FMI Consulting

U.S. Construction Outlook

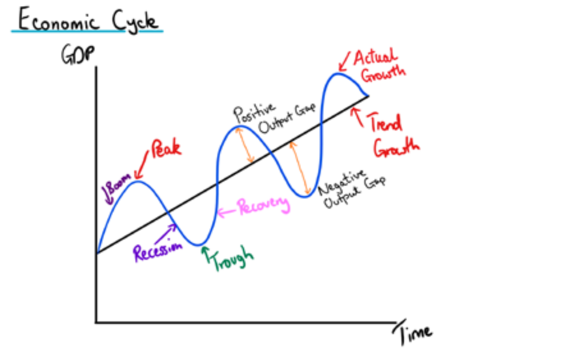
Q4 2022

fmiconsulting.com

THREE THINGS TO REMEMBER

New Economy vs. Old Economy

Where can we expect continued demand regardless of overall market performance?



The Next 5-Year Cycle

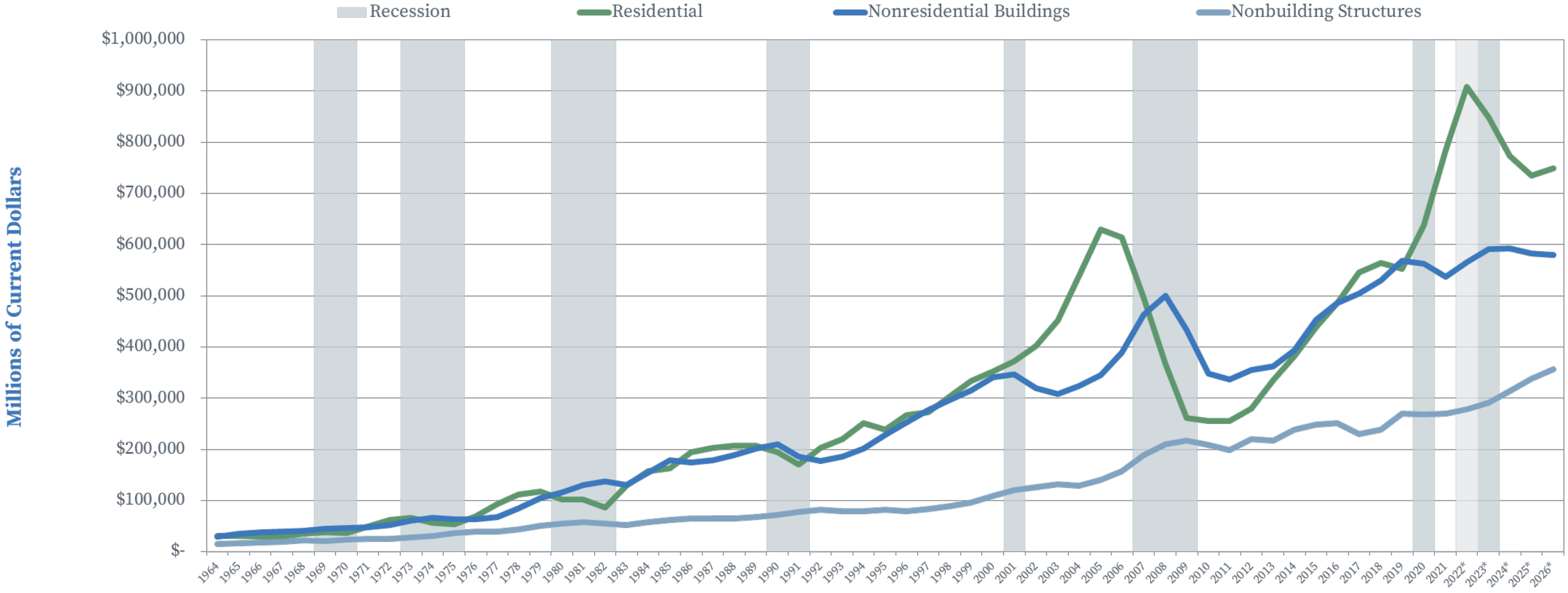
Does geography become the primary determinant of growth?

Industry Headwinds

How will evolving market and project characteristics define opportunity?

Construction Forecast

Total Construction Spending Put in Place (U.S.)
Millions of current dollars



AEC Sentiment Indices

Architectural Billings Index (ABI)	Nonresidential Construction Index (NRCI)	Heavy Civil Construction Index (HCCI)	CIRT Sentiment Index
September 2022	Q4 2022	Q4 2022	Q4 2022
51.7	46.3	50.8	51.0
53.3 last month	45.2 last quarter	48.4 last quarter	51.4 prior quarter
AIA	FMI	FMI	Construction Industry Round Table

