipated Project Examination:

Utilizing FMI's proprietary project databases, CMD Reed, Industrial Info Resources, Dodge and other secondary sources, FMI adjusts the baseline, quantitative market model to reflect planned projects over the term of the forecast. Projects are vetted on likelihood of occurring based upon the known and anticipated market conditions.



Market-Driven Validation:

FMI then validates and adjusts as necessary the market sizing and forecast based upon primary research conducted with actual market participants and senior FMI consultants. These industry members can speak directly to market conditions and direction based upon their intimate knowledge of the individual market and segment.

Approach and Sources

Step 1: Construction Put in Place (CPiP)

Determining total construction put in place (CPiP) for the *assessed segments** is the first and most critical step in estimating the design-build market opportunity. FMI's definitions and historical CPiP estimates match reports released by the U.S. Census Bureau. Five-year CPiP forecasts are modeled and maintained utilizing various resources:

- In-house econometric models analyze trends and predict shifts in construction spending against various demographic and economic drivers.
- Technical in-house publications and subscriptions, including FMI's own Nonresidential Construction Index (NRCI) and construction project databases are utilized to offer insight into each segment considering backlogs, trends influencing demand and various project details.
- FMI's industry relationships and staff expertise/review.
- Forecast CPiP does not include the potential federal stimulus package.

Step 2: Design-build Construction Put in Place

Next, FMI developed custom market-sizing specifically for design-build construction by segmenting spending into various segment types and Census divisions. Estimates for design-build construction spending were derived through a combination of historical project databases, planned project lists, stakeholder interviews and industry stakeholder surveys.

For this research, design-build was defined as a method to deliver a project in which the design and construction services are contracted by a single entity.

- The use of consistent design-build terminology varied by construction segment (i.e., manufacturing, commercial, etc.). To account for all design-build spending, several variations of design-build were considered and assessed when developing the market-sizing model.
- *Assessed segments included: religious, public safety, communication, amusement and recreation, lodging, health care, transportation (transit/rail, aviation/airport, marine/port), office, commercial, manufacturing, educational, highway/street, water/wastewater

Key research sources include, but are not limited to those listed below:

United States Census Bureau

- Construction put in place history

Various Primary and Secondary Resources

- Stakeholder interviews/surveys
- Key secondary resources (e.g., ENR, Dodge, McGraw-Hill, REED, IIR, Global Insights, PWF)
- Industry focused associations (e.g., DBIA, ARTBA, AWWA, AIAI)
- Government agency databases (STIP, CIP, project lists)

Study results/findings

The results of the study were developed through a combination of DBIA provided contacts and FMI internal contacts. In total, 46 interviews were conducted, and 279 survey responses were collected.

- Firms of all revenue sizes participated on the study. These ranged from ENR top-100 firms to firms with less than \$20 million in annual revenue. The study was unbiased towards firm type, service/product offering or association affiliation.
- Revenue/capital spending of the organizations that participated in the electronic survey totaled \$165 billion.

Assessed Geographies

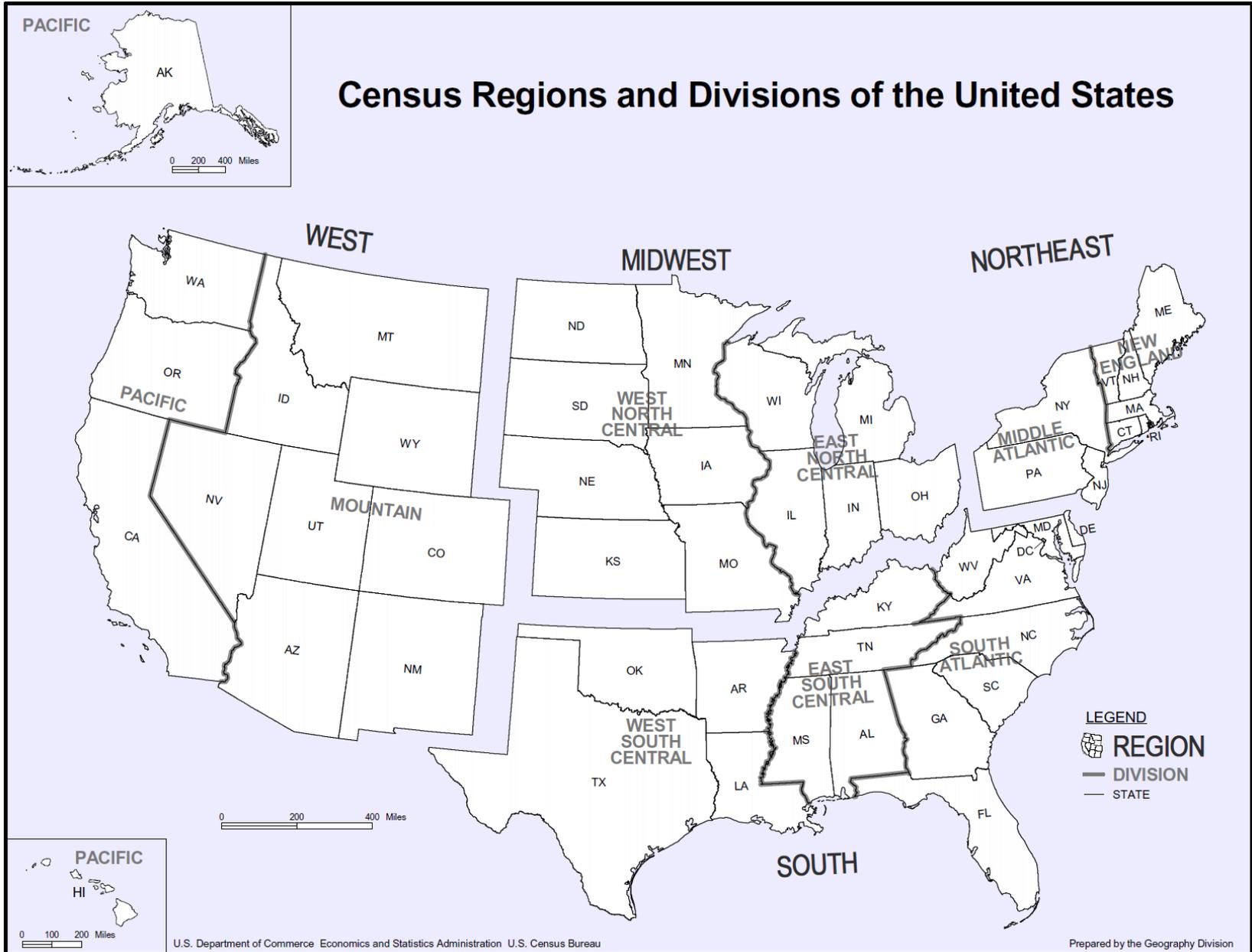


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Executive Summary

Executive Summary

Design-build construction spending in the assessed segments and geographies is anticipated to yield a compound annual growth rate (CAGR) of 7.6% over the 2021-2025 forecast period and reach over \$400 billion in 2025.

- The South Atlantic, West South Central and Pacific regions are anticipated to account for the largest volume of design-build spending over the 2021-2025 forecast period. Additionally, the West South Central (8.8%) and South Atlantic (8.6%) regions are anticipated to yield the highest CAGR over the 2021-2025 forecast period.
- Overall, design-build is anticipated to represent up to 47% of construction spending in the assessed segments and geographies in 2025. Across the assessed segments, highway/street (16%), educational (15%) and manufacturing (13%) are anticipated to represent the greatest percentage of design-build construction spending by segment over the 2021-2025 forecast period.

When assessing the best fit delivery method for a project, owners identified goals and objectives, project complexity and innovation, and project schedule as the most influential factors in project delivery method selection.

- Across the top factors influencing project delivery method selection, over 50% of survey respondents indicated design-build exceeded expectations. Additionally, over 75% of survey respondents indicated having a 'very good' or 'excellent' experience on their design-build projects.
- Design-build was noted to enable greater team collaboration that resulted in a high-quality end-result. By involving key stakeholders early in the process, the design-build team is able to identify and better address the owner's goals and objectives, ultimately leading to a more positive project experience for all involved.

As design-build has grown in prominence, both public and private owners have increasingly utilized various design-build procurement approaches across a wide range of project sizes and types.

- Although competitive best-value selection was identified as the most frequently utilized procurement approach for design-build, progressive design-build continues to be a procurement approach of growing interest across the industry. In particular, stakeholders in the Pacific region indicated the greatest percentage of design-build projects being procured via the progressive approach.
- As owners have increasingly employed design-build on projects <\$25 million, firms of all sizes have gained exposure and experience with the design-build process. Furthermore, 64% of owners and 52% of specialty trade contractors indicated design-build encourages greater participation from MWDBE organizations.



Consulting

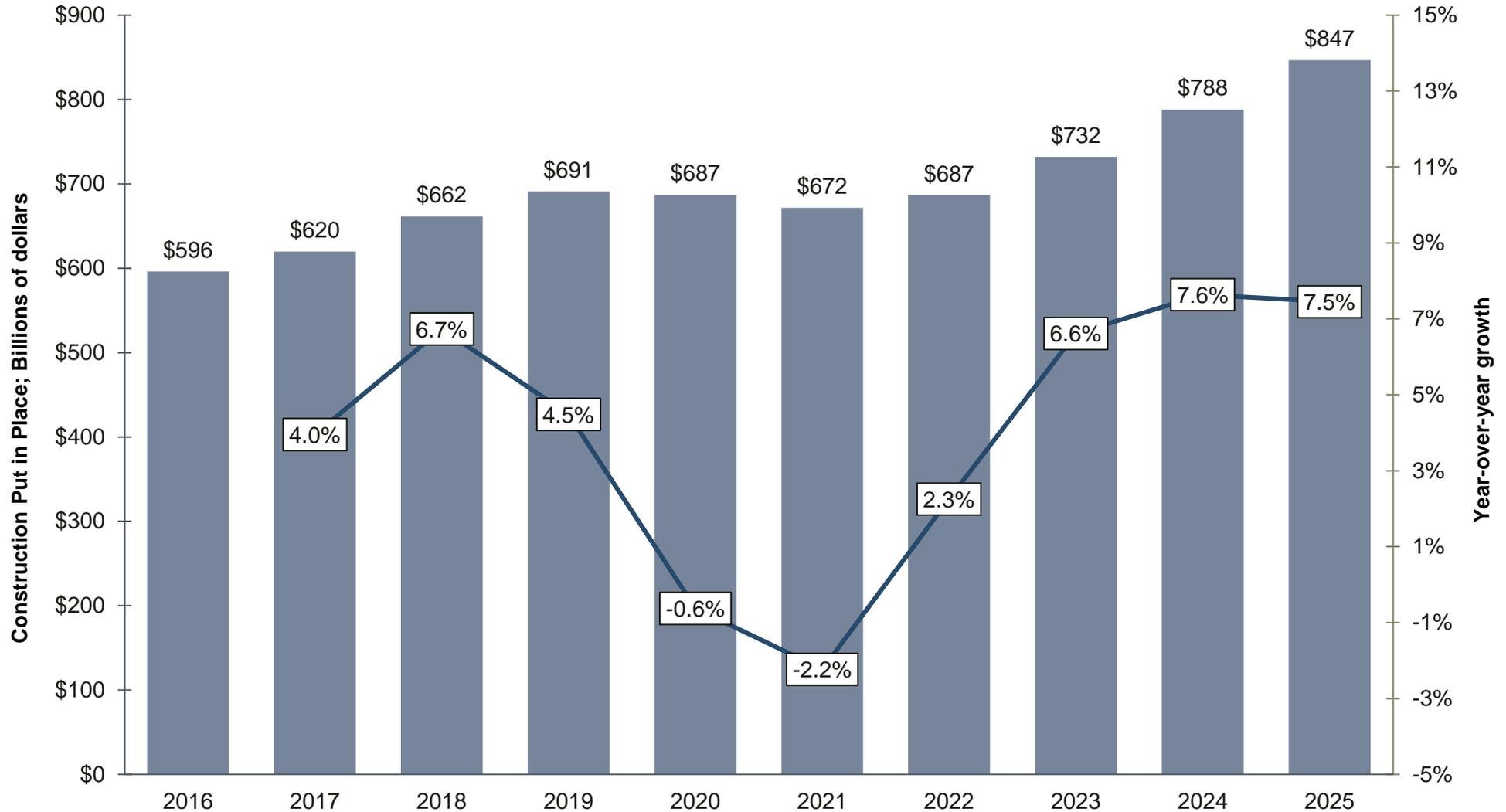
Market Sizing

U.S. construction spending in the assessed segments is anticipated to reach over \$800 billion in 2025.

U.S. Construction put in place (Assessed segments); 2016-2025

Billions of dollars

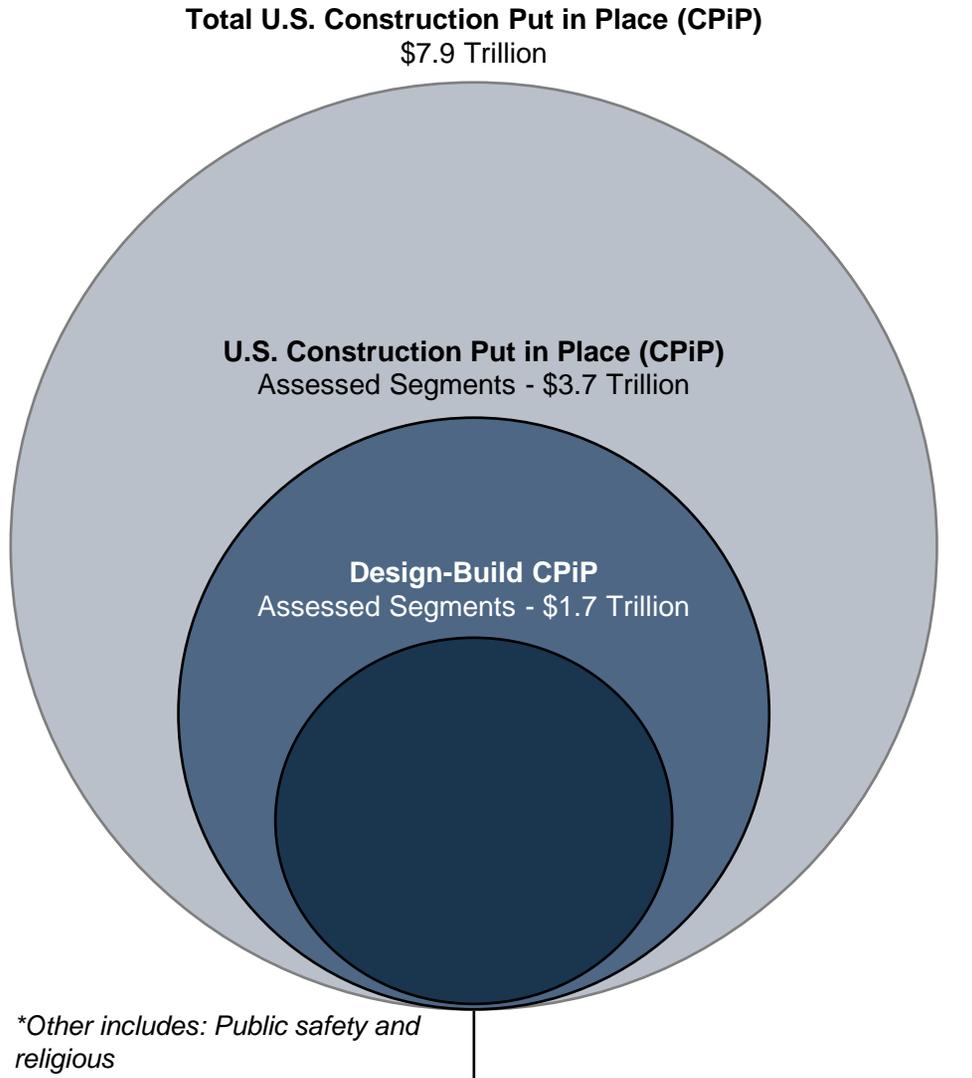
Source(s): FMI analysis of multiple sources



Overall, design-build is anticipated to account for \$1.7 trillion of construction spending in the assessed segments over the 2021-2025 forecast period.

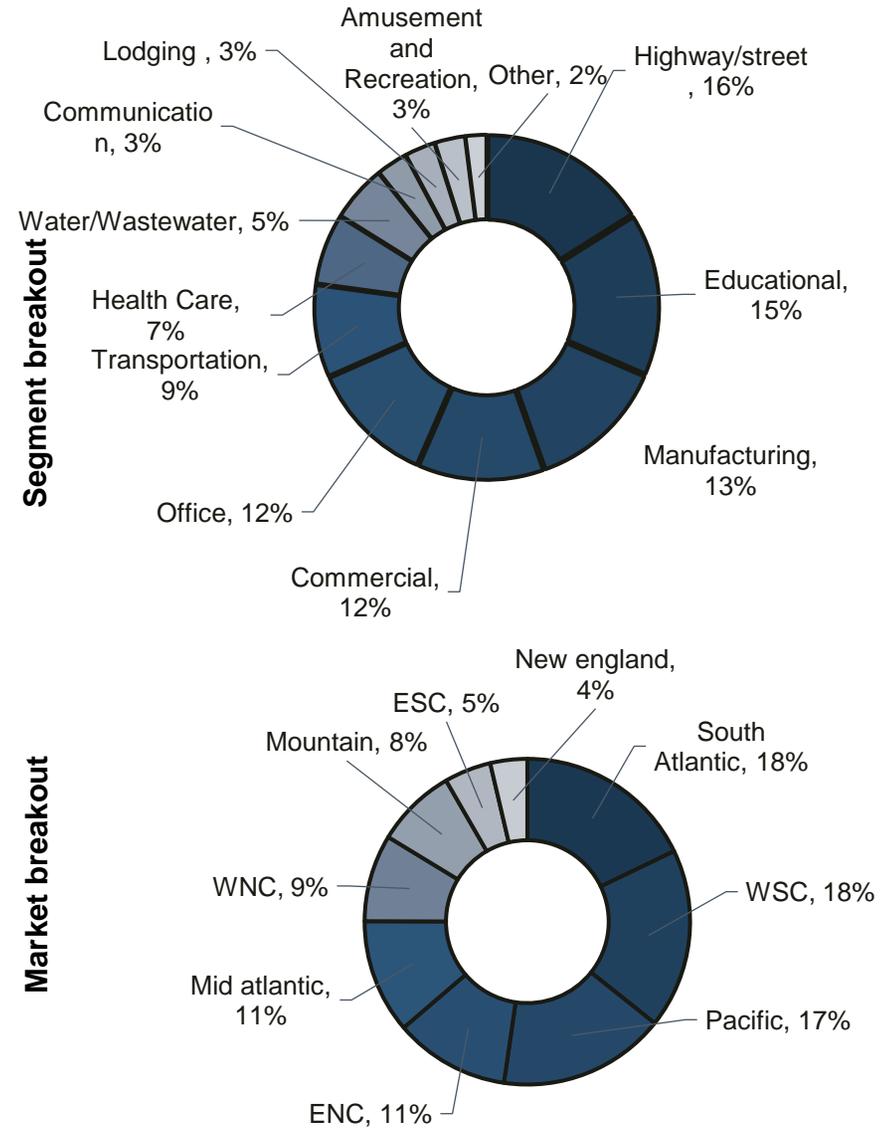
Market size comparison

Total combined spend, Rollup, 2021-2025 US\$



Distribution of market

CPiP spending, 2021-2025

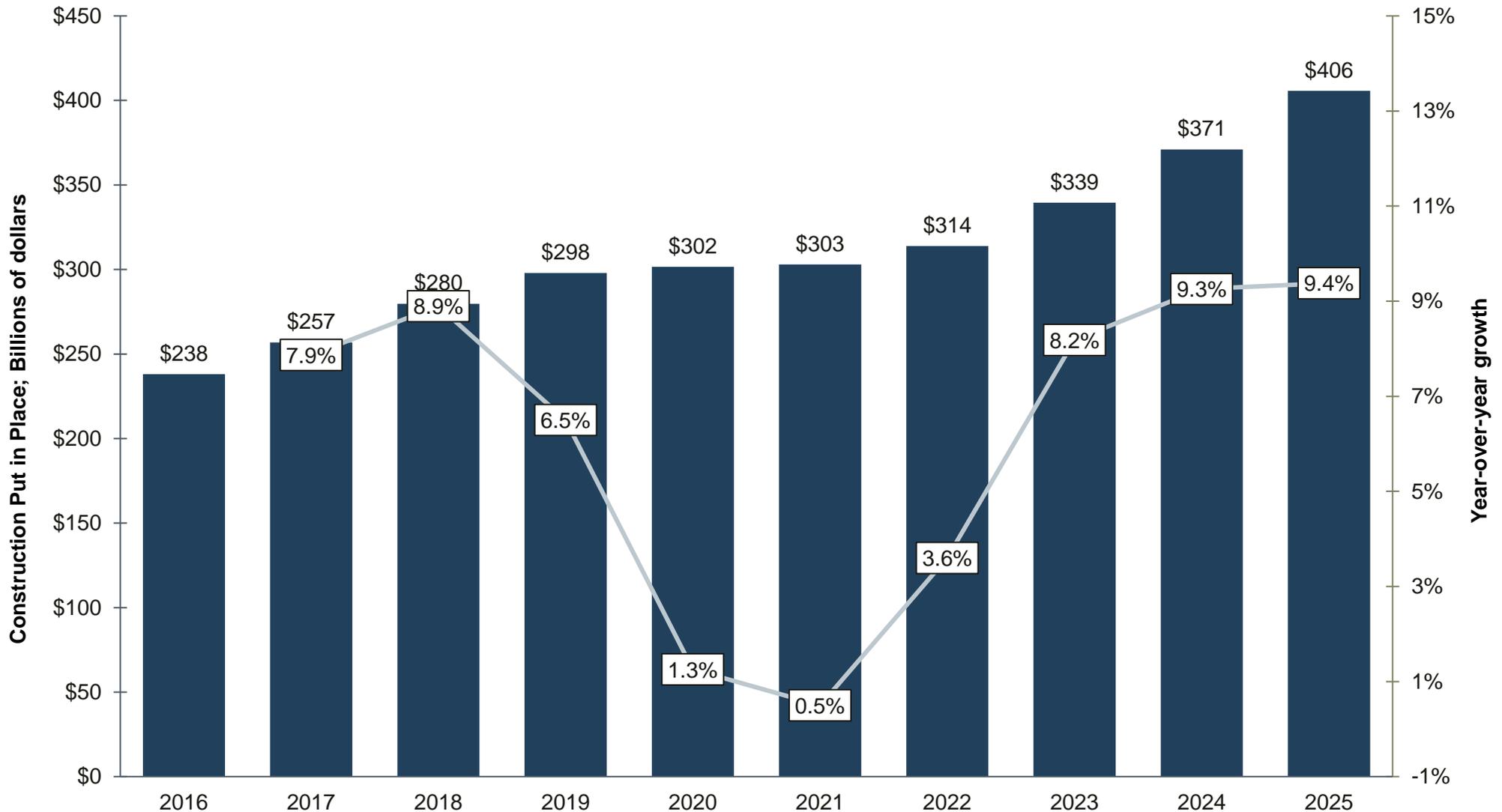


Design-build construction spending in the assessed segments is anticipated to yield a 7.6% compound annual growth rate over from 2021 to 2025.