AIA. FMI, CIRT

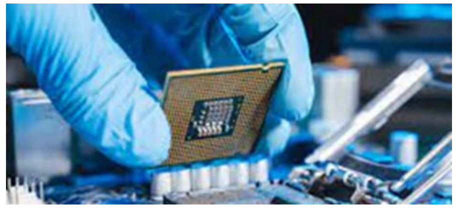
NEW VS. OLD – CONSTRUCTION ACTIVITY REFLECTS THE DIRECTION OF THE ECONOMY

New Economy…

Life Sciences

Data Centers

Semiconductor Fabrication



Food & Beverage Manufacturing

Logistics

Intelligent Transportation Systems

Urban Mass Transit

Distributed Power

Old Economy…

Lodging

Shopping Centers/ Malls

Consumer Goods Manufacturing

Movie Theaters

Office

Sports/ Recreation

Amusement Parks

Textile Mills

LOOK AT THE TREND LINE OF PROGRESS AND WHERE IT IS POINTING

NEW ECONOMY TREND LINE

Urban Mass Transit

Most of the U.S. population is urban
- Almost 90% of the U.S. population lives in an urban environment
- Transportation averages 15% to 20% of Americans' monthly expenses
- Millennials drive almost 10% less than Baby Boomers

Food & Beverage Manufacturing

Americans are consuming more processed foods
- Processed foods represent 70% of the daily caloric intake in the USA
- Ultra-processed foods alone account for 67%

Life Sciences

Pharmaceuticals are more prevalent
- Almost 60% of U.S. adults use prescription drugs on an ongoing basis
- 110 people per 1,000 take antidepressants in the United States
- The number childhood vaccinations has doubled in the past 40 years

Logistics

Distribution is increasingly relied on for consumer purchases
- E-commerce sales have grown by almost 200% since 2015
- Online purchases represent 15% of total retail activity
- Digital grocery buyers account for more than half the U.S. population

Semiconductor Fabrication

Semiconductors are required to operate most products
- More than 932 billion computer chips were manufactured in 2020
- Computer chips are prevalent in most consumer and industrial products

Data Centers

Data processing and storage has grown exponentially
- The number of connected devices (IoT) has tripled over the past 5 years
- Almost 50% of people work remotely compared to less than 5% pre-pandemic
- The Federal Reserve is exploring the move to digital currency

Distributed Power

Energy demand is increasing as reliability is decreasing
- Power consumption has increased more than 50% since 1980
- 70% of the U.S. power grid's transmission lines and power transformers are over 25 years old
- There were more than 180 large sustained outages in 2020 compared to less than two dozen in 2000