Design-build construction put in place (Assessed segments); 2016-2025

Billions of dollars

Source(s): FMI analysis of multiple sources

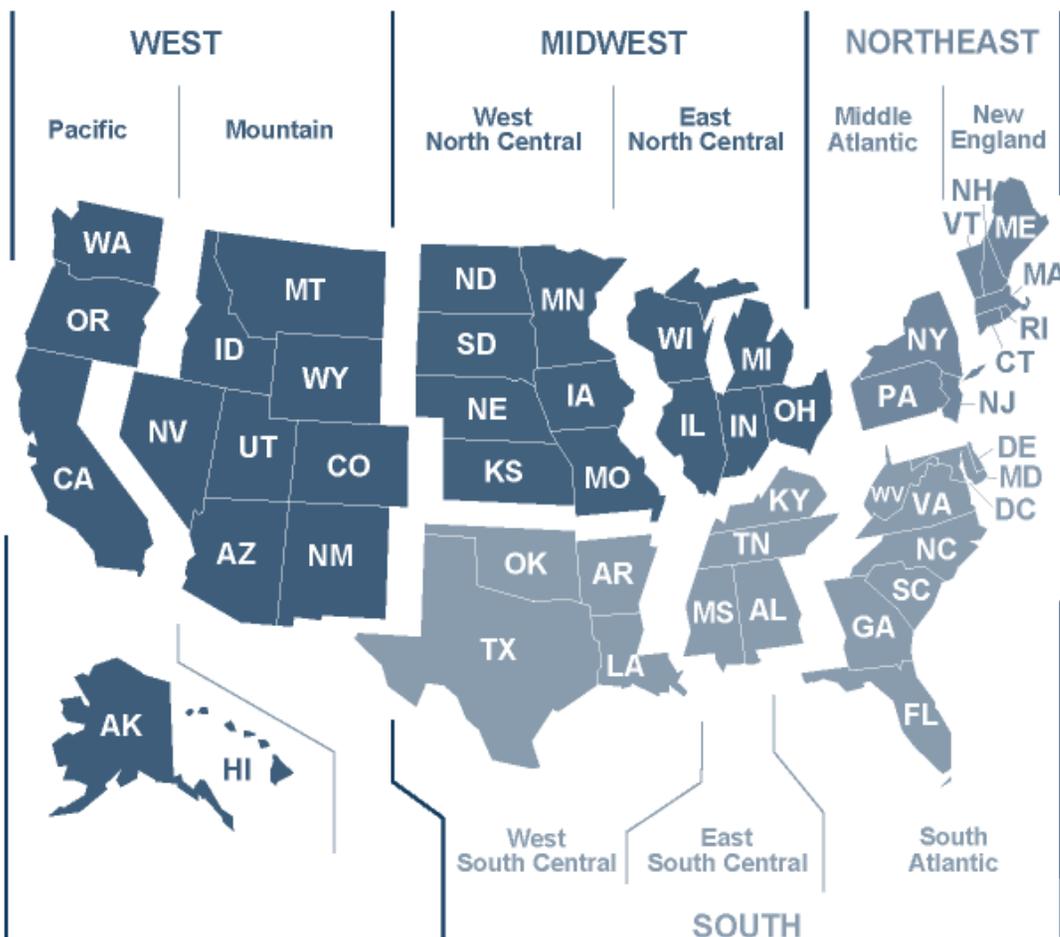


South Atlantic, West South Central & Pacific census divisions are anticipated to represent the largest volume of design-build spending over 2021-2025

Design-build construction put in place by census division (Assessed Segments)

Billions of dollars

Source(s): FMI analysis of multiple sources

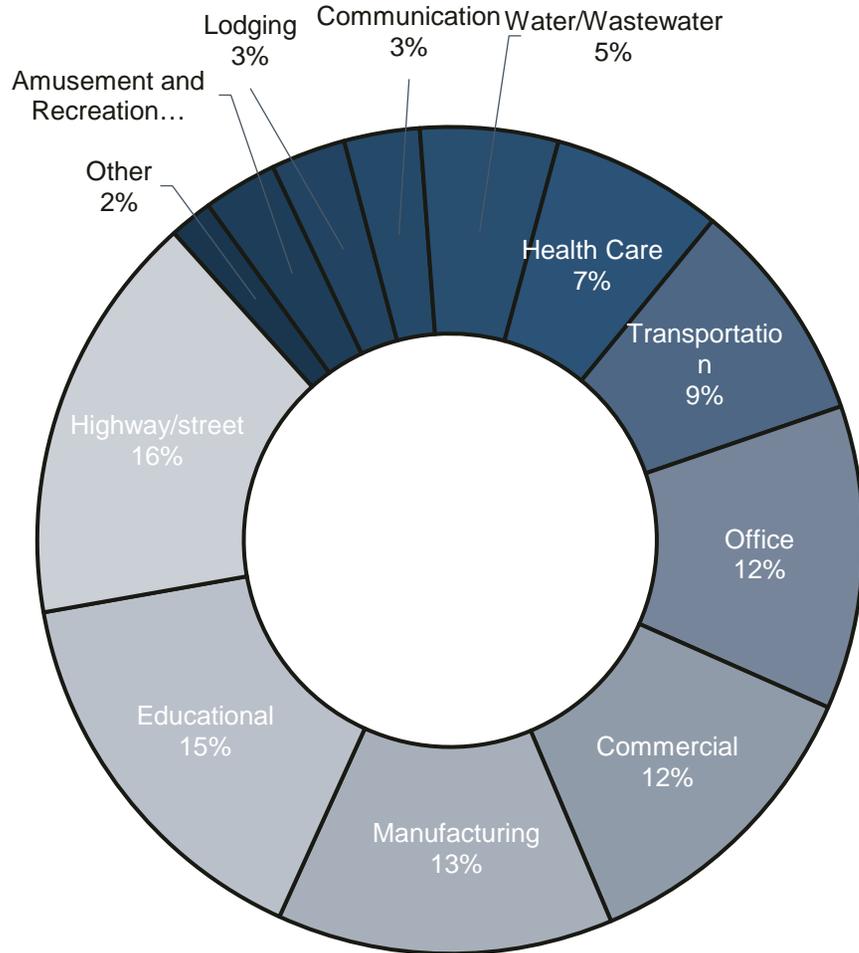


		<i>Billions of current dollars</i>		CAGR (21-25)
		2021e	2025f	
WEST	Mountain	\$24.3	\$31.9	7.1%
	Pacific	\$51.9	\$66.3	6.3%
MIDWEST	East North Central	\$35.7	\$45.0	6.0%
	West North Central	\$26.4	\$34.9	7.2%
NORTHEAST	New England	\$10.9	\$14.8	7.8%
	Middle Atlantic	\$34.1	\$46.7	8.2%
SOUTH	South Atlantic	\$53.5	\$74.4	8.6%
	East South Central	\$13.9	\$18.6	7.6%
	West South Central	\$52.2	\$73.1	8.8%
U.S. Total		\$303.0	\$405.7	7.6%

Highway/street, educational and manufacturing are anticipated to hold the largest share of design-build spending through 2025.

Distribution of forecast spending by segment

Combined CPiP spending, 2021-2025
Source(s): FMI analysis of multiple sources

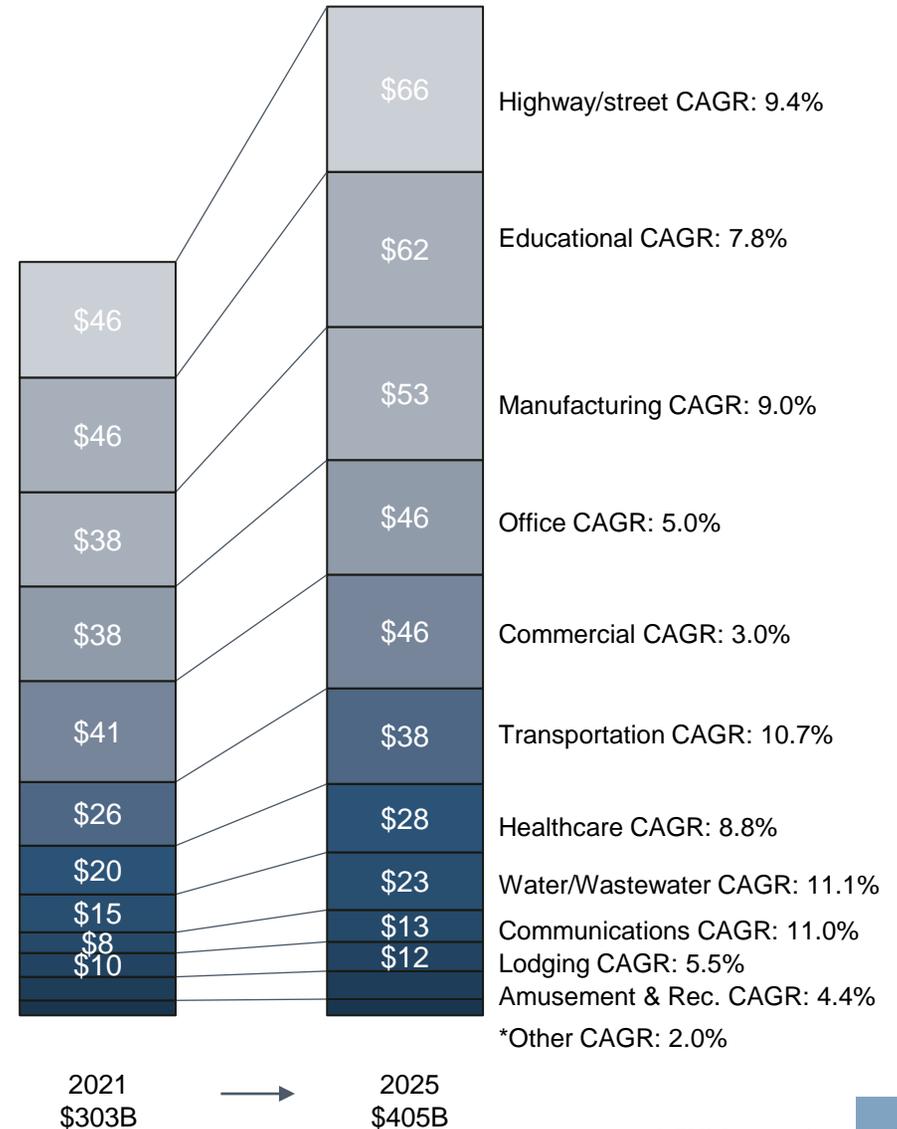


Total spend 2021-2025: \$1,732B

*Other includes: Public safety and religious

Distribution of market

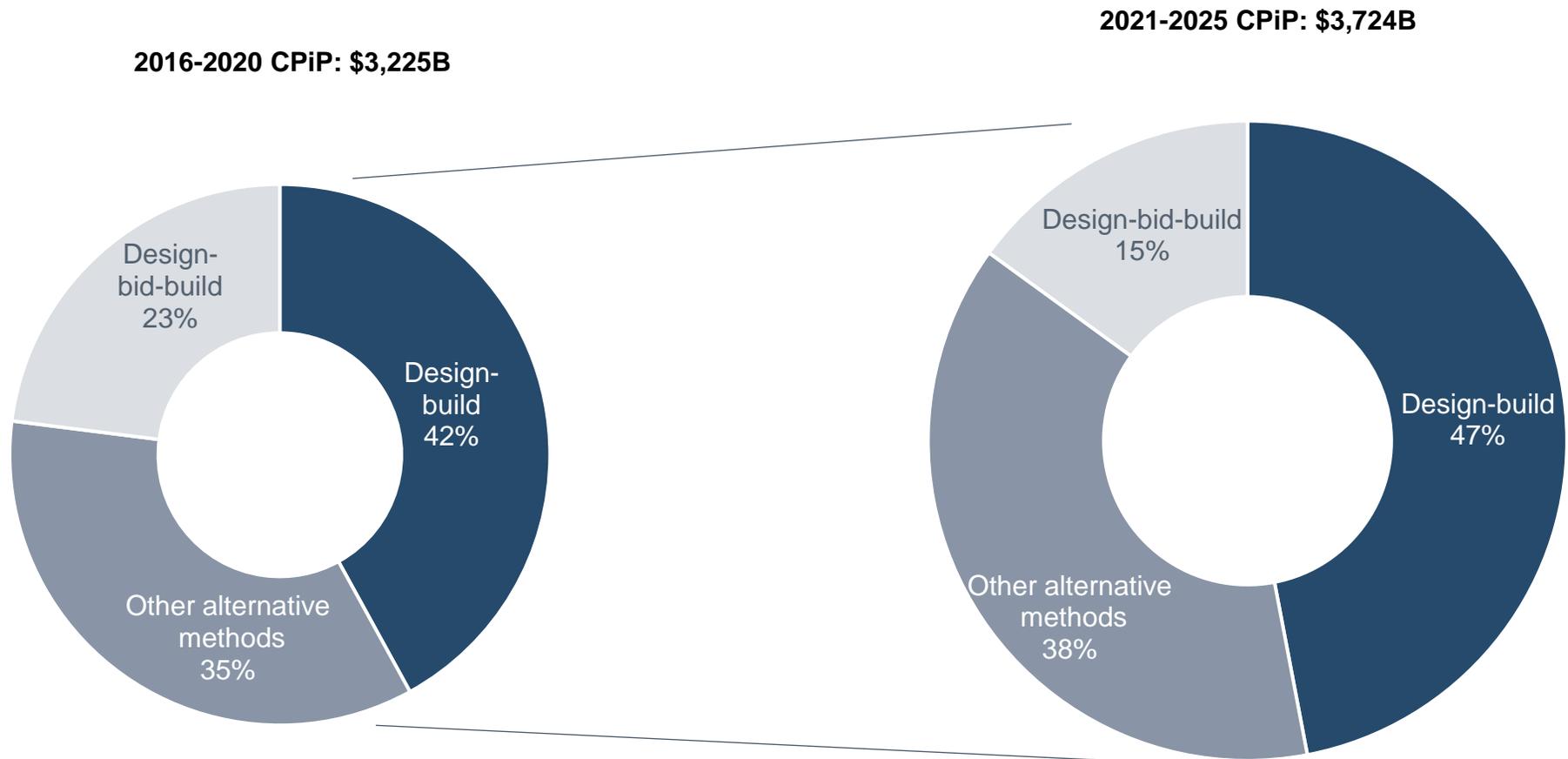
CPiP spending, 2021, 2025
Source(s): FMI analysis of multiple sources



Design-build is anticipated to continue to gain share over the forecast period and represent as much as 47% of spending in 2025.

Distribution of delivery method utilization

Source(s): FMI analysis of multiple sources



*Other alternative methods includes CM/GC, CMAR, EPC and IPD

**Percentages are based on estimated utilization across construction spending.

Total growth in design-build construction spending is anticipated to be 34% from 2021 to 2025.

Forecast by Geography	Spend 2021-2025	CAGR 2021-2025	% of total design-build CPlP
South Atlantic	\$309.8	8.6%	17.9%
WSC	\$309.0	8.8%	17.8%
Pacific	\$287.6	6.3%	16.6%
ENC	\$197.9	6.0%	11.4%
Mid Atlantic	\$196.2	8.2%	11.3%
WNC	\$149.8	7.2%	8.6%
Mountain	\$138.4	7.1%	8.0%
ESC	\$80.6	7.6%	4.7%
New England	\$63.6	7.8%	3.7%
Total	\$ 1,732	7.4%	100%

Forecast by segment	Spend 2021-2025	CAGR 2021-2025	% of total design-build CPlP
Highway/street	\$279.4	9.4%	16.1%
Educational	\$267.3	7.8%	15.4%
Manufacturing	\$227.9	9.0%	13.2%
Commercial	\$208.2	3.0%	12.0%
Office	\$205.8	5.0%	11.9%
Transportation	\$152.5	10.7%	8.8%
Health Care	\$116.6	8.8%	6.7%
Water/Wastewater	\$93.5	11.1%	5.4%
Communication	\$51.3	11.0%	3.0%
Lodging	\$50.6	5.5%	2.9%
Amusement and Recreation	\$50.3	4.4%	2.9%
*Other	\$29.6	2.0%	1.7%
Total	\$ 1,732	7.4%	100%

*Other includes: Public safety and religious



Consulting

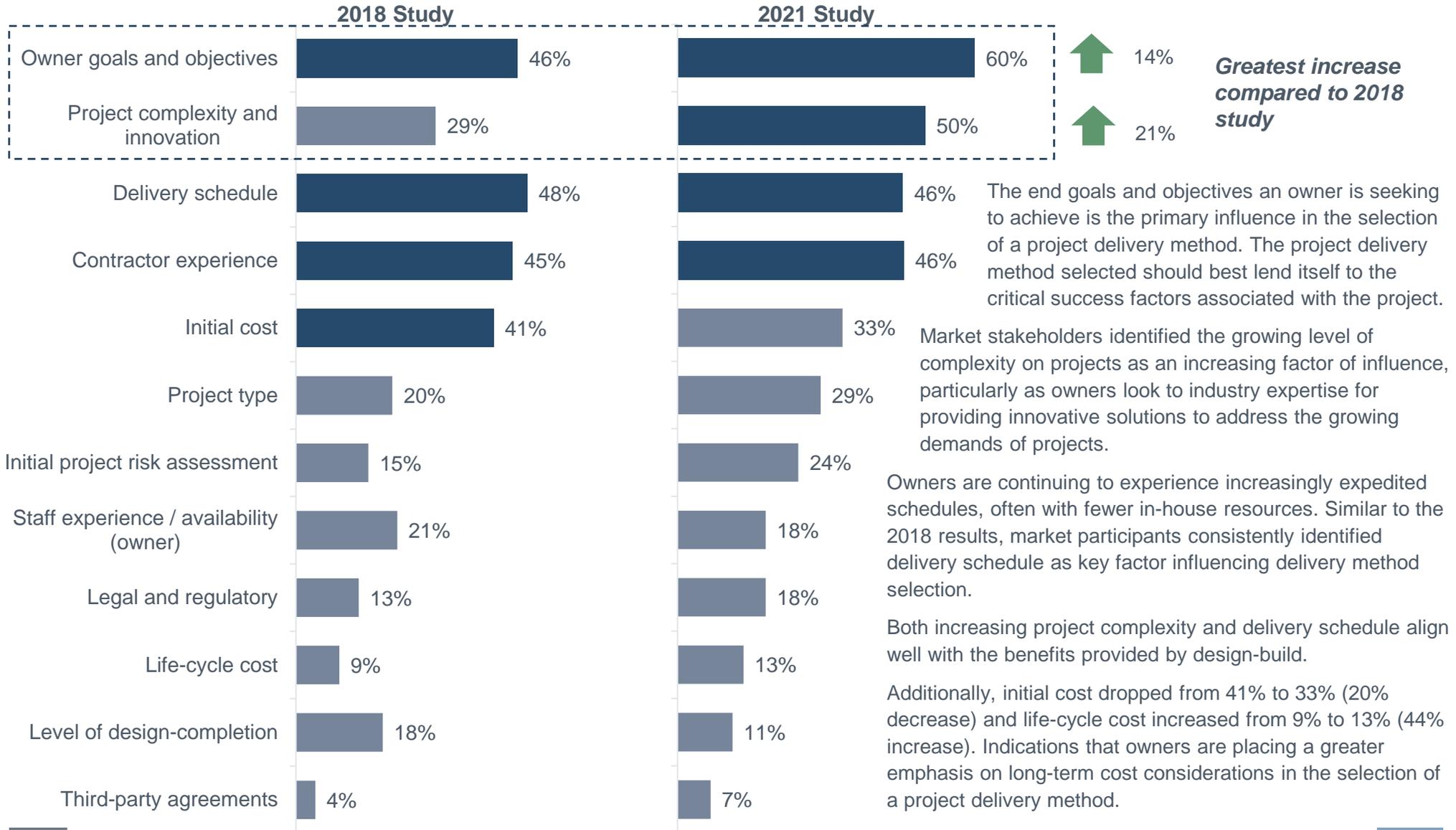
Key Findings

Owner goals and objectives, followed closely by project complexity & innovation were the most influential factors in project delivery method selection.

Factors influencing owners project delivery method selection

Percentage of owner respondents that selected 'extremely influential'

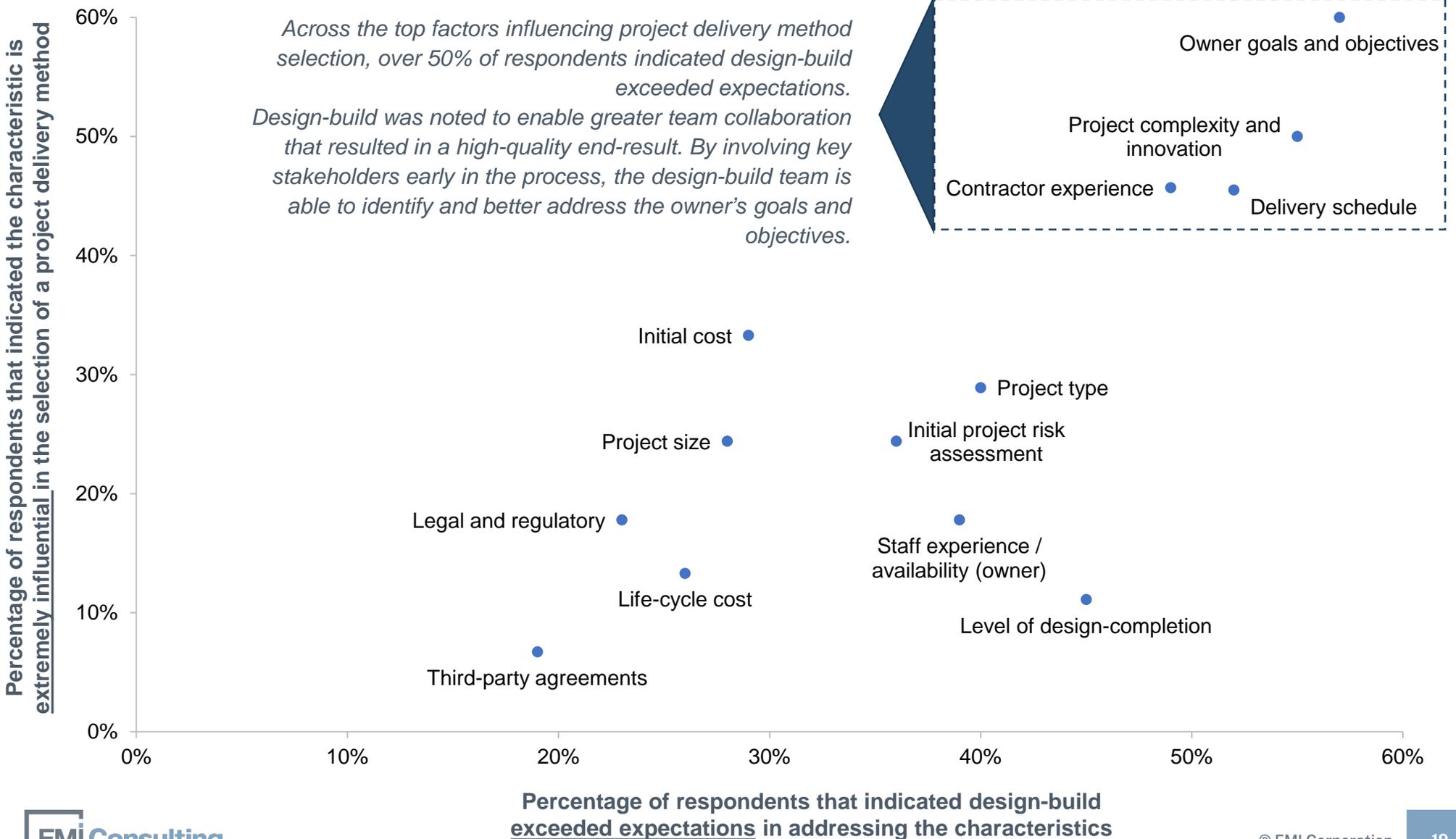
Source(s): FMI



Design-build exceeds expectations across the key factors influencing project delivery method selection.

Factors influencing delivery method selection and design-build's ability to address these factors

Source(s): FMI

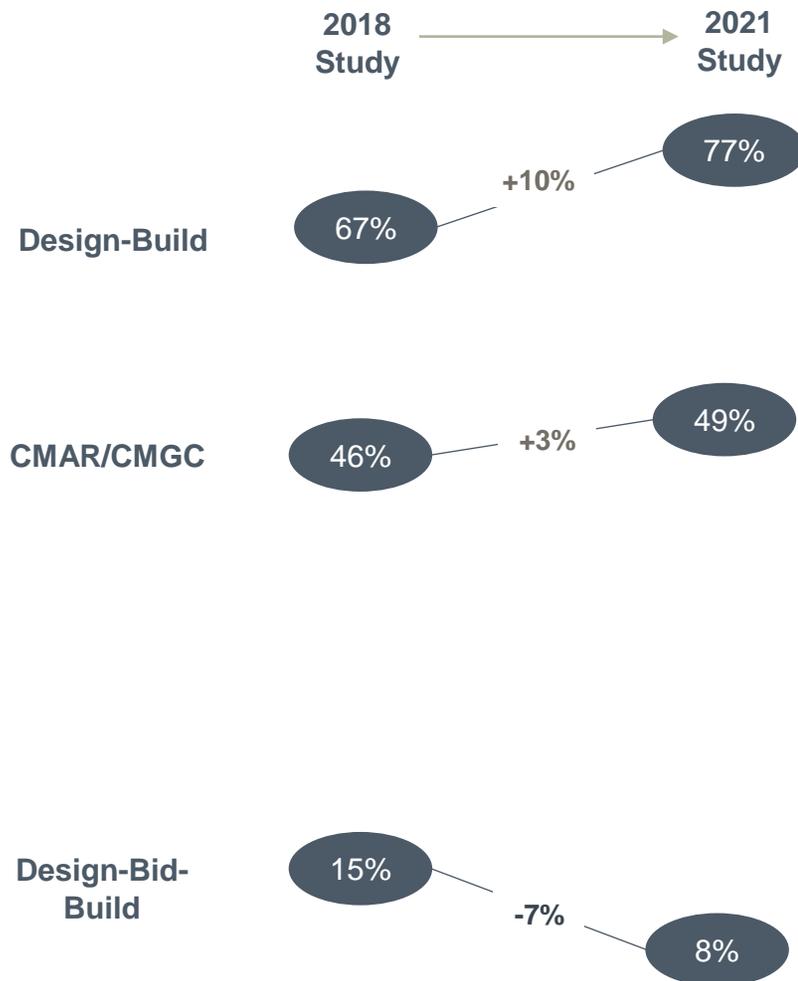


An increasing number of market stakeholders anticipate design-build to experience growth over the next five years.

Percentage of respondents that indicated the delivery method would increase over the next five years

Comparison of 2018 study to 2021 study

Source(s): FMI analysis of multiple sources



Across market interviews, it was consistently noted that alternative delivery methods were continually increasing in utilization as a result of owners yielding positive benefits from these delivery methods.

Compared to the survey conducted in 2018, feedback on the 2021 survey suggests that design-build and CMAR/CMGC are anticipated to increase over the next five years.

As legislation continues to enable the use of alternative delivery methods, an uptick in design-build has been experienced, especially in geographies that previously were unable to utilize alternative delivery methods.

“We have seen significantly more design-build work, and I think this will continue. We are also seeing more CMGC— we are working on a significant project that is driving that growth. The success of CMGC is dependent on the owner's ability to manage the project and their ability to collaborate.”

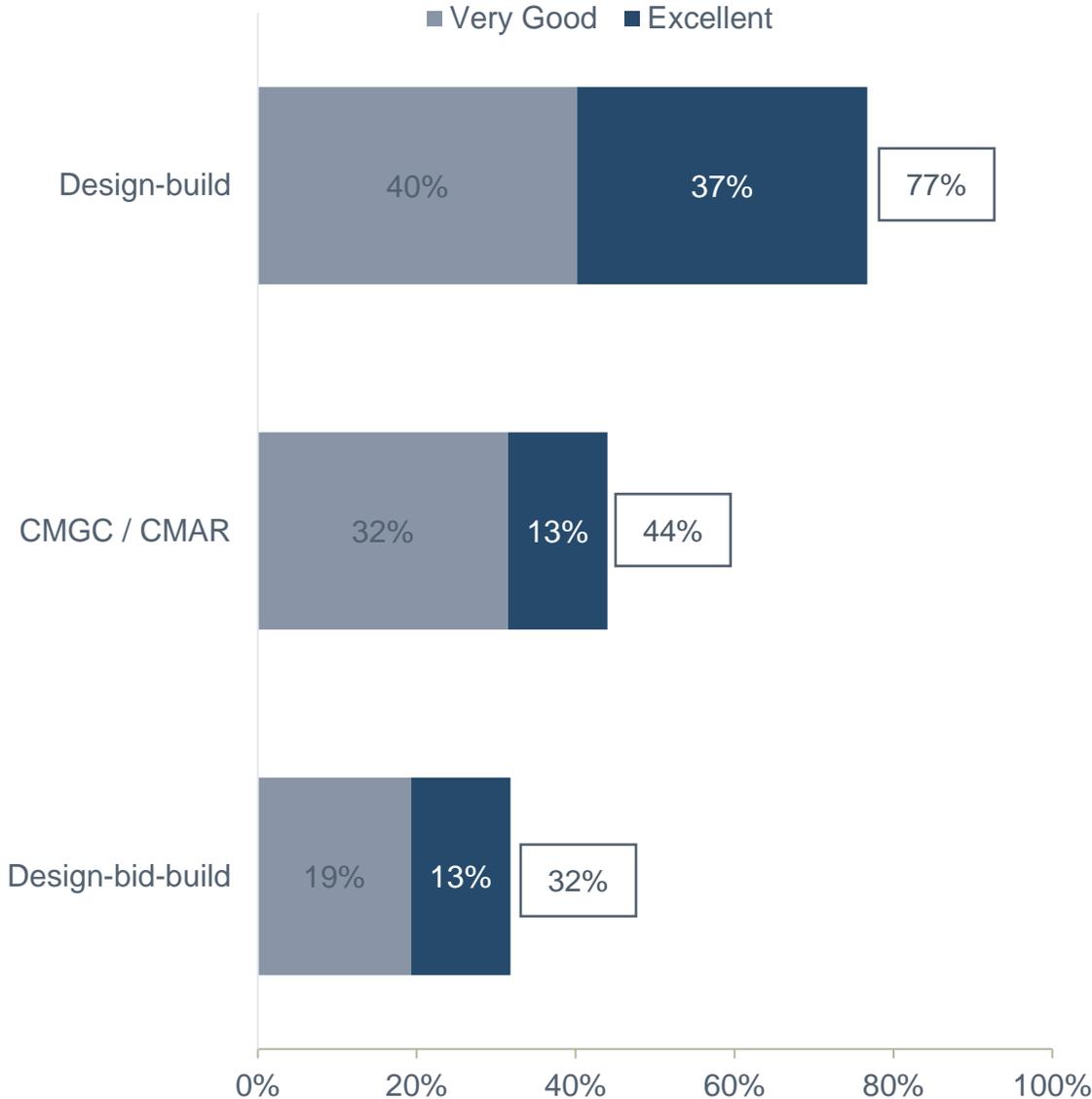
“Virtually everything in our geography is going design-build. I can't think of a market sector that is not using design-build.”

Over 75% of survey respondents have had a ‘very good’ or ‘excellent’ experience on their design-build projects.

Delivery method experience

Percentage of respondents that selected very good or excellent

Source(s): FMI



The ability to select the best-fit team with the capabilities and expertise that best align with the project was noted as a key driver of positive experiences with design-build. Additionally, the ability of a team to get in early, identify potential innovations and work with the owner to articulate their definition of project success enables a greater likelihood that the team will have an excellent experience.

“Concerning design-build, clearly there are scheduling benefits and there are cost benefits. Additionally, I think we achieve greater efficiencies and if we can do things more efficiently, we can do things better. Overall, the collaborative approach certainly has its benefits both cost and scheduling.”

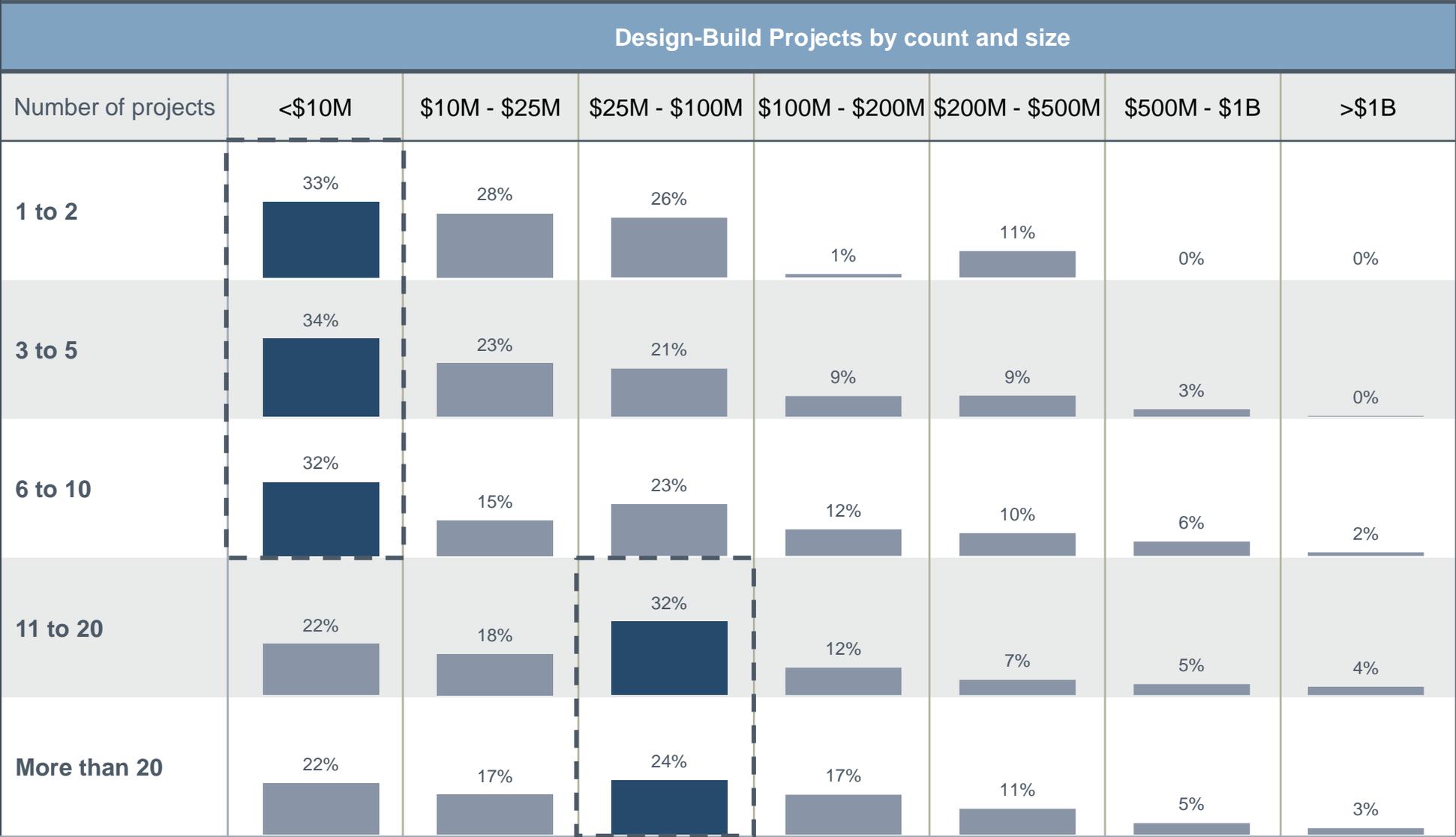
“The opportunity for innovation is the greatest in design-build projects. The ability to solve complex technical challenges and gain the innovation from the team are the greatest draws for me.”

Organizations are utilizing design-build across a wide range of project sizes on a consistent basis.

Number of design-build projects organizations have been involved on and distribution of these projects by size

Average percentage of projects

Source(s): FMI

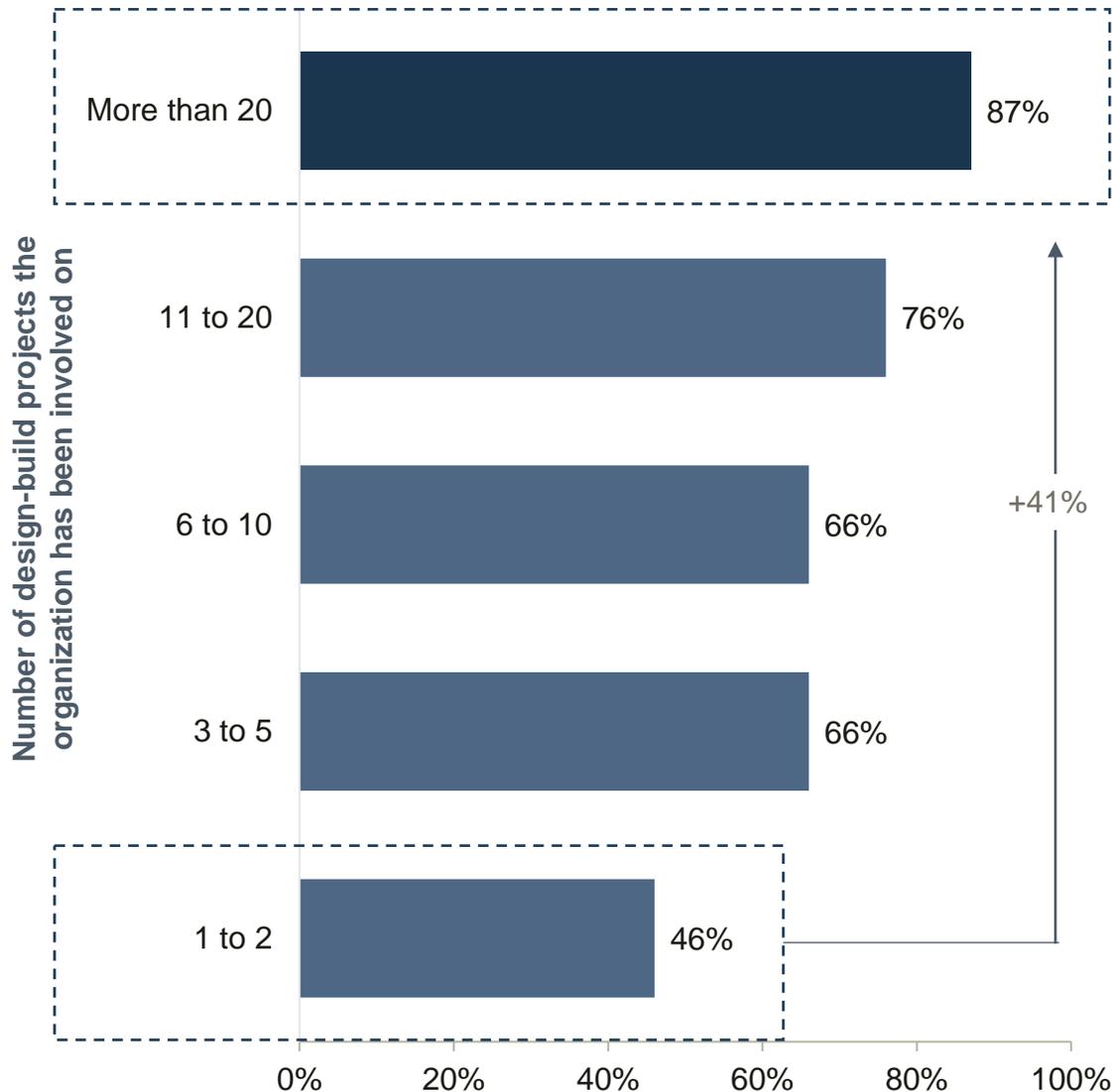


Positive experiences with design-build significantly increased as organizations gain experience and understanding of how to effectively deliver these projects.