FMI analysis of multiple sources

DEVELOPER/PRIVATE INVESTMENT DRIVEN SEGMENTS SUFFER

Largest Spending

Multifamily

Power

Manufacturing

Highway & Street

Highest Growth

Transportation

Highway & Street

Conservation & Development

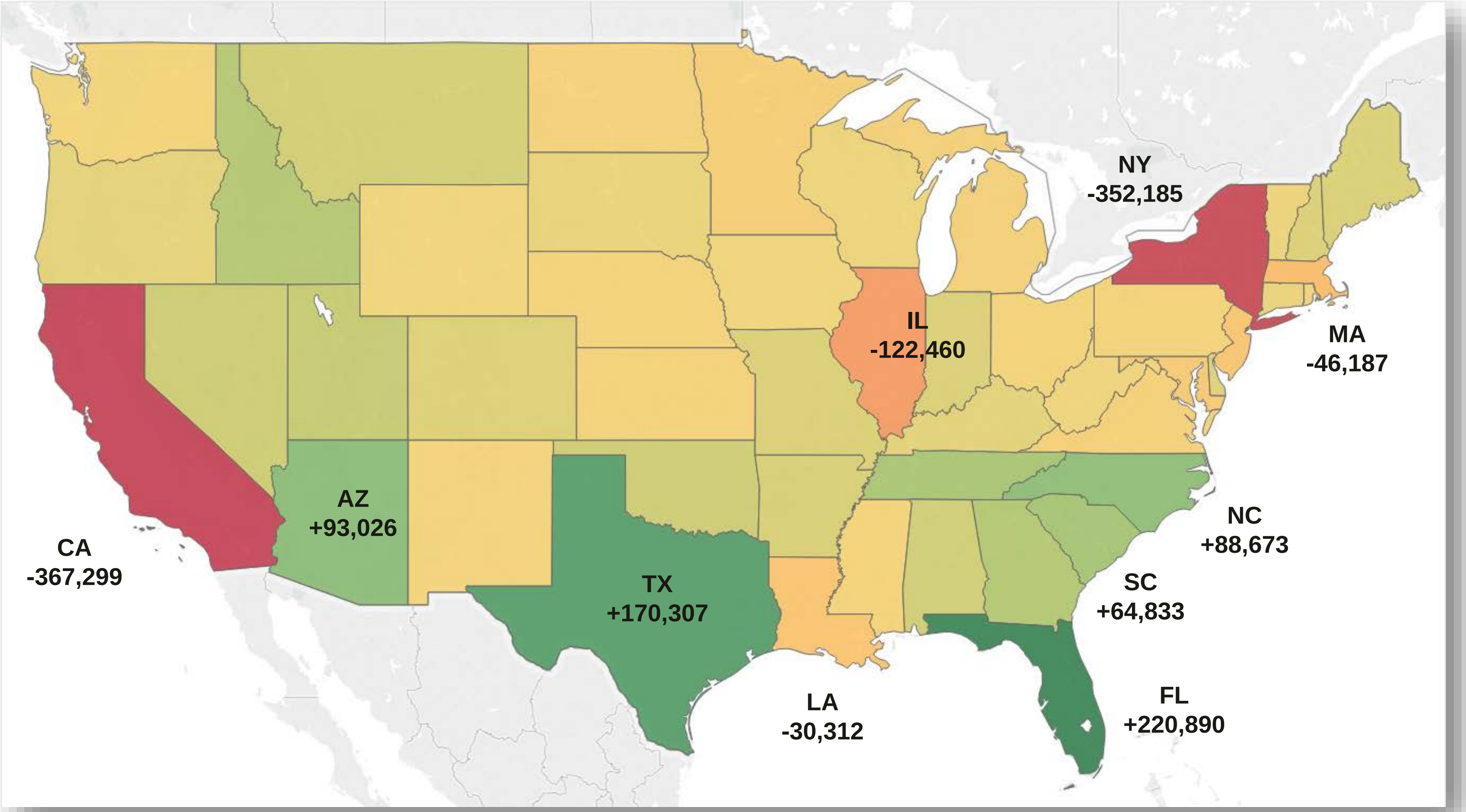
Water/Wastewater

	Segment	2022-2026 Average Construction Spending (Billions)	2022-2026 Forecast Growth (CAGR)
	Multifamily	$127	-4%
Nonresidential Buildings	Lodging	$16	-3%
Nonresidential Buildings	Office	$76	-6%
Nonresidential Buildings	Commercial	$92	-7%
Nonresidential Buildings	Health Care	$53	2%
Nonresidential Buildings	Educational	$101	3%
Nonresidential Buildings	Religious	$3	0%
Nonresidential Buildings	Public Safety	$12	4%
Nonresidential Buildings	Amusement and Recreation	$26	-3%
Nonresidential Buildings	Transportation	$69	10%
Nonresidential Buildings	Communication	$29	8%
Nonresidential Buildings	Manufacturing	$106	3%
Heavy Civil	Power	$114	2%
Heavy Civil	Highway and Street	$128	10%
Heavy Civil	Sewage and Waste Disposal	$37	9%
Heavy Civil	Water Supply	$26	8%
Heavy Civil	Conservation and Development	$10	8%

FOLLOW THE PEOPLE

Population Movement by State
Total net migration 2001-2021

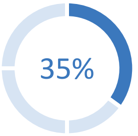
- **Five of the top 10 largest-gaining counties in 2021 were in Texas.** Collin, Fort Bend, Williamson, Denton, and Montgomery counties gained a combined 145,663 residents.
- **Los Angeles County, California, experienced the largest population loss** of any county, losing 159,621 residents in 2021.
- Seventy-one percent of counties (2,218) experienced positive net international migration.
- Four counties crossed the threshold of 100,000 residents in 2021—Cleveland County, North Carolina (100,359), Lancaster County, South Carolina (100,336), Bastrop County, Texas (102,058), and Grant County, Washington (100,297).
- Los Angeles County, California (9,829,544) and Cook County, Illinois (5,173,146), had more than 5 million residents in 2021, making them the top two most populous counties in the nation.



MORE THAN ONE-IN-THREE CONSTRUCTION DOLLARS ARE SPENT IN JUST 12 MARKETS

Total Construction Spending Put in Place
Metropolitan Statistical Area (MSA); 2021-2025 sum

- Concentration of spending continues in fewer markets
- Old markets move down, and new markets move up
- Megapolitans can equal or rival metropolitans



1. New York

2. Los Angeles

3. Dallas

4. Houston

5. Phoenix

6. Atlanta

7. Seattle

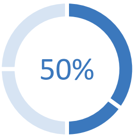
8. Washington, DC

9. San Francisco

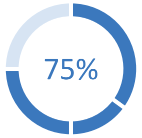
10. Miami

11. Chicago

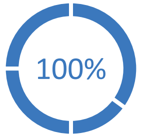
12. Riverside

13. Denver
14. Austin
15. Boston
16. Philadelphia
17. Orlando
18. Tampa
19. Minneapolis
20. Charlotte
21. San Diego
22. Portland

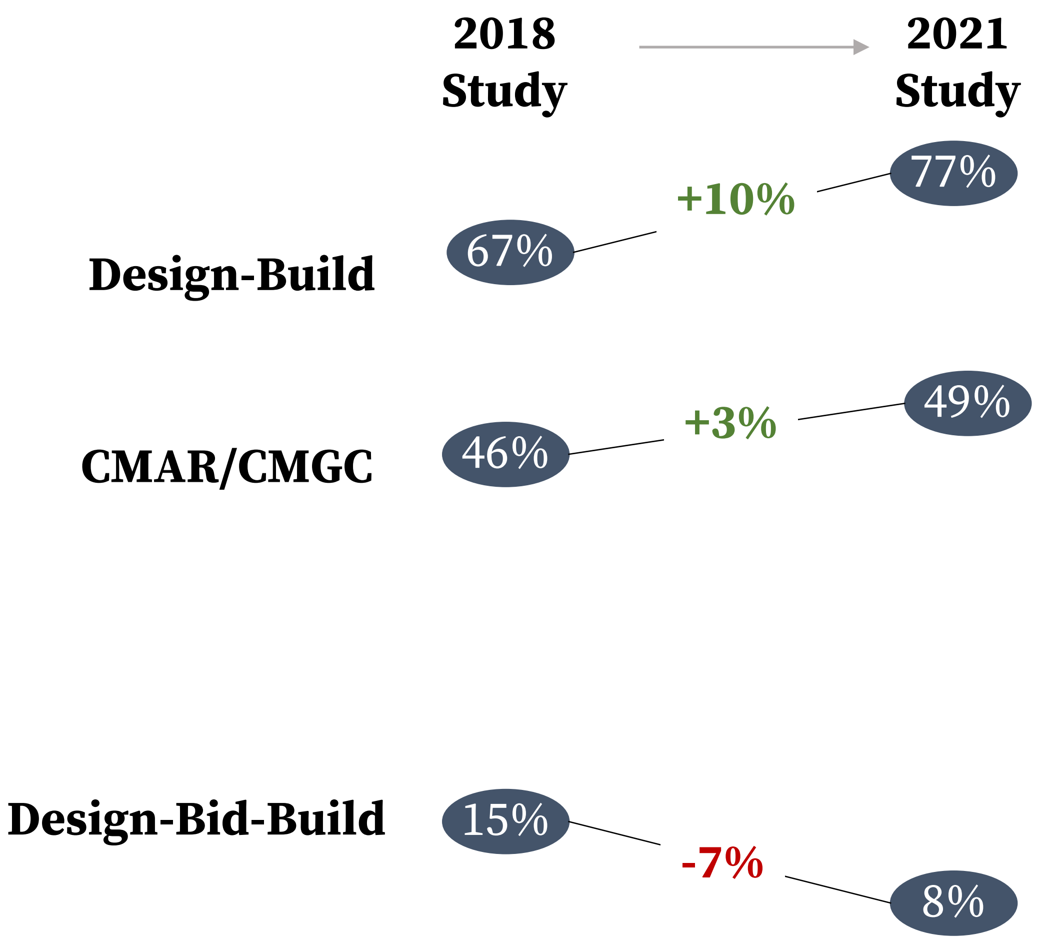


24. Sacramento
25. San Jose
26. Las Vegas
27. Nashville
28. Jacksonville
29. Salt Lake City
30. Detroit
31. Raleigh
32. San Antonio
33. Baltimore
34. Indianapolis
35. St. Louis
36. Sarasota
37. Kansas City
38. Columbus
39. Boise
40. Provo
41. Cincinnati
42. Fort Myers
43. Virginia Beach
44. Pittsburgh
45. Richmond
46. Ogden
47. Charleston
48. Cleveland
49. Oklahoma City
50. Tucson
51. Memphis
52. Colorado Springs
53. Lakeland
54. Milwaukee
55. Greenville
56. Honolulu
57. Naples
58. Providence
59. Louisville
60. Stockton
61. Myrtle Beach
62. Columbia
63. Daytona Beach
64. Grand Rapids
65. Knoxville
66. Fresno
67. Durham
68. Reno
69. Birmingham
70. Melbourne