Number of projects and experience with design-build

Percentage of respondents that selected 'very good' or 'excellent'

Source(s): FMI



Positive experiences with design-build were indicated to increase as organizations gain a deeper understanding of the benefits provided by design-build and how to effectively utilize design-build across a wider range of projects. Understanding how design-build best fits with an owner's program/projects is a key factor in increasing the likelihood of a positive experience.

The education process is highly important in achieving a positive experience with design-build. Gaining experience and knowledge of the process takes commitment and alignment on what is needed, and the resources required to achieve success.

When less favorable experiences with design-build were noted, the following characteristics were often identified as contributing factors:

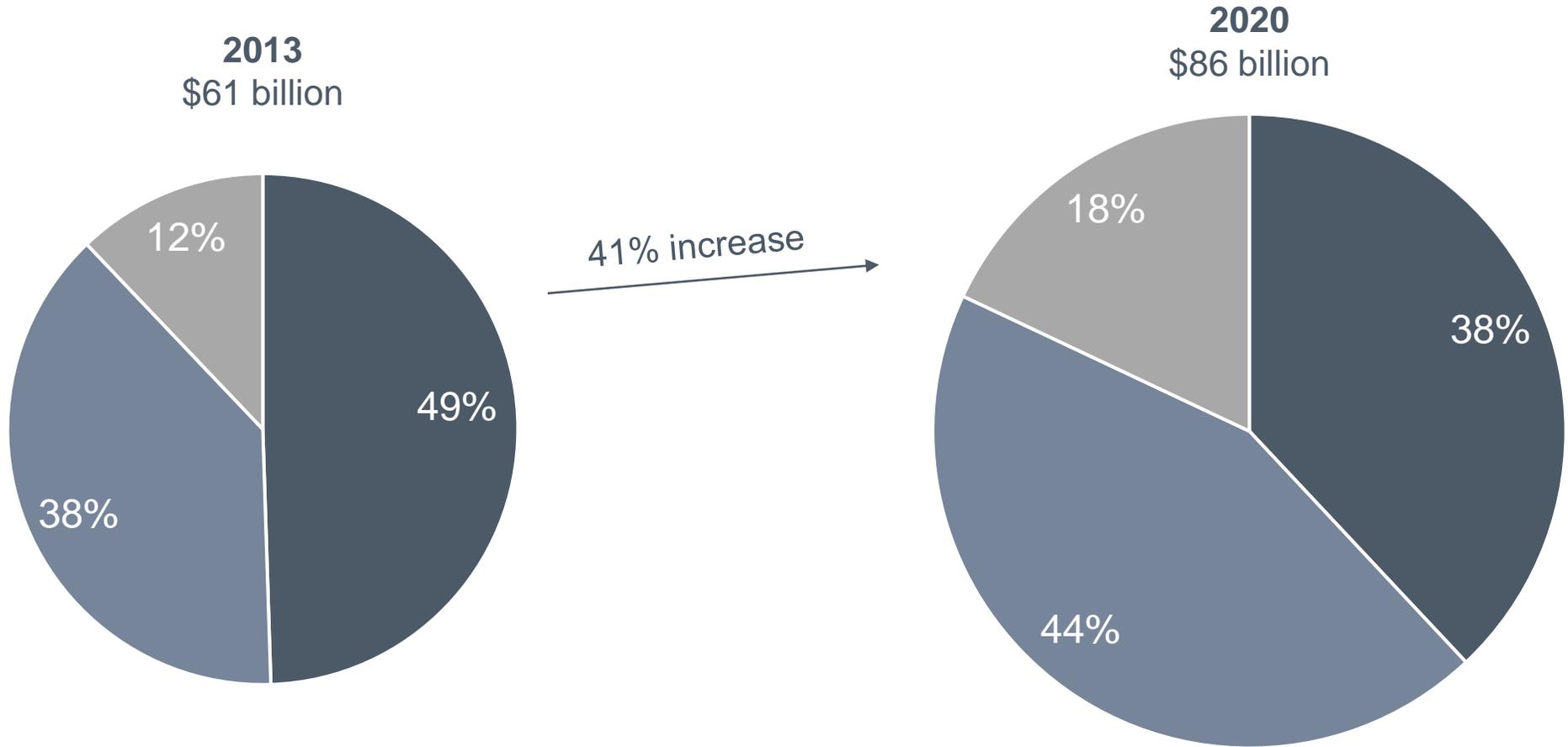
- Owners that perceive design-build as a vehicle to transfer all the risk to the design-build team.
- Underestimating the time and resource commitment it will take from the owner side.
- Lack of communication and collaboration across the project team.
- Lack of a dedicated design-build team leader.

Design-build continues to experience growth across contractors of all sizes.

Top-100 firm domestic design-build revenue

Revenue numbers are in current dollars

Source(s): FMI, ENR



Growth 2013-2020

Top-10 firm revenue
9%

Firms 11-50 revenue
63%

Firms 51-100 revenue
111%

*ENR Top-100 domestic design-build firm revenue

Respondents most frequently associated the ability to fast-track, innovate and increase collaboration/creativity as key benefits of utilizing design-build.

Benefits associated with design-build

Percentage of respondents; coloring is based on percentages by column

Source(s): FMI

Lower percentage Higher percentage

	Architect/ Engineer/ Designer	General Contractor/ Construction Manager	Manufacturer/ Supplier/ Vendor	Specialty trade contractor	Owner's advisor	Owner	Average of all respondents
Increased collaboration and creativity	76%	89%	78%	89%	86%	80%	84%
Fewer disputes	61%	81%	67%	74%	81%	74%	74%
Final cost closest to budget	72%	82%	44%	68%	81%	57%	74%
Greater project / design control	35%	88%	56%	84%	62%	26%	61%
Highest quality	44%	81%	56%	79%	67%	49%	65%
Least project risk (for the owner)	63%	78%	44%	74%	81%	66%	69%
More opportunities to innovate	74%	94%	56%	84%	90%	83%	85%
More predictable / manageable schedule	69%	78%	33%	79%	95%	60%	73%
Most qualified service providers	56%	72%	44%	79%	81%	57%	66%
Shorter procurement period	76%	71%	56%	84%	76%	63%	72%
Ability to achieve design excellence	46%	79%	67%	79%	71%	66%	68%
Early knowledge of cost	61%	75%	44%	74%	90%	69%	72%
Ability to fast-track project	87%	88%	67%	84%	100%	94%	89%

Interviewees felt design-build enabled a project to achieve design excellence through early involvement, clear definition, and team alignment.

Ability to achieve design-excellence

Source(s): FMI

Factors that enable design-build's ability to achieve design excellence:

1 Early Involvement

Early involvement allows the design-build team to develop a deeper understanding of the owner's critical success factors and project objectives. This enables the team to ask clarifying questions of the owner and develop alignment on the owner's end goals for the project.

2 Clear Definition

Design excellence is entirely dependent on how the owner defines design excellence. When the owner is able to articulate their definition of design excellence, the design-build team is better equipped to achieve the owner's goal for design excellence. Design excellence for one owner may be a beautiful building, for another it may be environmental sustainability, and functionality for another. Interviewees noted that design excellence was achievable with design-build when the team is aligned on the owner's definition of design excellence.

3 Team Alignment

Early alignment between the owner and the design-build team with respect to budget and design expectations is an important factor of success in achieving design excellence. Alignment, combined with a clear definition of design excellence from the owner, enables the design-build team to deliver the highest quality design and achieve budget expectations.

"From my experience, design excellence is what the owner defines as design excellence – their perception. If an owner can express what's important, it'll be achieved. When design excellence means a beautiful building, the owner will achieve that. When it means zero net energy, then the owner achieve will achieve that. If it is a secure facility, then the owner will get that."

"I don't side with any argument that owners don't have the ability to receive design excellence through design-build. I tell clients to be clear with design-build teams with the goals and what their definition of success looks like. If that happens, owners end up with design excellence."

"We always work with the owner to communication their vision for design excellence. This is really important to define because this is how you get a great project."

The biggest worry from the owner is that they don't have design control. That is not true. The owner always has control. It's a matter of how they manage the relationships.
- Owner

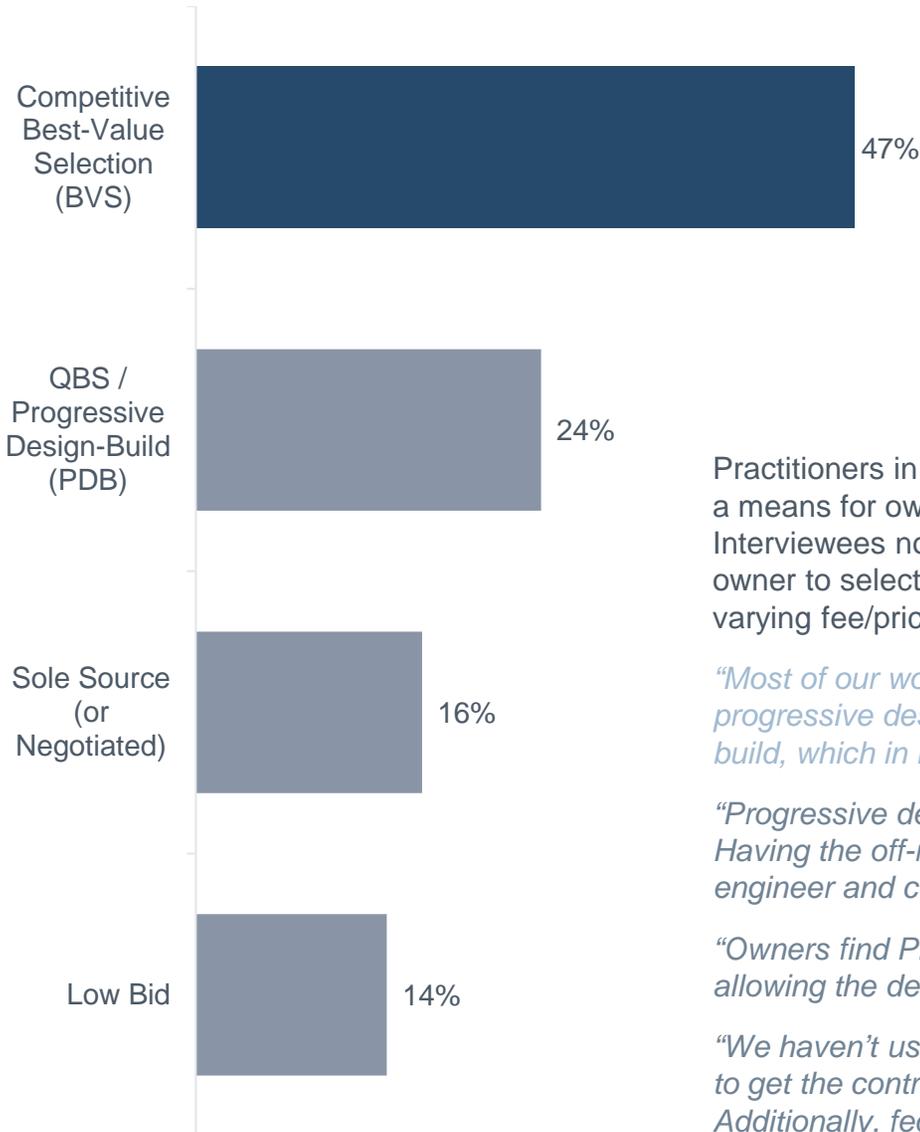


Competitive Best-Value Selection was identified as the most frequently utilized procurement approach, followed by QBS/Progressive Design-Build.

Utilization of various design-build procurement approaches

Average percentage

Source(s): FMI



With best-value selection, it was indicated that most owners shortlist three to five firms with three being the preferred count of firms. Although best practices suggest shortlisting three firms, it was noted that public agencies will extend the list of shortlisted firms more than five to avoid potential legal repercussions.

“Typically, we have six to eight firms bid on a design-build project. Procurement wants us to interview all of them as a shortlist every time. I recommend three to four at most. But our procurement team feels as they are afraid to get sued for some perceived problem with the procurement process.”

Practitioners in the market perceive the progressive design-build procurement approach as a means for owners to have greater involvement and oversight in the project design. Interviewees noted a limitation for utilizing progressive design-build was the ability of an owner to select solely on qualifications. To address this, several owners have incorporated varying fee/price components to satisfy procurement requirements.

“Most of our work is in the public sector. The biggest trend I am seeing is the push for progressive design-build. Institutions have already moved to using progressive design-build, which in my opinion is because it’s so expensive to pursue traditional design-build.”

“Progressive design-build allows the owner to have a better say in the project’s design. Having the off-ramp gives the owner and the design-build team the incentives to value engineer and compromise.”

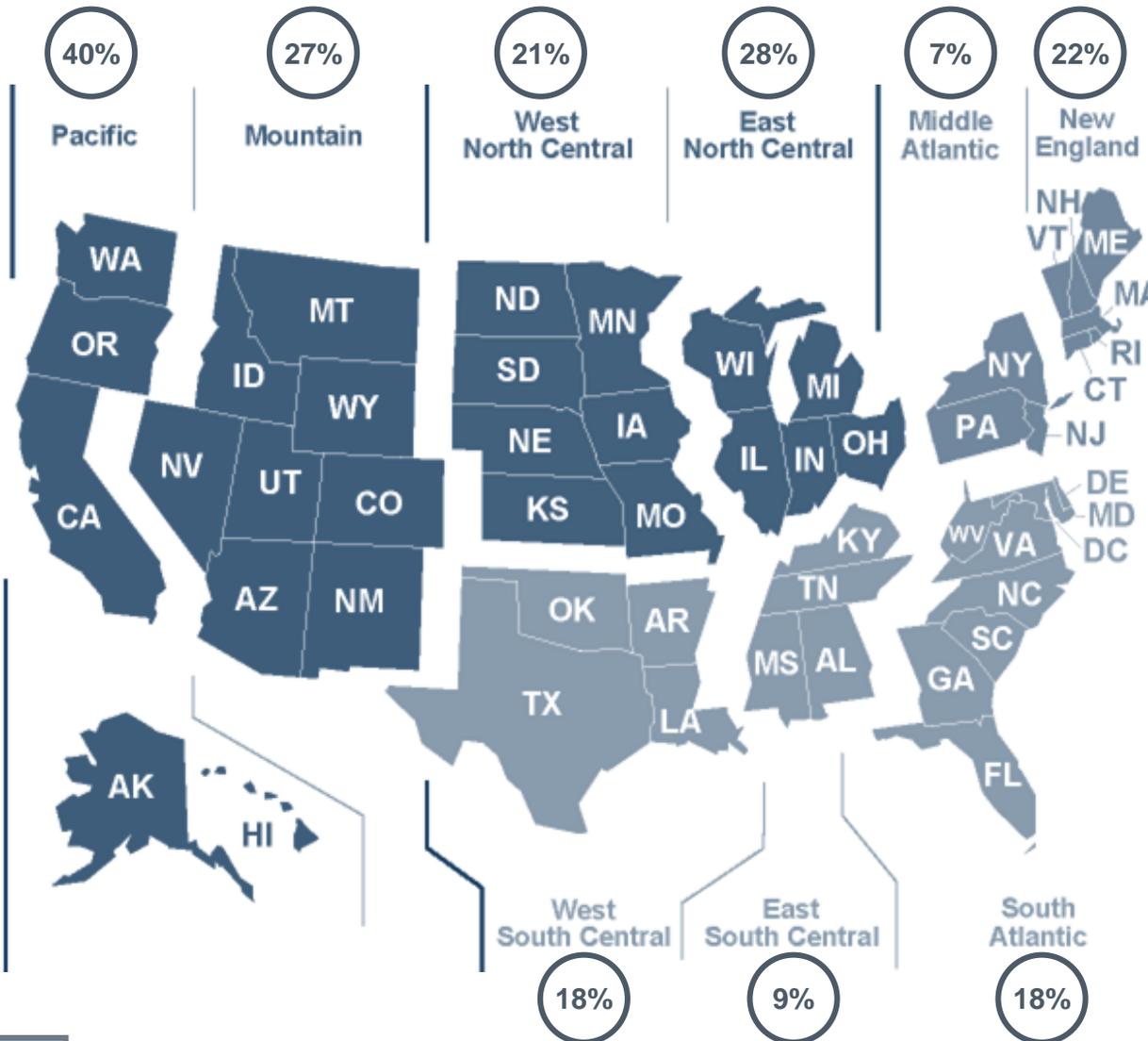
“Owners find Progressive DB allows them the highest level of input and control while allowing the design-builder the best possible environment to foster innovation.”

“We haven’t used progressive design-build for a few reasons. We think it’ll be a tough sell to get the contracting community on board with all qualifications-based selections. Additionally, federal language might complicate the availability of federal funds for a progressive design-build project.”

Progressive design-build continues to be a procurement approach of growing interest across the industry.

Percentage of progressive design-build procurements across geography

Average percentage
Source(s): FMI survey



Progressive design-build was noted as a procurement approach that is continuing to increase in utilization across a variety of segments. In particular, it was frequently associated with aviation, water/wastewater, and manufacturing. Additionally, it was identified as a growing approach for large private organizations.

Across geographies, survey respondents in the Pacific region indicated the highest percentage of projects that are being procured via a progressive design-build approach. Stakeholders operating in the region consistently noted that owners are employing progressive design-build at a continually increasing rate, especially in the public building space.

A potential hesitation identified with adopting progressive design-build was owners' uncertainty in its ability to deliver the same or greater value than the 'traditional' design-build model has provided owners historically.

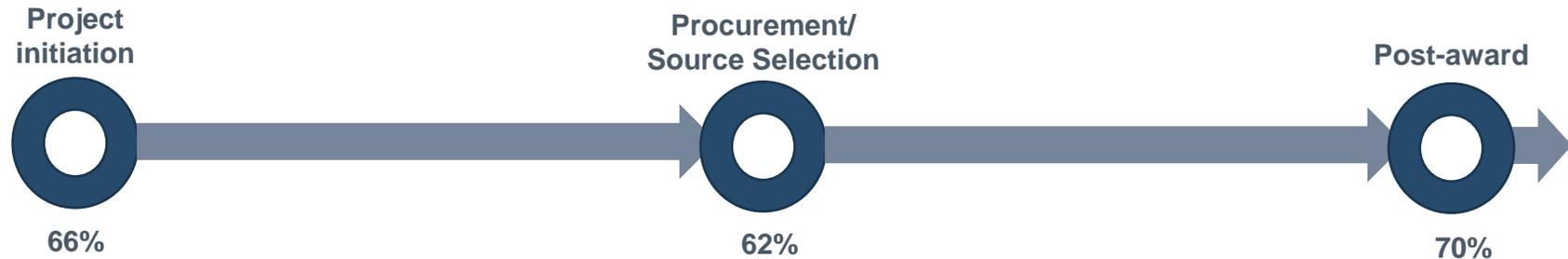
In cases where the off-ramp was taken in progressive-design-build, key contributing factors influencing owners to take the off-ramp were a lack of familiarity with the process (both the owner and design-build team) and the design-build team's inability to manage the design and project to the owners' budget.

More than 60% of owners employ an owner advisor across each project phase.

Percentage of owners that employ an owner advisor across various project phases

Percentage of owners

Source(s): FMI



Over sixty percent of owner survey respondents indicated employing an owner advisor to assist on various project phases. Market interviews noted that having a clear role definition for the owner advisor in the design-build process was a key factor of success. Owner advisors that have a deep understanding of the design-build process and know how they best contribute to the project's success were indicated to provide a high level of value to the design-build process.

Owner advisors were identified as playing an important role when owners are less familiar with design-build and require additional guidance on how to effectively manage the design-build process. An owner advisor's understanding of design-build is critical in these circumstances. The greatest challenges noted by interviewees with owner advisors was on projects where the owner advisor did not have a strong understanding of the design-build process or approached the project as if they were in a design-bid-build scenario. This scenario was indicated to result in a more bureaucratic approach to design and stymies the innovation and collaboration that design-build can provide.

Overall, there were several positive benefits attributed to utilizing an owner advisor on design-build projects, however interviewees noted the critical importance of owner advisors being properly trained and familiar with the design-build process.

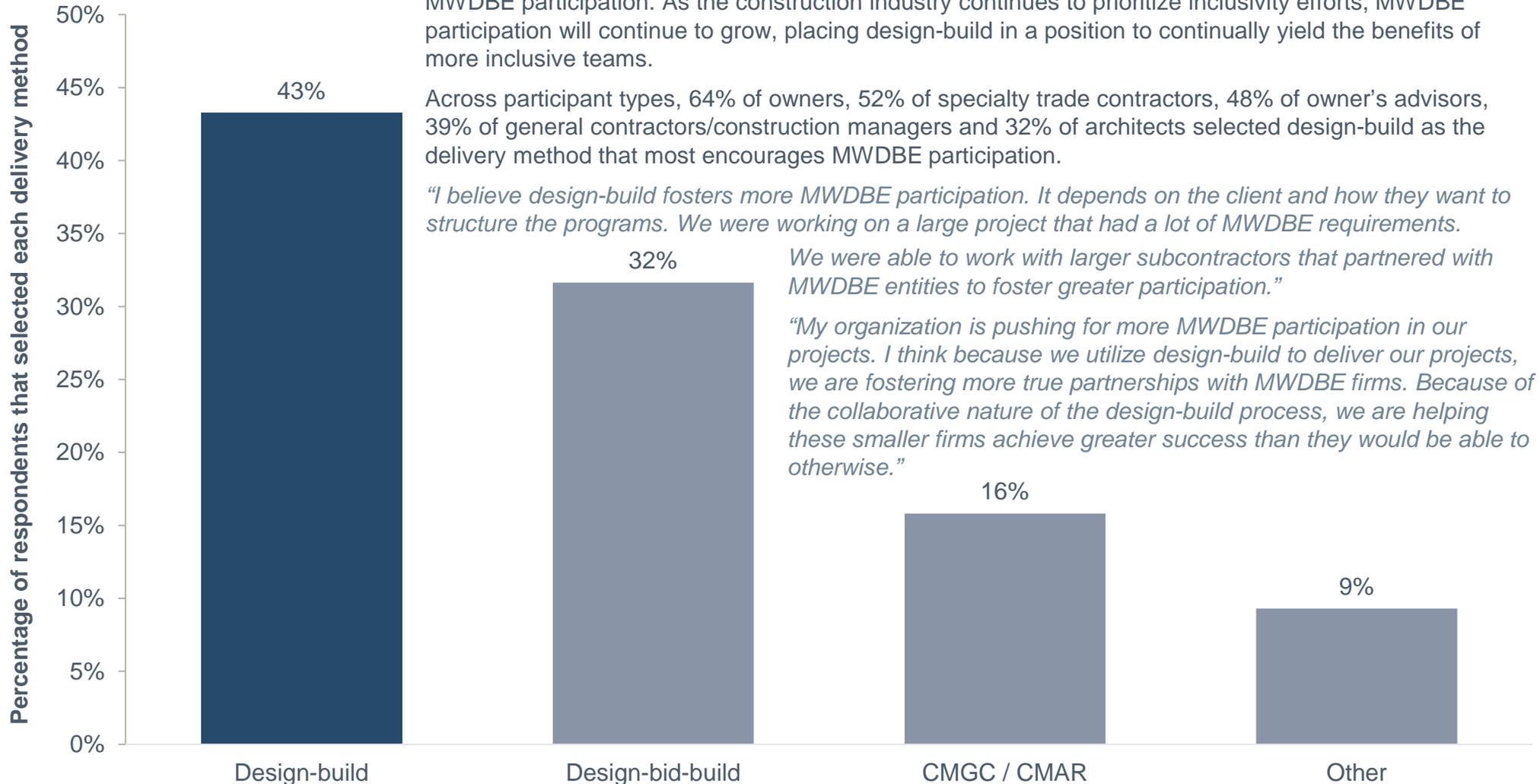
"Owner advisor is a valuable service that a properly trained person can do. The person needs to have a valid understanding of design-build, way more than just a general idea of what it is. They need to know the touch points and pain points that can happen in a design-build project."

Respondents believe that design-build encourages greater participation from MWDBE organizations.

Delivery method encouragement of MWDBE participation

Percentage of respondents; respondents could only select one delivery method

Source(s): FMI





Consulting

Appendix



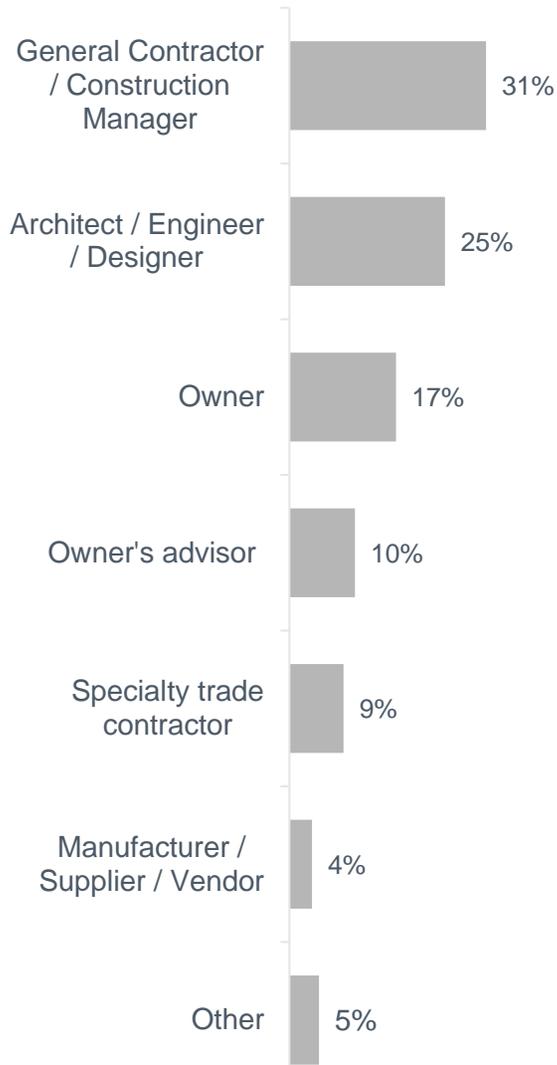
Consulting

Survey Results

279 respondents participated in the survey.

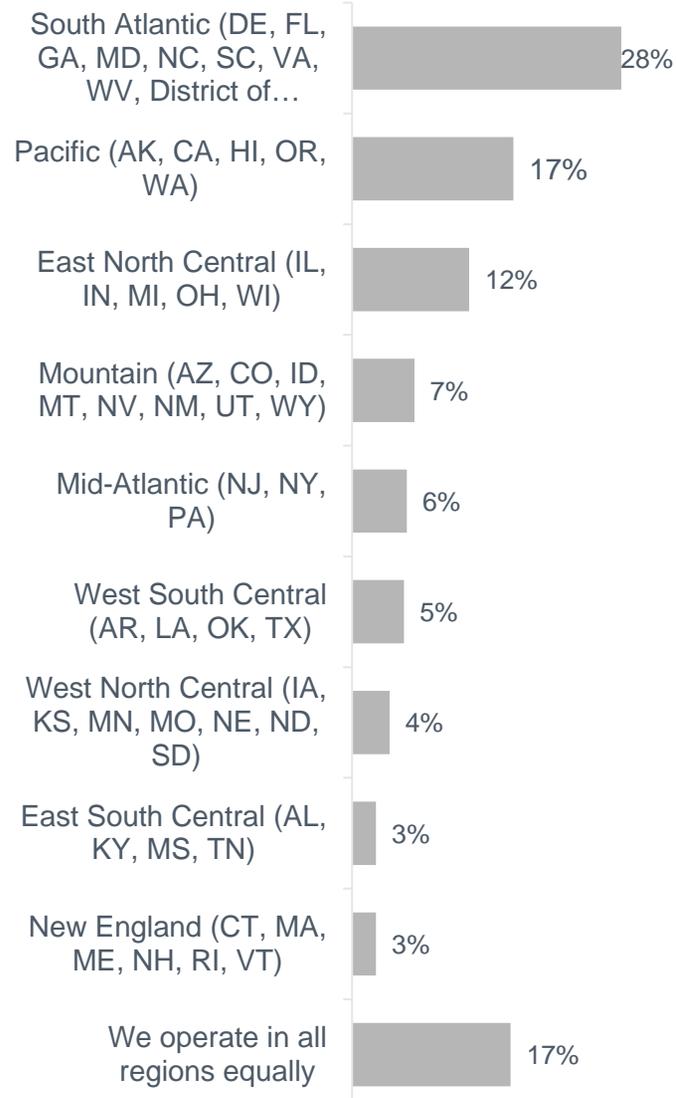
Respondent Demographics

Organization Type

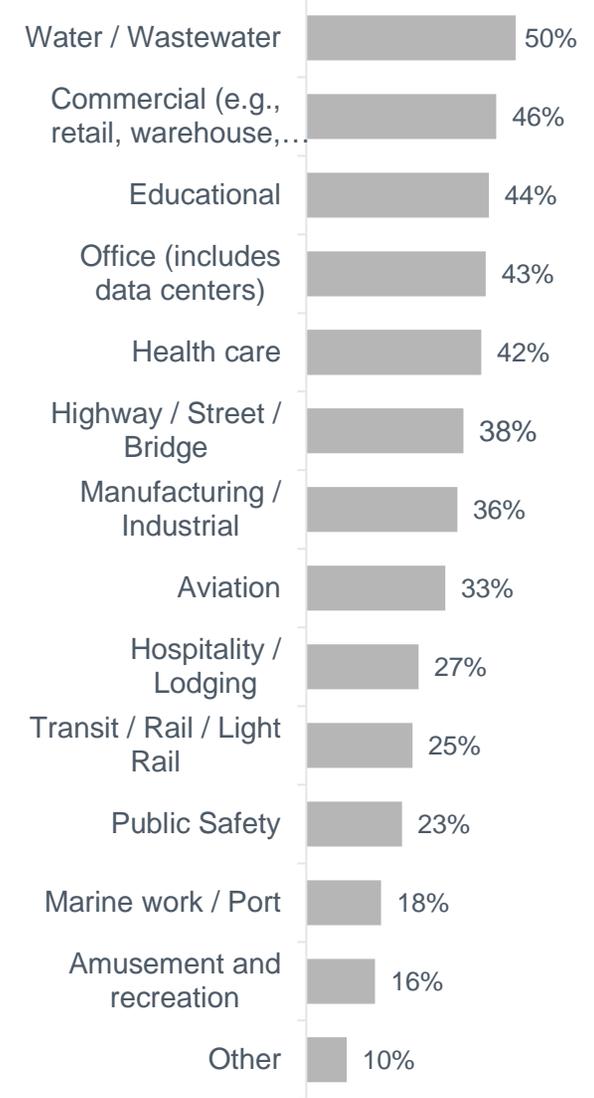


Other included: Integrated design-build firm

Operating Geography



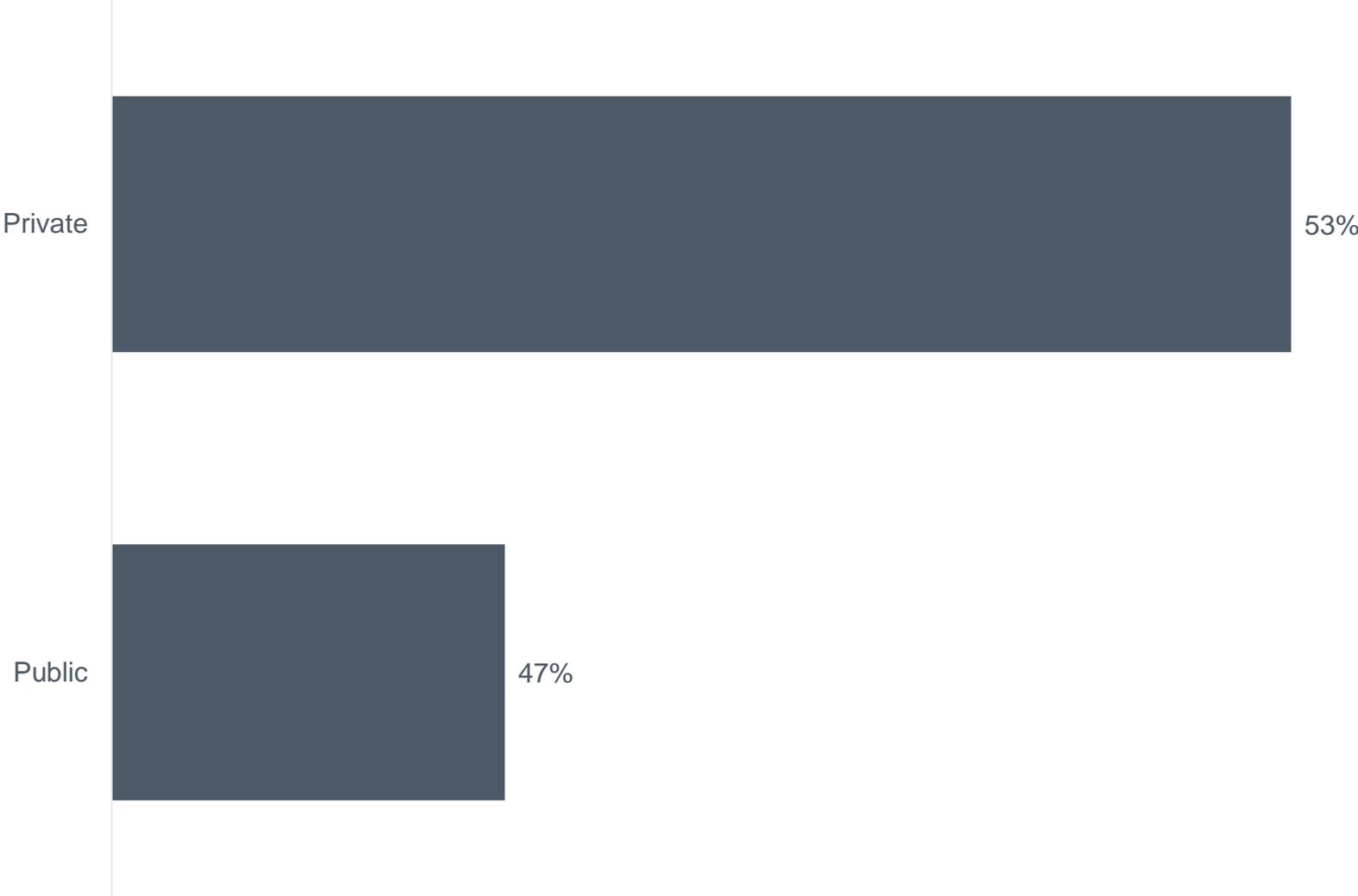
Segment Participation



Other included: Renewables, Multifamily, science and tech, Government, tunnels, food processing, power transmission, telecommunications

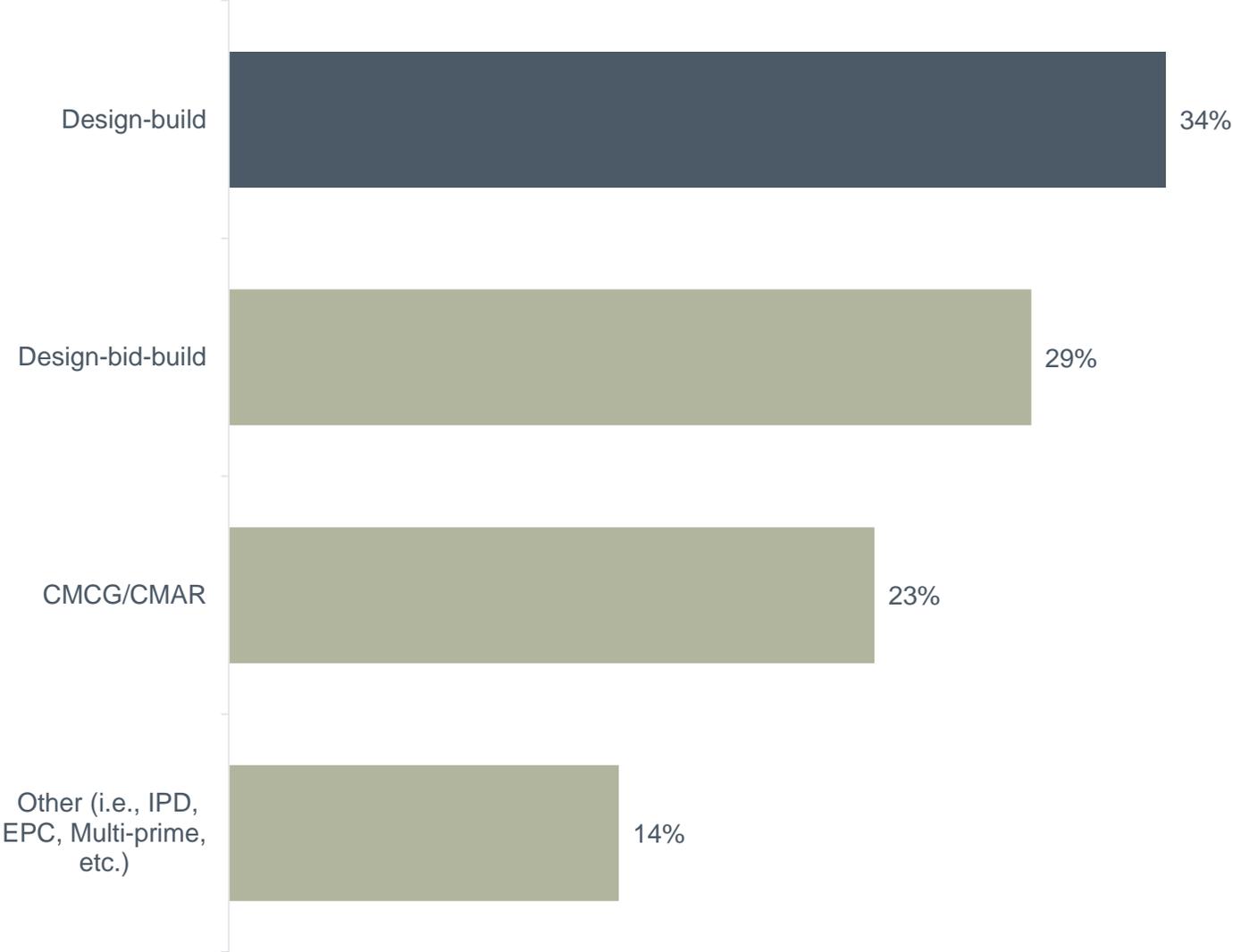
Respondents' distribution of projects across the public and private markets were evenly split.

What percentage of your organizations projects are in the following sectors?
(Average)



Respondents perceive design-build to be the most prevalent delivery method over the next 5 years.

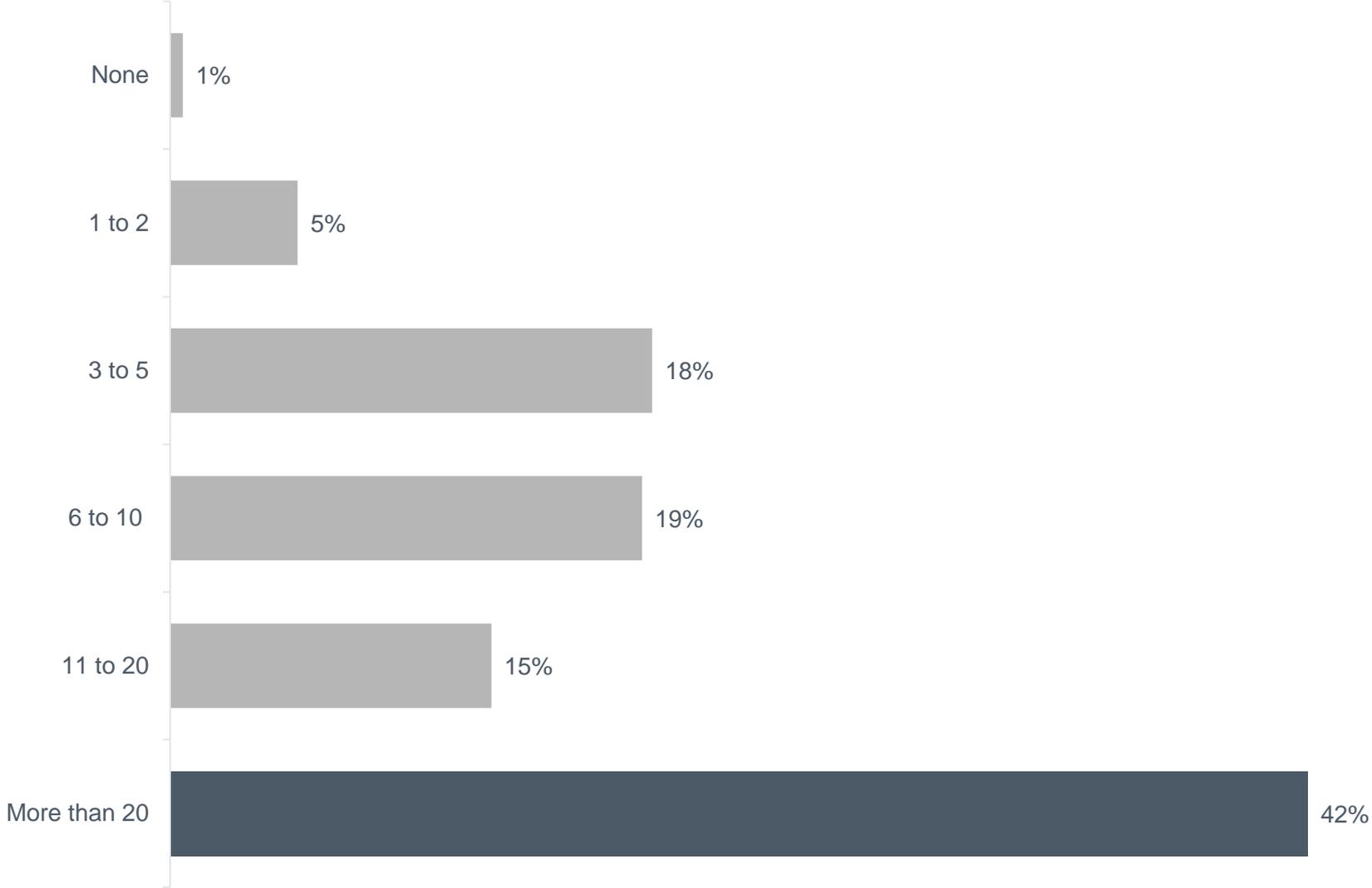
Which of the following project delivery methods does your organization use or anticipates using in the next five years? Select all that apply
(Average Response)