71. New Orleans
72. Port St. Lucie
73. Omaha
74. Tulsa
75. Rochester
76. Oxnard
77. Hartford
78. Greensboro
79. Bakersfield
80. Worcester
81. Des Moines
82. Spokane
83. Albuquerque
84. Fayetteville
85. Albany
86. Buffalo
87. Madison
88. Baton Rouge
89. Greeley
90. El Paso
91. Bridgeport
92. Winston-Salem
93. Portland
94. McAllen
95. Allentown
96. Boulder
97. Santa Rosa
98. Asheville
99. Fort Collins
100. Augusta
101. Pensacola
102. St. George
103. Ocala
104. Chattanooga
105. Salisbury
106. Huntsville
107. Little Rock
108. Harrisburg
109. Savannah
110. New Haven
111. Fort Walton Beach
112. Killeen
113. Wilmington
114. Salem
115. Bend
116. Vallejo
117. Lexington
118. Dayton
119. Spartanburg
120. Wichita
121. Lancaster
122. Springfield
123. Bremerton
124. The Villages
125. Syracuse
126. Santa Barbara
127. Olympia
128. Manchester
129. Eugene
130. Modesto
131. Tallahassee
132. Springfield
133. Akron
134. Visalia
135. San Luis Obispo
136. Sioux Falls
137. Salinas
138. Toledo
139. Jackson
140. Fort Wayne
141. Prescott
142. Bellingham
143. Scranton
144. Kennewick
145. Anchorage
146. Hilton Head Island
147. Corpus Christi
148. Punta Gorda
149. Trenton
150. Daphne
151. Hickory
152. Brownsville
153. Coeur d'Alene
154. Ann Arbor
155. York
156. Green Bay
157. Gainesville
158. Fargo
159. Lafayette
160. Clarksville
161. Gainesville
162. Lubbock
163. Lincoln
164. Mobile
165. Vero Beach
166. Medford
167. Gulfport
168. College Station
169. Santa Cruz
170. Beaumont
171. Kahului
172. Laredo
173. Logan
174. Lake Havasu City
175. Charlottesville
176. Fayetteville
177. Rochester
178. Lansing
179. Reading
180. Midland
181. Montgomery
182. Roanoke
183. Amarillo
184. Merced
185. Shreveport
186. Idaho Falls
187. Waco
188. Panama City
189. Elkhart
190. Hagerstown
191. Billings
192. Youngstown
193. Chico
194. Grand Junction
195. Davenport
196. Cedar Rapids
197. Evansville
198. Columbus
199. Burlington
200. Barnstable Town
201. Tyler
202. Athens (Go Dawgs)
203. Kalamazoo
204. Yakima
205. Canton
206. Appleton
207. St. Cloud
208. Kingsport
209. Dover
210. Duluth
211. Lynchburg
212. Atlantic City
213. South Bend
214. Yuma
215. Homosassa Springs
216. Warner Robins
217. Burlington
218. Rockford
219. Flagstaff
220. Missoula
221. Mount Vernon
222. Peoria
223. Napa
224. Pueblo
225. Jacksonville
226. Tuscaloosa
227. Las Cruces
228. Norwich
229. Auburn
230. Greenville
231. Rapid City
232. Columbia
233. Utica
234. Flint
235. Fort Smith
236. Lafayette
237. Wenatchee
238. Iowa City
239. Macon (Home)
240. Johnson City
241. Florence
242. Longview
243. Odessa
244. Erie
245. Yuba City
246. Redding
247. Lake Charles
248. Winchester
249. Madera
250. Harrisonburg
251. Oshkosh
252. Bismarck
253. Valdosta
254. Huntington
255. Albany
256. Houma
257. Joplin
258. Bowling Green
259. Sioux City
260. Eau Claire
261. El Centro
262. Racine
263. Santa Fe
264. Champaign
265. Dalton
266. Abilene
267. Topeka
268. Waterloo
269. Blacksburg
270. Longview
271. Binghamton
272. Janesville
273. Wausau
274. Cleveland
275. La Crosse
276. Bloomington
277. Jackson
278. Sherman
279. Jonesboro
280. Muskegon
281. Hammond
282. Cheyenne
283. New Bern
284. California
285. Brunswick
286. Chambersburg
287. Hanford
288. Rocky Mount
289. Morristown
290. Ocean City
291. Monroe
292. Mankato
293. Springfield
294. San Angelo
295. State College
296. Kingston
297. Elizabethtown
298. Staunton
299. Saginaw
300. Sierra Vista
301. Charleston
302. Jefferson City
303. Bangor
304. Dothan AL
305. Lebanon
306. Ithaca
307. Albany
308. Bloomington
309. Dubuque
310. Sheboygan
311. Vineland
312. Glens Falls
313. Monroe
314. Pocatello
315. East Stroudsburg
316. Jackson
317. Wichita Falls
318. Goldsboro
319. Grants Pass
320. Pittsfield
321. Texarkana
322. Corvallis
323. Alexandria
324. Decatur
325. Grand Forks
326. Florence
327. Owensboro
328. Columbus
329. Niles
330. Casper
331. Gettysburg
332. St. Joseph
333. Terre Haute
334. Altoona
335. Sebring
336. Sumter
337. Lewiston
338. Hattiesburg
339. Fond du Lac
340. Rome
341. Hinesville
342. Victoria
343. Great Falls
344. Walla Walla
345. Lawrence
346. Lewiston
347. Carson City
348. Ames
349. Battle Creek
350. Morgantown
351. Grand Island
352. Cape Girardeau
353. Williamsport
354. Mansfield
355. Johnstown
356. Watertown
357. Bloomsburg
358. Carbondale
359. Farmington
360. Springfield
361. Lima
362. Michigan City
363. Kankakee
364. Anniston
365. Wheeling
366. Decatur
367. Manhattan
368. Muncie
369. Kokomo
370. Gadsden
371. Elmira
372. Cumberland
373. Hot Springs
374. Midland
375. Fairbanks
376. Lawton
377. Bay City
378. Beckley
379. Weirton
380. Parkersburg
381. Pine Bluff
382. Danville