Other included: IPD, JOC, EPC, EPCM, P3, DBF, Lease-leaseback, IDIQ

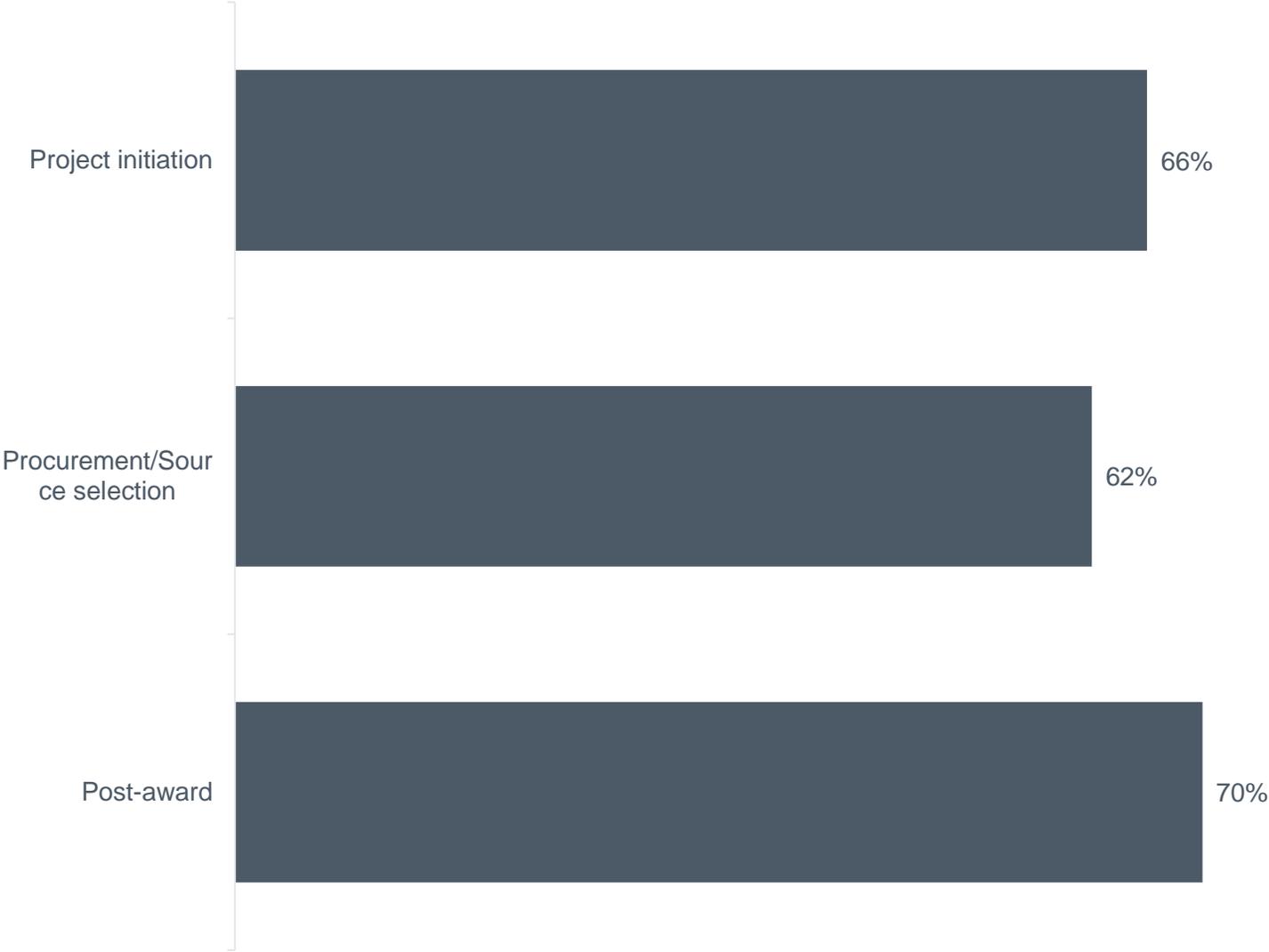
Over half of respondents' organizations (57%) have been involved in at least eleven design-build projects.

In the past five years, how many design-build projects has your organization been involved in?
(Average Response)



More than 60% of owners employ an owner advisor across each project phase.

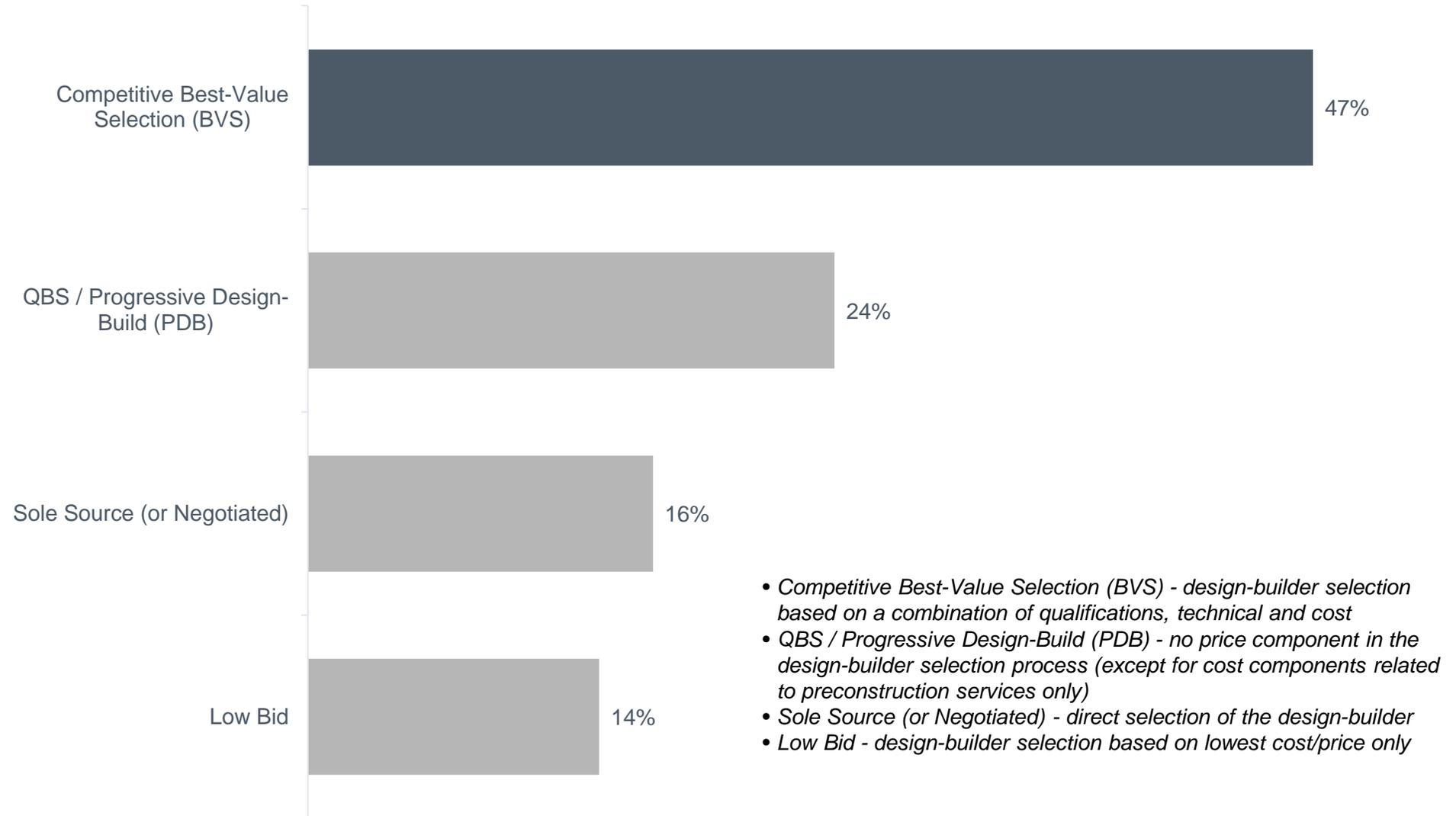
Does your organization employ an owner advisor to assist in any of the following phases? Please select all that apply.
(Displayed only to Owners, Average Response)



Competitive Best-Value Selection (BVS) is the most frequently utilized procurement approach, followed by QBS / Progressive Design-Build (PDB).

What percentage of your design-build projects utilize the following procurement approaches? Please slide the bars to indicate the percentage. Percentages must total 100%.

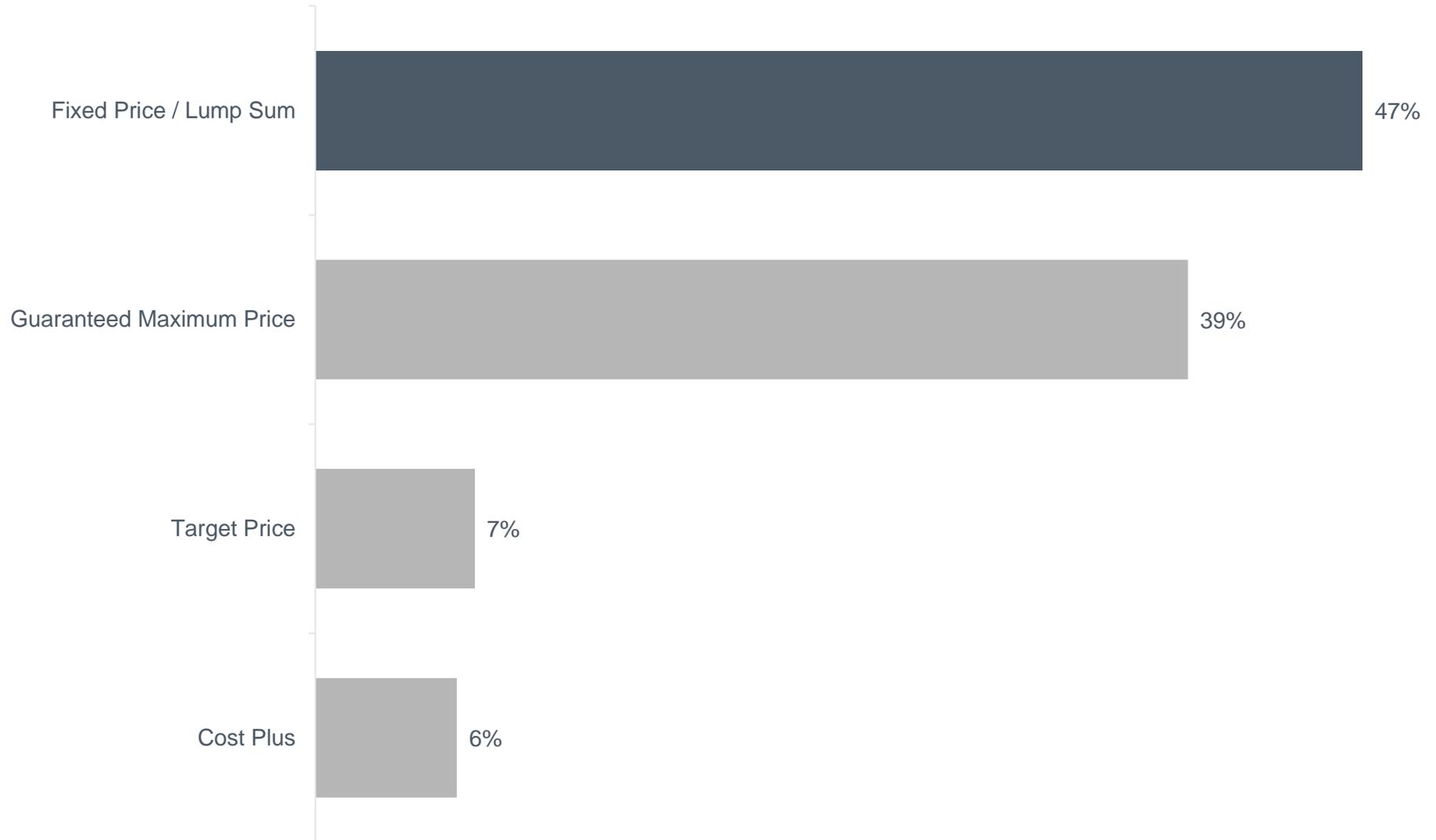
(Average Response)



Fixed Price / Lump Sum is the most utilized contracting approach, followed by Guaranteed Maximum Price.

What percentage of your organization's design-build projects utilize the following contracting approaches? Please slide the bars to indicate the percentage. Percentages must total 100%.

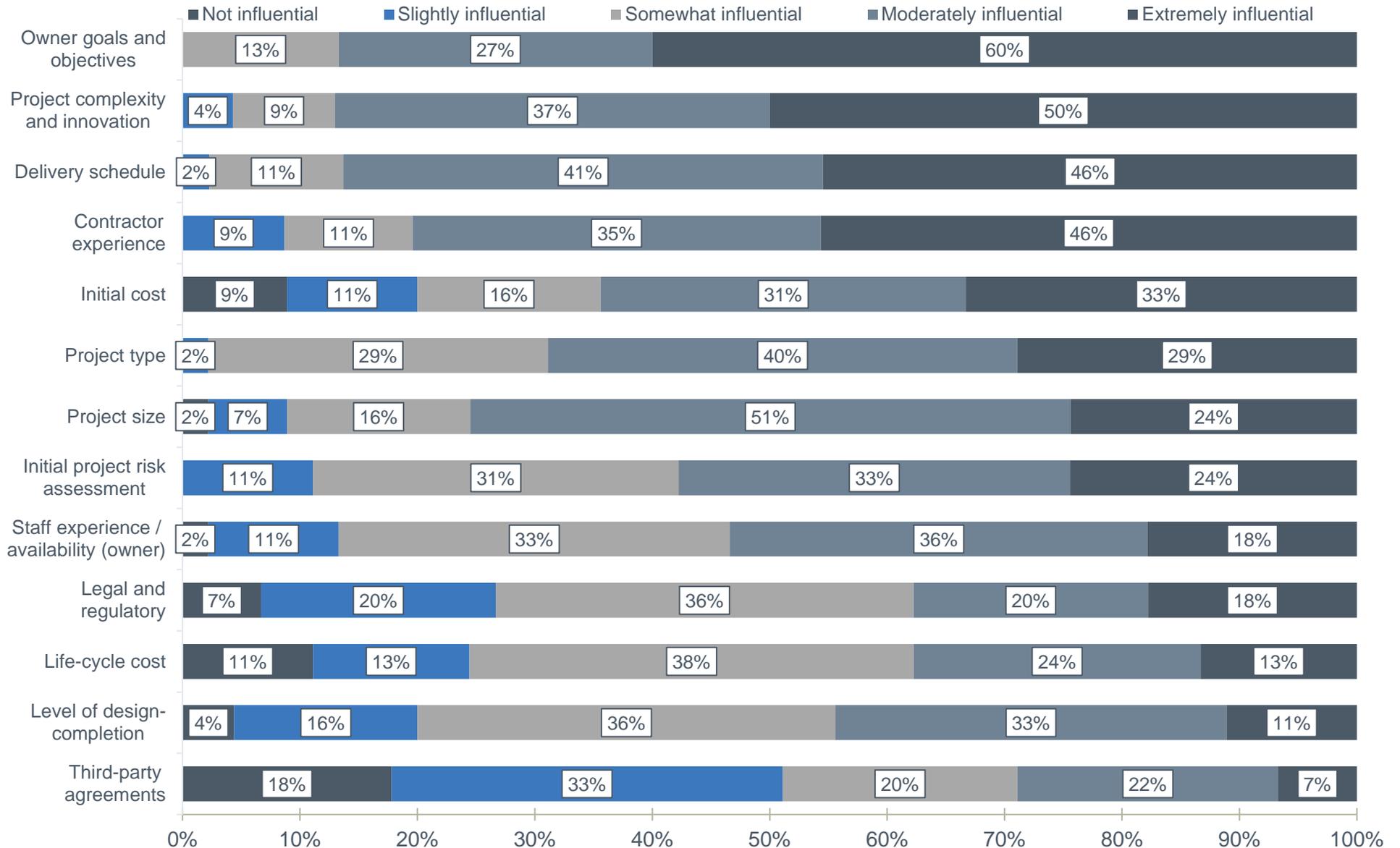
(Average Response)



Owner goals & objectives, followed by delivery schedule & project complexity & innovation, is the most influential factor in project delivery method selection.

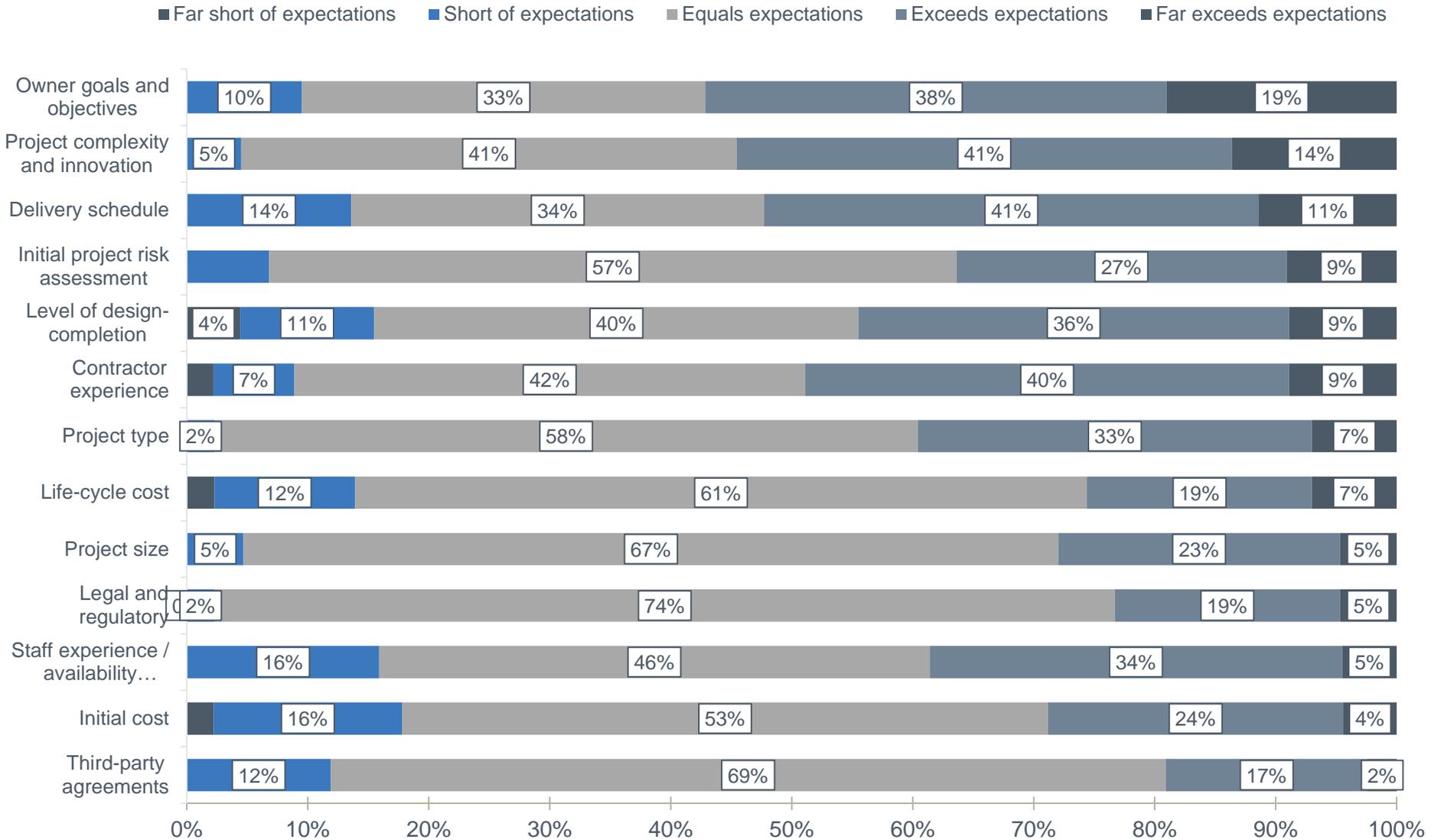
Please rate the influence the following characteristics have on your organizations' project delivery method selection.

(Average Response)



Over half of respondents felt the design-build delivery method exceeded expectations of owner goals, objectives, project complexity & innovation, and delivery schedule.

Please rate how well the design-build delivery method met your organization's expectations of the following characteristics.
(Average Response)



Respondents associate design-build with all of the suggested benefits.

Which project delivery method do you most associate the following benefits with? Only one delivery method can be selected per benefit.

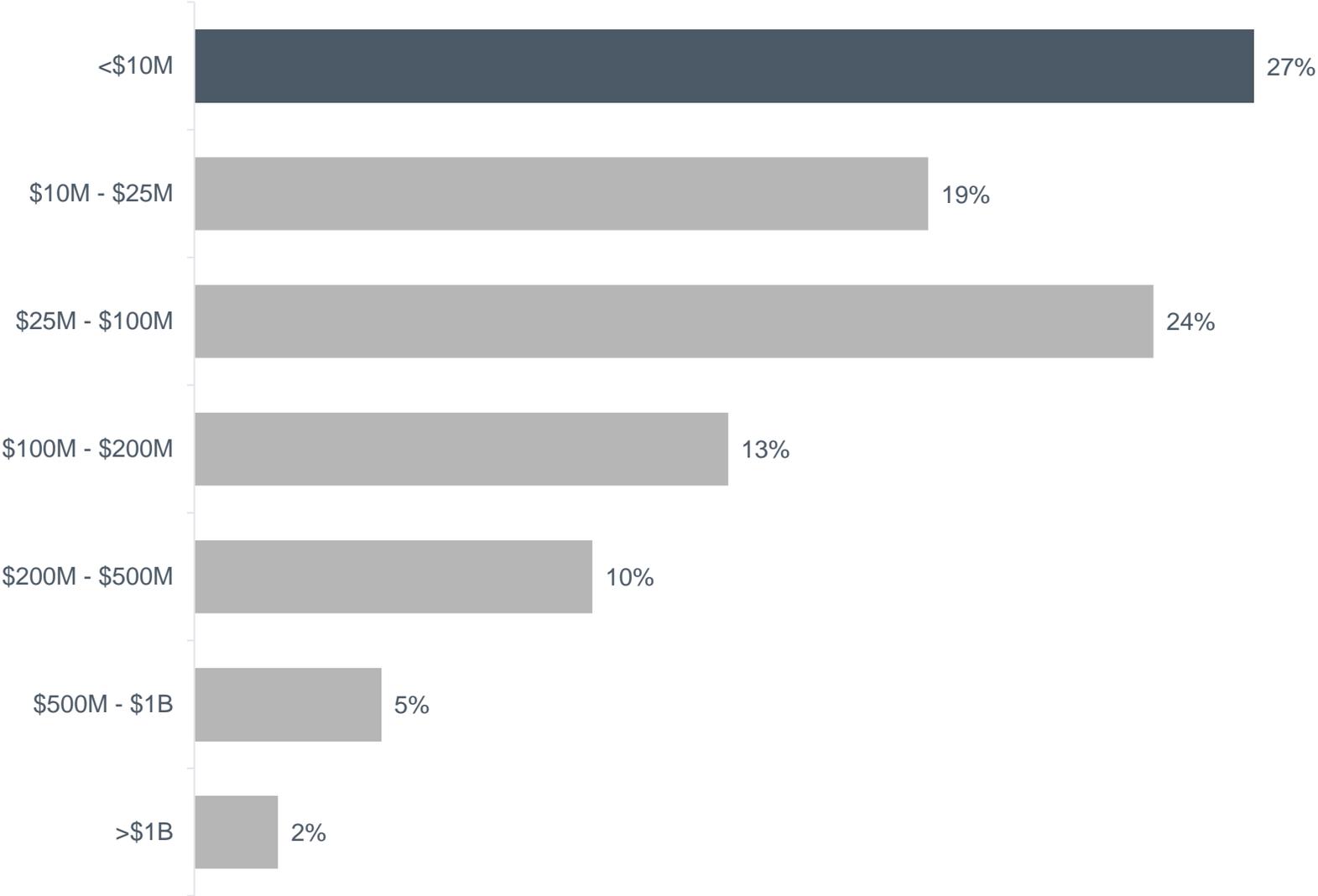
(Average Response)

	Design-Build	CMAR / CMGC	Design-Bid-Build
Increased collaboration and creativity	84%	11%	5%
Fewer disputes	74%	16%	10%
Final cost closest to budget	74%	14%	12%
Greater project / design control	61%	13%	26%
Highest quality	65%	18%	17%
Least project risk (for the owner)	69%	19%	11%
More opportunities to innovate	85%	9%	6%
More predictable / manageable schedule	73%	11%	16%
Most qualified service providers	66%	22%	12%
Shorter procurement period	72%	15%	13%
Ability to achieve design excellence	68%	13%	18%
Early knowledge of cost	72%	16%	12%
Ability to fast-track project	89%	8%	3%

Over two-thirds (70%) of projects by count are estimated to be under \$100 million.

On the projects utilizing design-build, what percentage of design-build projects (by count) were in the following size ranges? Please slide the bars to indicate the percentage.

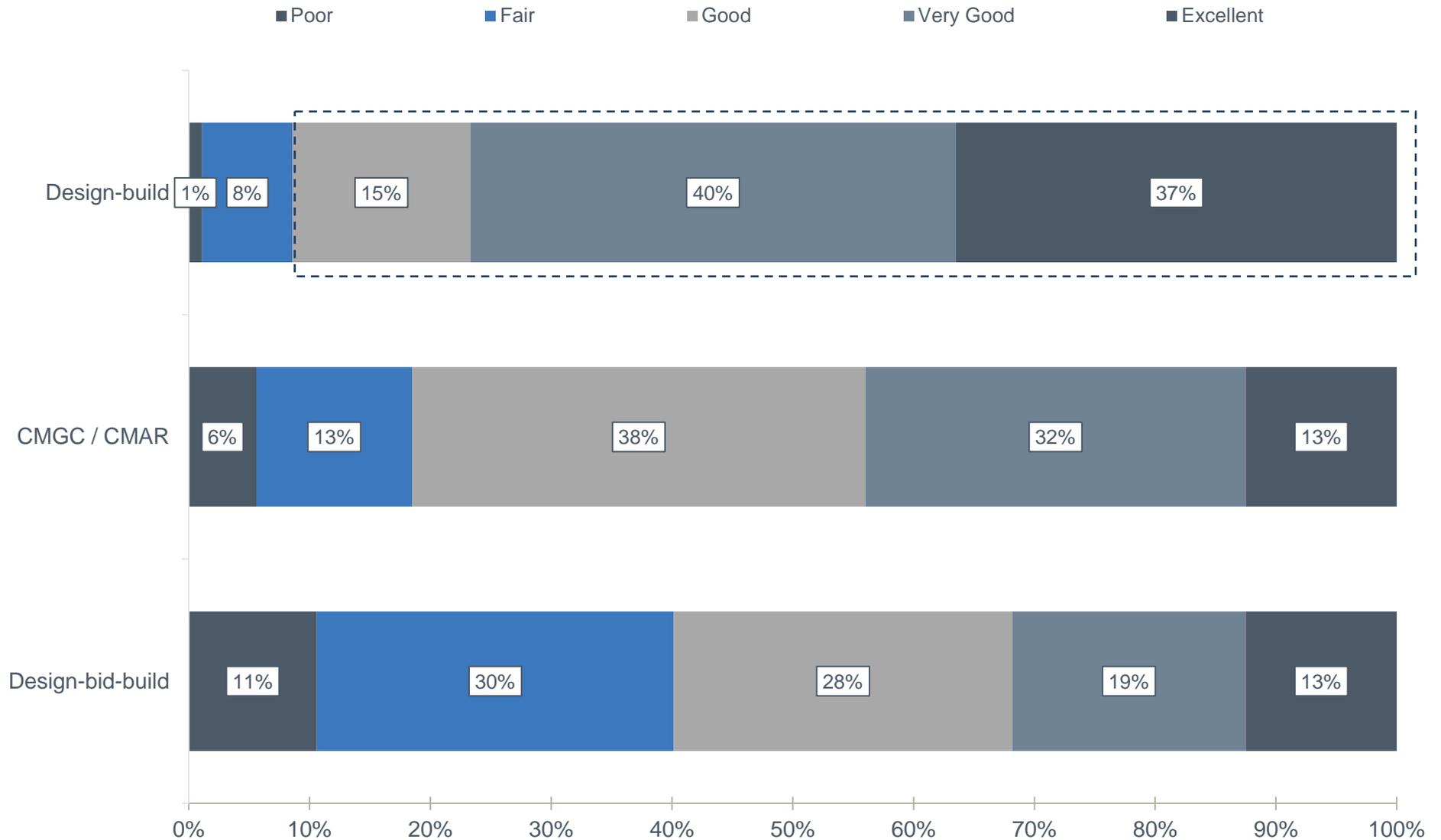
(Average of All Responses)



Approximately 91% of respondents have had good, very good or excellent experiences with their design-build projects.

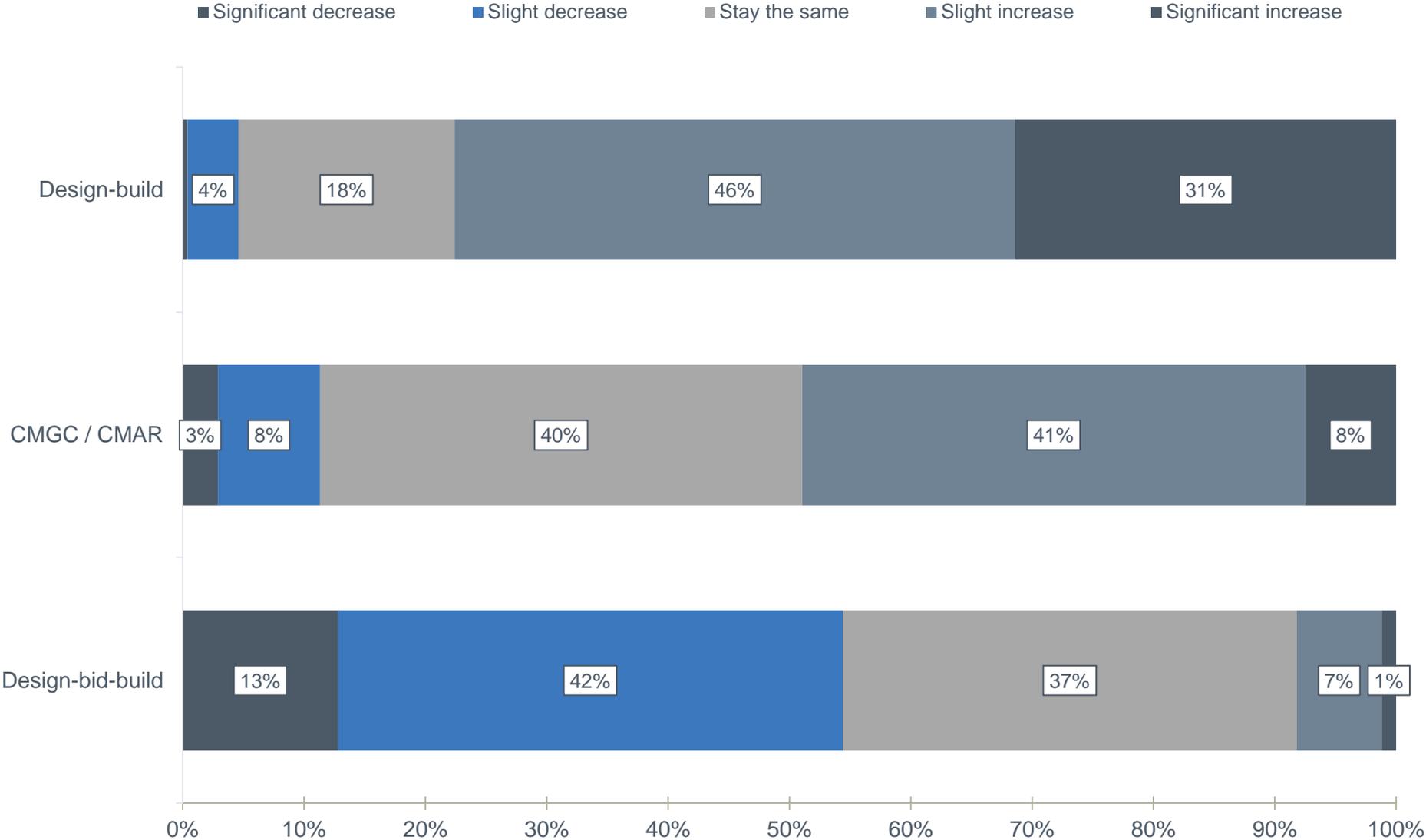
How do you rate your experience with the following delivery methods?

(Distribution of All Responses)



Respondents expect the use of design-build delivery method to increase over the next 3-5 years.

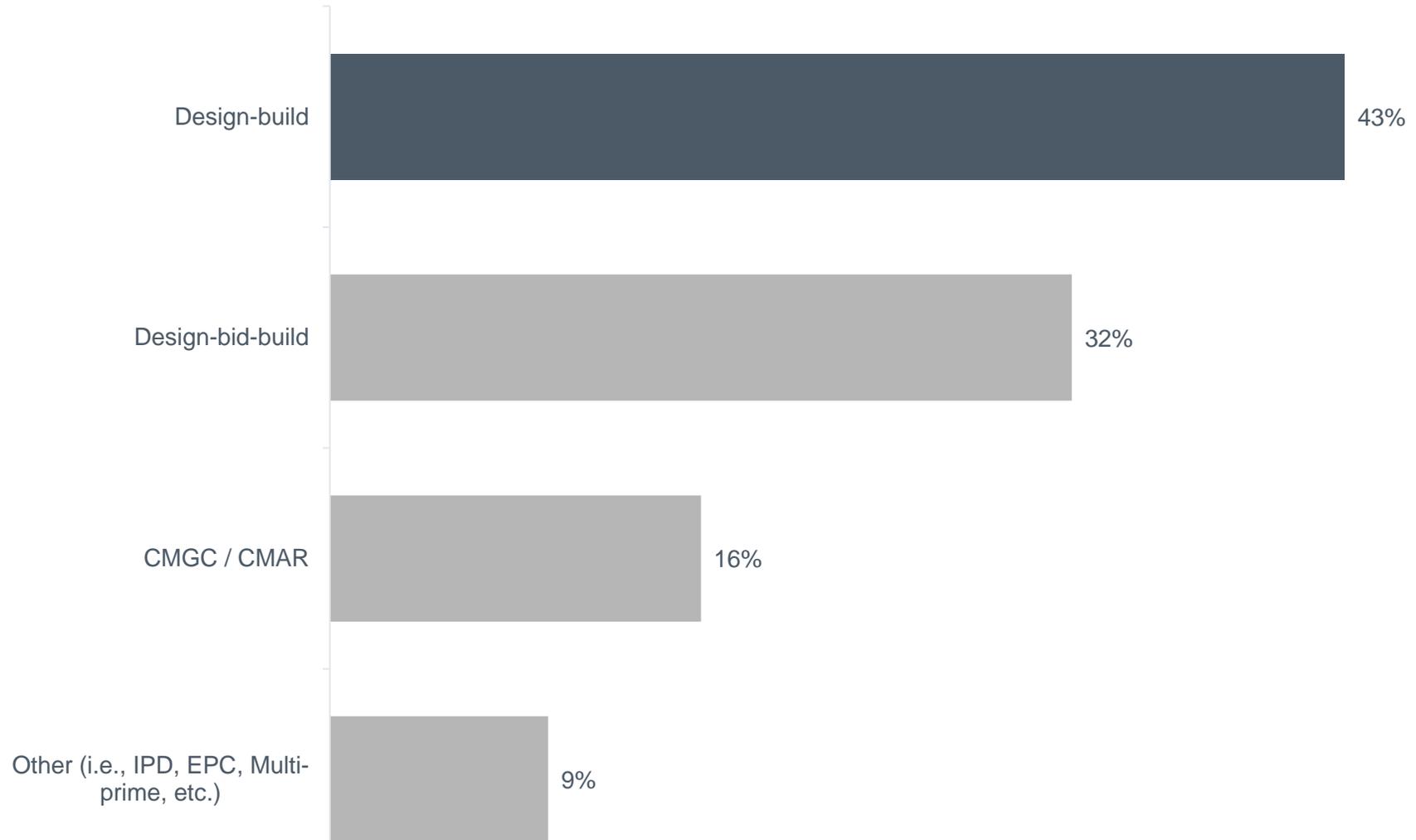
How do you anticipate the use of the following delivery methods changing in the next 3 - 5 years?
(Distribution of All Responses)



Respondents believe that design-build encourages participation from MWDBE organizations.

What delivery method encourages the most MWDBE participation?

(Average Response)

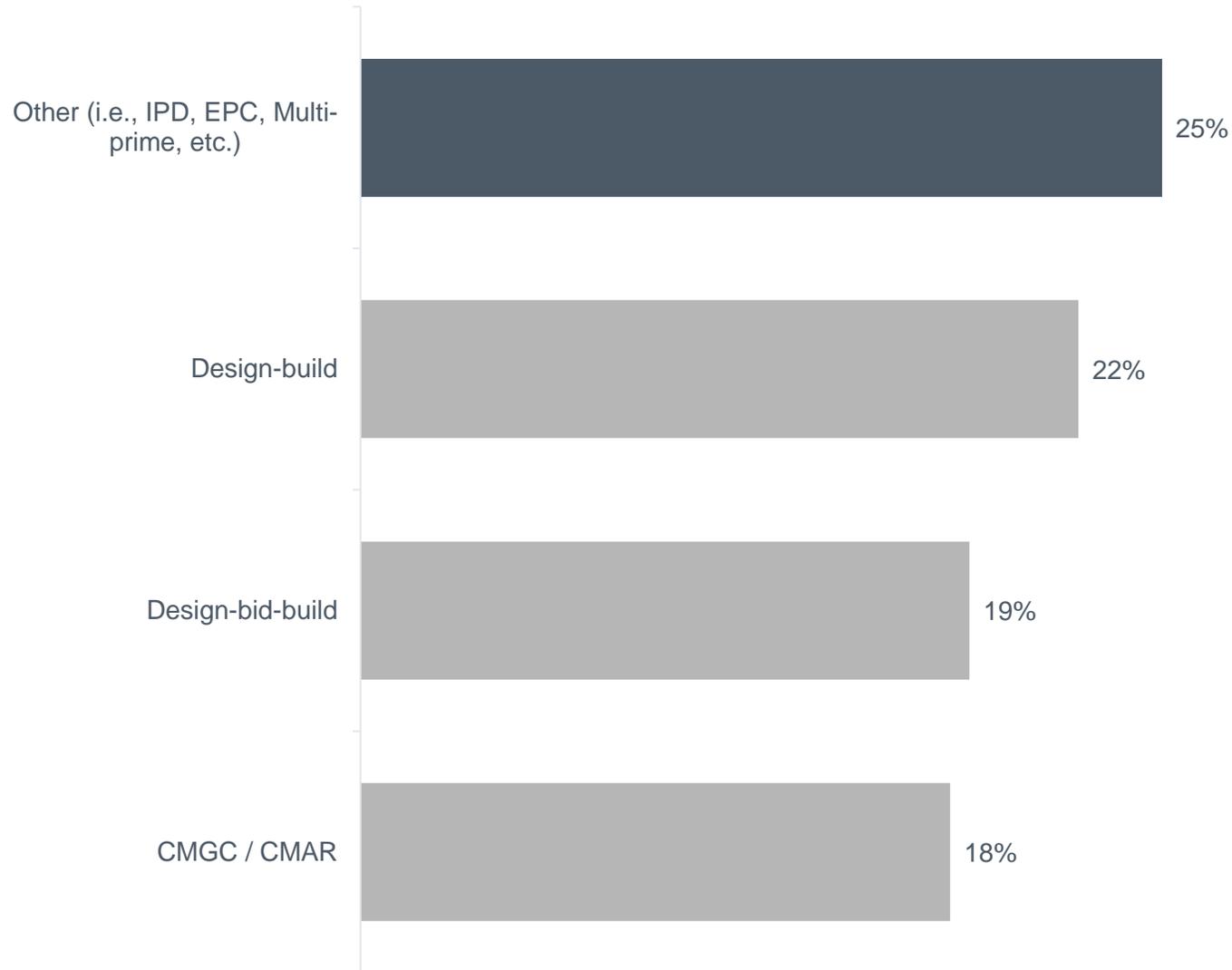


Other included: IPD, JOC, EPC, EPCM, P3, DBF, Lease-leaseback, IDIQ

Participants indicated that alternative delivery methods have higher participation standards from MWDBE organizations.

What MWDBE participation percentage goals does your organization typically establish by delivery method? Please slide the bars to indicate the percentage.