CHANGING PROJECT DELIVERY METHODS

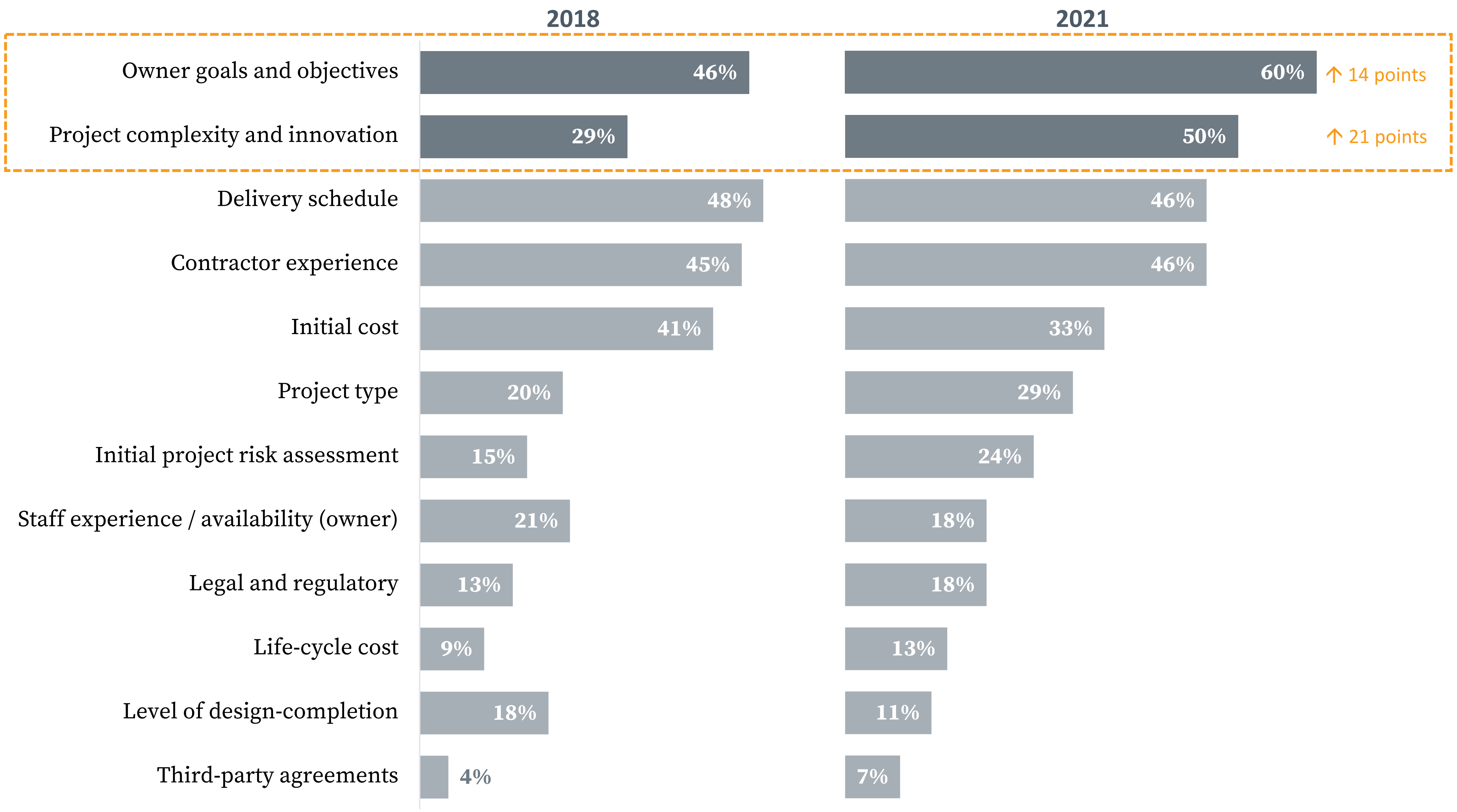


"We have seen significantly more design-build work, and I think this will continue. We are also seeing more CMGC–we are working on a significant project that is driving that growth. The success of CMGC is dependent on the owner's ability to manage the project and their ability to collaborate."

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

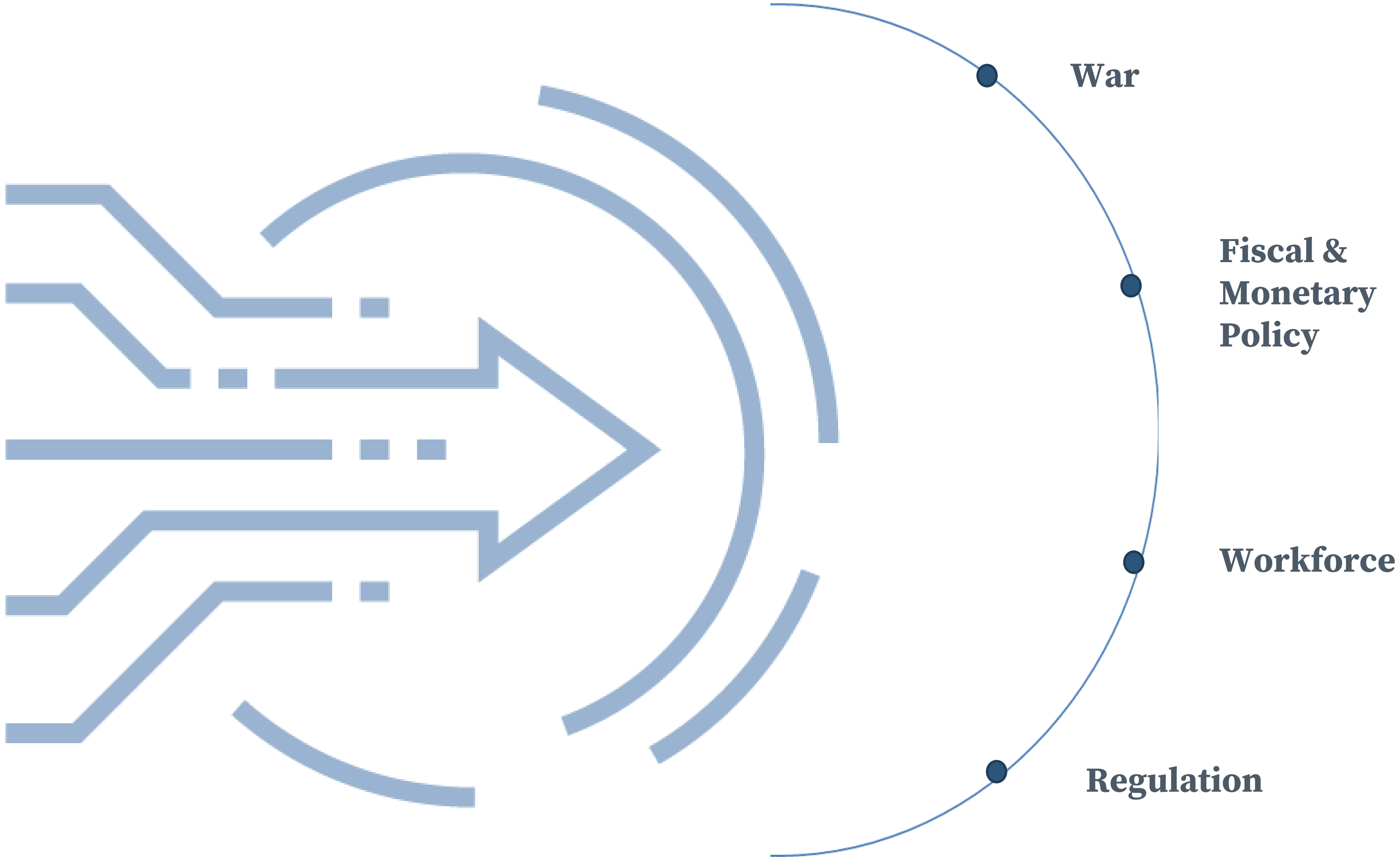
FMI analysis of multiple sources

FACTORS INFLUENCING PROJECT DELIVERY METHODS



FMI analysis of multiple sources

INDUSTRY HEADWINDS



- Supply disruptions
- Cyber attacks

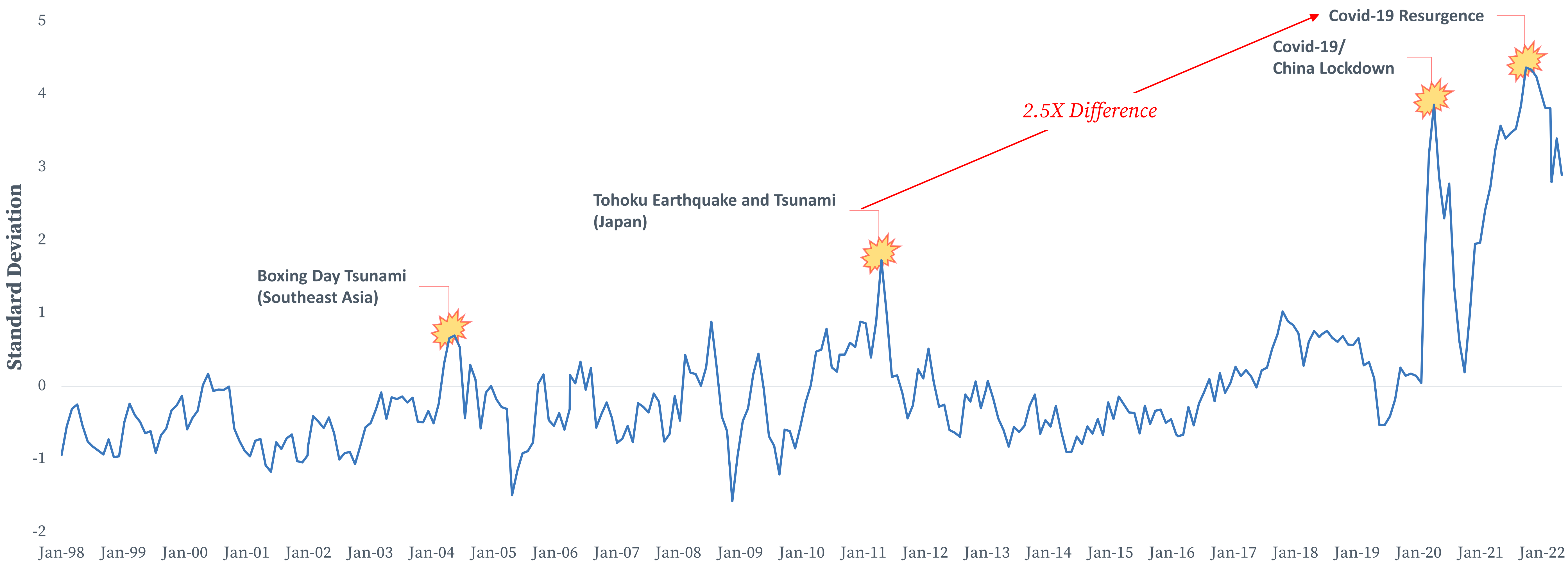
- Inflation
- Interest rate increases
- Asset price corrections