(Average)

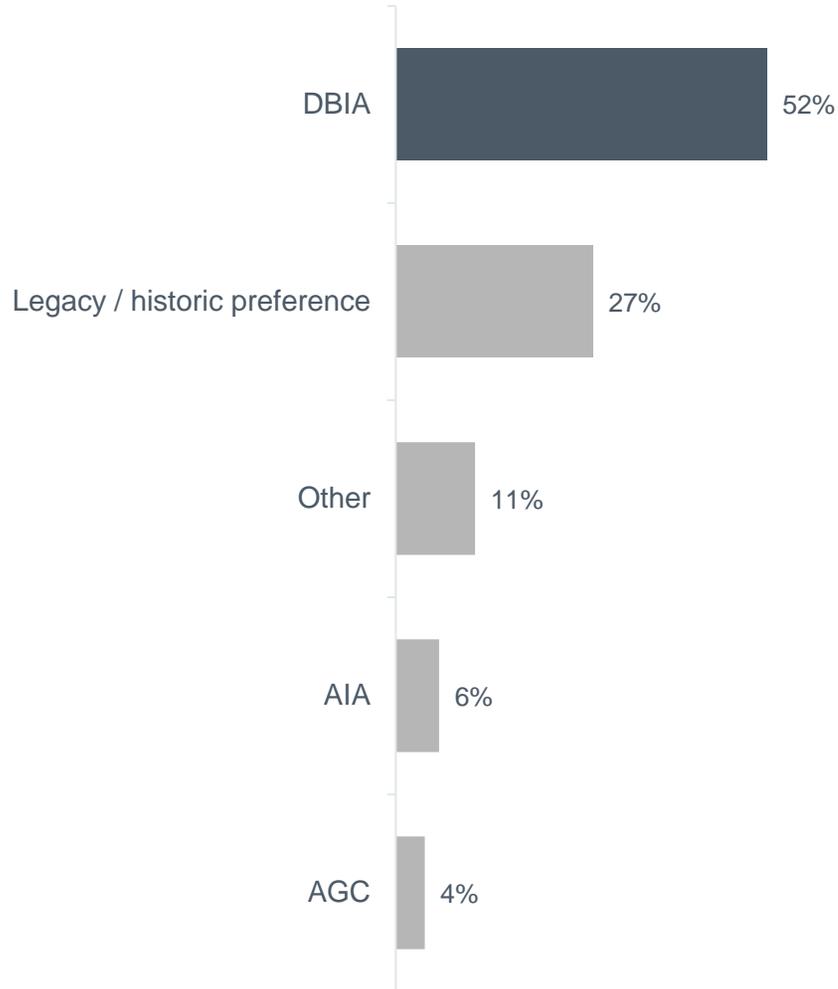


Other included: IPD, JOC, EPC, EPCM, P3, DBF, Lease-leaseback, IDIQ

DBIA was the source for many organization's information on project delivery method.

Where does your organization gain the majority of its information on project delivery methods?

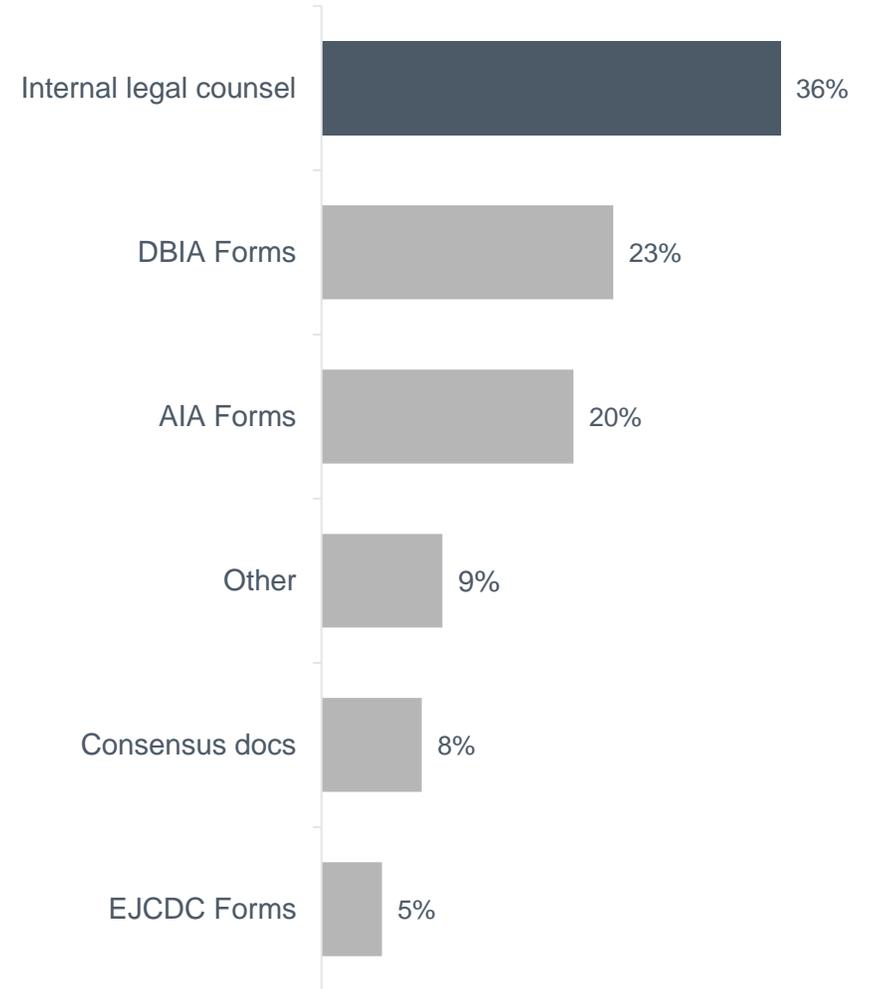
(Average Response)



Other included: WDBC, ACEC, EJCDC, OFCC, TRB, Peer Groups, ARTBA, State DOTs, NUCA, LCI

Who / what do you rely on for contract agreements?

(Average Response)



Other included: FAR, BPI, In house contracts, owner supplied, OFCC, external counsel



Consulting

Definitions and Terminology

Definitions of Construction

Construction Put in Place (CPiP) includes the following:

1. New buildings and structures.
2. Additions, alterations, conversions, expansions, reconstruction, renovations, rehabilitations and major replacements (such as the complete replacement of a roof or heating system).
3. Mechanical and electrical installations such as plumbing, heating, electrical work, elevators, escalators, central air-conditioning and other similar building services.
4. Site preparation and outside construction of fixed structures or facilities such as sidewalks, highways and streets, parking lots, utility connections, outdoor lighting, railroad tracks, airfields, piers, wharves and docks, telephone lines, radio and television towers, water supply lines, sewers, water and signal towers, electric light and power distribution and transmission lines, petroleum and gas pipelines, and similar facilities that are built into or fixed to the land.
5. Installation of the following types of equipment: boilers, overhead hoists and cranes and blast furnaces.
6. Fixed, largely site-fabricated equipment not housed in a building, primarily for petroleum refineries and chemical plants, but also including storage tanks, refrigeration systems, etc.
7. Cost and installation of construction materials placed inside a building and used to support production machinery; for example, concrete platforms, overhead steel girders, and pipes to carry paint, etc. from storage tanks.

The following are excluded from construction:

1. Maintenance and repairs to existing structures or service facilities.
2. Cost and installation of production machinery and equipment items not specifically covered above, such as heavy industrial machinery, printing presses, stamping machines, bottling machines, and packaging machines; special purpose equipment designed to prepare the structure for a specific use, such as steam tables in restaurants, pews in churches, lockers in school buildings, beds or X-ray machines in hospitals, and display cases and shelving in stores.
3. Drilling of gas and oil wells, including construction of offshore drilling platforms; digging and shoring of mines (construction of buildings at mine sites is included); work that is an integral part of farming operations such as plowing and planting of crops.
4. Land acquisition.

The “value of construction put in place” is a measure of the value of construction installed or erected at the site during a given period, including:

1. Cost of materials installed or erected.
2. Cost of labor (both by contractors and force account) and a proportionate share of the cost of construction equipment rental.
3. Contractor's profit.
4. Cost of architectural and engineering work.
5. Miscellaneous overhead and office costs chargeable to the project on the owner's books.
6. Interest and taxes paid during construction (except for state and locally owned projects).

Compound Annual Growth Rate (CAGR): Average annual growth rate over multiple time periods.

Appendix – Definitions of Construction

Lodging

Includes hotels, motels, resort lodging, tourist courts and cabins and similar facilities.

Office

In addition to the types of offices listed below, it also includes motion picture, television and radio offices. Office buildings at manufacturing sites are classified as *manufacturing*; however, an office building owned by a manufacturing company and not located at a manufacturing site is classified as *office*.

General - Includes administration buildings, computer centers, office buildings and professional buildings. State and local and federal also includes city halls, borough halls, municipal buildings, courthouses and state capitol buildings.

Financial - Includes banks, financial institutions, building and loans, saving and loans and credit unions.

Commercial

Includes buildings and structures used by the retail, wholesale and selected service industries.

Automotive – Sales – Includes auto dealerships, motorcycle dealerships, auto showrooms, and truck dealerships. Service/Parts – Includes auto service centers, auto parts centers, auto repair centers, tire service centers, car washes, car rental centers, gas stations and emissions testing centers.

Parking – Includes commercial parking lots and garages.

Food/Beverage – Food – Includes supermarkets, bakeries, dairies, markets, convenience stores and delicatessens. Dining/Drinking – Includes liquor stores, bars, nightclubs, cafés, diners, restaurants, cafeterias, taverns, inns (eat and drink only), and bistros. Fast Food – Includes drive-in restaurants and fast food restaurants.

Multi Retail – In addition to the types of multi-retail establishments listed below, it also includes warehouse-type retail stores. General Merchandise – Includes department stores and variety stores. Shopping Center – Includes shopping centers, shopping plazas and town centers. Shopping Mall – Includes shopping malls.

Other commercial - In addition to the types of stores listed below, it also includes beauty salons, nail shops, crematories, funeral homes, animal shelters, kennels, veterinary clinics, florists, nurseries, pawnshops, photo shops, dance schools, dry cleaners, laundromats and post offices.

Drug store – Includes drug stores and pharmacies. Building Supply Store – Includes hardware stores and lumberyards. Other stores – Includes clothing stores, jewelry stores, salesrooms (non-auto), furniture stores, office supply stores, storerooms and electronics stores.

General Commercial – Includes commercial warehouses, storage warehouses and distribution buildings. Mini-storage – Includes mini-storage centers and self-storage centers.

Farm - Includes buildings and structures such as barns, storage houses, smokehouses and fences; land improvements such as land leveling, terracing, tile drainage; and the construction of ponds, roads and lanes on establishments having annual agricultural sales of \$1,000 or more.

Appendix – Definitions of Construction

Health Care

Hospital - Includes hospitals, mental hospitals, infirmaries and infrastructure.

Medical building - Includes clinics, medical offices, medical labs, doctor and dentist offices, outpatient clinics, and research labs (nonmanufacturing, noneducational, or non-hospital).

Special care - Includes nursing homes, hospices, orphan homes, sanatoriums, drug clinics, rehabilitation centers, rest homes and adult day-care centers.

Educational

In addition to the types of educational facilities listed below, it also includes nursing schools, cosmetology and beauty schools, trade schools, military training facilities, schools for the handicapped and modeling schools.

Preschool - Includes childcare and day-care centers, nurseries and preschools.

Primary/Secondary - In addition to the types of primary and secondary schools listed below, it also includes academies, parochial schools and vocational schools.

Elementary - Includes elementary schools. Middle/Junior High – Includes middle and junior high schools.

High – Includes high schools.

Higher Education - In addition to the types of higher education facilities listed below, it also includes health centers and clinics located at colleges (including junior and community colleges) and universities.

Instructional – Includes instructional buildings and laboratories.

Parking – Includes parking lots and garages.

Administration – Includes administration buildings.

Dormitory – Includes dormitories, living/learning centers and residence halls.

Library – Includes libraries (school).

Student Union/Cafeteria – Includes student union buildings and cafeterias.

Sports/Recreation – Includes gymnasiums and athletic field houses, etc.

Infrastructure – Includes power plants, water supply, sewage and other infrastructure.

Other Educational - Galleries/museums and libraries/archives.

Public Safety

Correctional - Detention - Includes cell blocks, detention centers, jails, penitentiaries and prisons. Police/Sheriff - Includes police stations and sheriffs' offices.

Other Public Safety - In addition to the types of facilities listed below, it also includes armories and military structures that could not be assigned to a specific type of construction. Fire/Rescue – Includes fire stations, rescue squads, dispatch and emergency centers.

Transportation

Air:

In addition to the types of facilities listed below, it also includes pavement and lighting, hangars, air freight terminals, space facilities, air traffic towers, aircraft storage and maintenance buildings.

Passenger terminal – Includes air passenger terminals.

Runway – Includes airport runway pavement and lighting.

Land:

In addition to the types of facilities listed below, it also includes maintenance facilities and freight terminals (bus, railroad or truck).

Passenger Terminal – Includes bus and railroad passenger terminals.

Mass Transit – Includes light rail, monorail, streetcar, and subway facilities.

Railroad – includes railroad track and bridges.

Water:

Dock/Marina – Includes docks, piers, wharves and marinas.

Dry dock/marine terminal – Includes dry docks, boatels and maritime freight terminals.

Appendix – Definitions of Construction

Amusement and Recreation

In addition to the types of facilities listed below, it also includes racetracks, equestrian centers, riding academies, bowling alleys, rifle ranges, casinos, pool halls and driving ranges.

Theme/Amusement Park - Includes amusement buildings or rides, theme parks and arcades.

Sports - Includes these structures not located at schools or colleges: gymnasiums and athletic field houses, arenas, coliseums and stadiums, outdoor courts or fields, racquetball courts, rinks, tennis courts and swimming pools.

Fitness - Includes fitness centers, health or athletic clubs, YMCAs, YWCAs, cabanas, saunas and spas.

Performance/Meeting Center - In addition to the types of facilities listed below, it also includes civic centers, concert halls, opera houses, theaters for the performing arts, amphitheaters, pavilions and auditoriums.

Park/Camp - Includes parks, seasonal camps and tourist camps.

Movie Theater/Studio - Includes movie theaters, drive-ins and movie, radio and television studios.

Manufacturing

Food/Beverage/Tobacco - Food industries transform livestock and agricultural products into products for intermediate or final consumption. These products are typically sold to wholesalers or retailers for distribution to consumers.

- Beverage industries include manufacturing of nonalcoholic and alcoholic beverages. Ice manufacturing is included with nonalcoholic beverage manufacturing.
- Tobacco industries include the re-drying and stemming of tobacco and the manufacturing of tobacco products, such as cigarettes and cigars.

Textile/Apparel/Leather and Allied - Textile industries transform a basic fiber (natural or synthetic) into a product, such as yarn or fabric.

- Apparel industries purchase fabric to cut and sew to make a garment.
- Leather and allied industries transform hides into leather products. Also included are leather substitutes, such as rubber (*example: rubber footwear*) and plastic (*example: plastic purses or wallets*).

Wood - Manufacture wood products, such as lumber, plywood, veneers, wood containers, wood flooring, wood trusses, manufactured homes (i.e., mobile home), and prefabricated wood buildings.

Paper - Manufacture pulp, paper, or converted paper products.

Print/Publishing - Print products, such as newspapers, books, periodicals, business forms, greeting cards, and other materials, and perform support activities, such as bookbinding, platemaking services and data imaging.

Petroleum/Coal - Transform crude petroleum and coal into usable products.

Chemical - Transform organic and inorganic raw materials by a chemical process and form products.

Plastic/Rubber - Make goods by processing plastics materials and raw rubber.

Nonmetallic Mineral - Transform mined or quarried nonmetallic minerals, such as sand, gravel, stone, clay, and refractory materials, into products for intermediate or final consumption.

Appendix – Definitions of Construction

Manufacturing (Continued)

Primary Metal - Smelt and/or refine ferrous and nonferrous metals from ore, pig or scrap, using electrometallurgical and other process metallurgical techniques. The output of smelting and refining, usually in ingot form, is used in rolling, drawing, and extruding operations to make sheet, strip, bar, rod, or wire, and in molten form to make castings and other basic metal products.

Fabricated Metal - Transform metal into intermediate or end products, other than machinery, computers and electronics, and metal furniture or treating metals and metal formed products fabricated elsewhere.

Machinery - Create end products that apply mechanical force, for example, the application of gears and levers, to perform work.

Computer/Electronic/Electrical - Manufacture computers, computer peripherals, communications equipment, and similar electronic products and the components for such products.

Electrical - Manufacture products that generate, distribute and use electrical power. Included are manufacturers of electric lighting equipment, household appliances, and other electrical equipment and components.

Transportation Equipment - Produce equipment for transporting people and goods.

Furniture - Make furniture and related articles, such as mattresses, window blinds, cabinets and fixtures.

Miscellaneous - Make a wide range of products that are not produced in the specified manufacturing categories. Examples are medical equipment and supplies, jewelry, sporting goods, toys and office supplies.

Water/wastewater Sewage/dry waste

In addition to the types of facilities listed below, it also includes resource recovery and recycling centers, and pond sewage systems.

Plant – includes solid waste disposals (incinerator or burial), sewage treatment plants, and sewage disposal plants.

Line/pump station – includes sanitary sewers, sewage pipeline, interceptors and lift/pump stations.

Waste water

Plant – includes waste water disposal plants.

Line/drain – includes water collection systems (nonpotable water) and storm drains.

Water Supply

Plant - Includes filtration, treatment, water supply, and water softening plants.

Well - Includes water wells.

Line - Includes culverts (water supply), water transmission pipelines, tunnels and water lines.

Pump station - Includes gatehouses and lift/pump stations.

Reservoir - Includes potable water supply reservoirs.

Tank/tower - Includes water storage tanks and towers.

Highway and Street

Pavement - Includes highways, roads, streets, culverts, gutters and sidewalks.

Lighting - Includes traffic lights, signals and highway lighting systems.

Retaining wall - Includes retaining walls and fences.

Tunnel - Includes highway tunnels (vehicular or pedestrian).

Bridge - Includes bridges and overhead crossings (vehicular or pedestrian).

Toll/weigh - Includes toll facilities, weigh and inspection stations.

Federal includes border-crossing stations.

Maintenance building - Includes maintenance and storage buildings and salt domes.

Rest facility - Includes rest facilities, travel centers, median improvements, beautification projects and welcome centers.

The Team



Paul J. Trombitas

Senior Consultant, Strategy Practice

Paul Trombitas is a senior consultant with FMI's strategy practice and works with clients across the engineering and construction industry. He is responsible for managing and delivering in-depth market insights focused on the built environment. He is actively involved with clients in developing market strategy, focusing on alternative project delivery methods. Paul has been quoted in multiple publications including ENR regarding the design-build market and maintains key stakeholder relationships that provide unparalleled industry access.

Paul was responsible for developing the U.S. Design-Build Utilization Study in partnership with DBIA. Related publications to Paul's credit include: "Three Pillars of Consideration for Design-Build Company Success", "The Growing World of Design-Build", "Design-Build: Knowing What Your Clients Want", "How Building Product and Material Manufacturers Can Grab the Design-Build Opportunity by the Horns" and "Leveraging Canada's Active P3 Market." Additional publications include: "Managing and Mitigating Risk in Today's Construction Environment", "Millennials in Construction: Learning to Engage a New Workforce", "Prefabrication: The Changing Face of Engineering and Construction."

Contact

223 South West Street

Suite 1200

Raleigh, NC 27603

Paul.Trombitas@fmicorp.com

(919) 793-6242

EXPERTISE:

Capabilities:

- Market Research & Segmentation
- Customer Buying Practices
- Competitor Analysis

Industry:

- Construction
- Construction Managers & General Contractors
- Specialty Trades

Education:

- Master of Business Administration from East Carolina University
- Bachelor of Science in Economics from East Carolina University

The Team



Contact

223 South West Street

Suite 1200

Raleigh, NC 27603

Emily.Beardall@fmicorp.com

(984) 459-0702

Emily Beardall

Consultant, Strategy Practice

As consultant for FMI's strategy practice, Emily is responsible for creating and developing tools to deliver innovative solutions for our clients. She is committed to utilizing these strategic tools to improve company performance and profitability.

Prior to joining FMI, Emily was a volunteer consultant for Entrepreneurship Empowerment in South Africa. In that position she spent a summer working hands-on with a general contractor to improve day-to-day operations and to develop a strategic plan to manage Cape Town's booming market.

EXPERTISE:

Capabilities:

- Market Research & Segmentation
- Customer Buying Practices
- Market Forecasts

Industry:

- Construction
- Heavy Civil
- Specialty Trades
- Building Products

Education:

- Master of Business Management from University of Florida
- Bachelor of Science in Economics from University of Florida

The Team



Contact

223 South West Street
Suite 1200
Raleigh, NC 27603

Wylie.McCarter@fmicorp.com

(919) 602-1089

Wylie McCarter

Analyst, Strategy Practice

As an analyst with FMI, Wylie McCarter conducts primary and secondary research for FMI's clients focused in the built environment. Wylie's responsibilities include conducting qualitative interviews with industry thought leaders, designing surveys and analyzing data gathered through market research.

Prior to joining FMI, Wylie was a corporate strategy analyst at ScanSource in Greenville, SC.

EXPERTISE:

Capabilities:

- Strategic Planning
- Data Analysis
- Market Forecasting and Analysis

Industry:

- Construction
- Design
- Building Products Manufacturing

Education:

- Master of Business Administration, Clemson University
- Bachelor of Arts, Economics, Clemson University

WHO we are



**Industry
Insiders**



Consulting

Capital Advisors



FMI is a leading consulting and investment banking firm dedicated exclusively to the built environment. We serve as the industry's trusted advisor, providing current market insights, deep industry research and key relationships that deliver tangible results for our clients.

FACTS



More than
15,000
completed
engagements

1 industry

Singularly focused on the built environment. We know the industry, how it works and what drives value.