- Residential challenges
- Asset price corrections

- Compliance
- Environmental

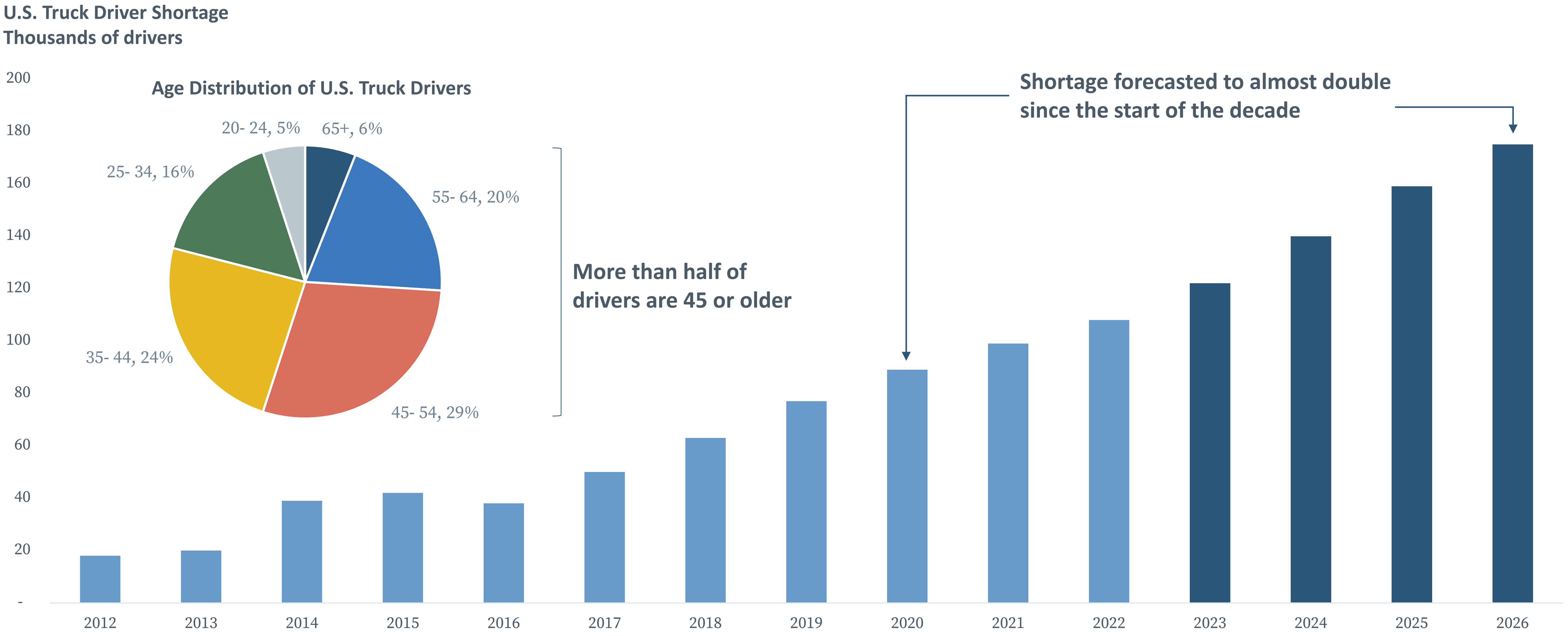
SUPPLY CHAINS ARE UNDER RECORD STRESS

Global Supply Chain Pressure Index
Standard deviation from the mean

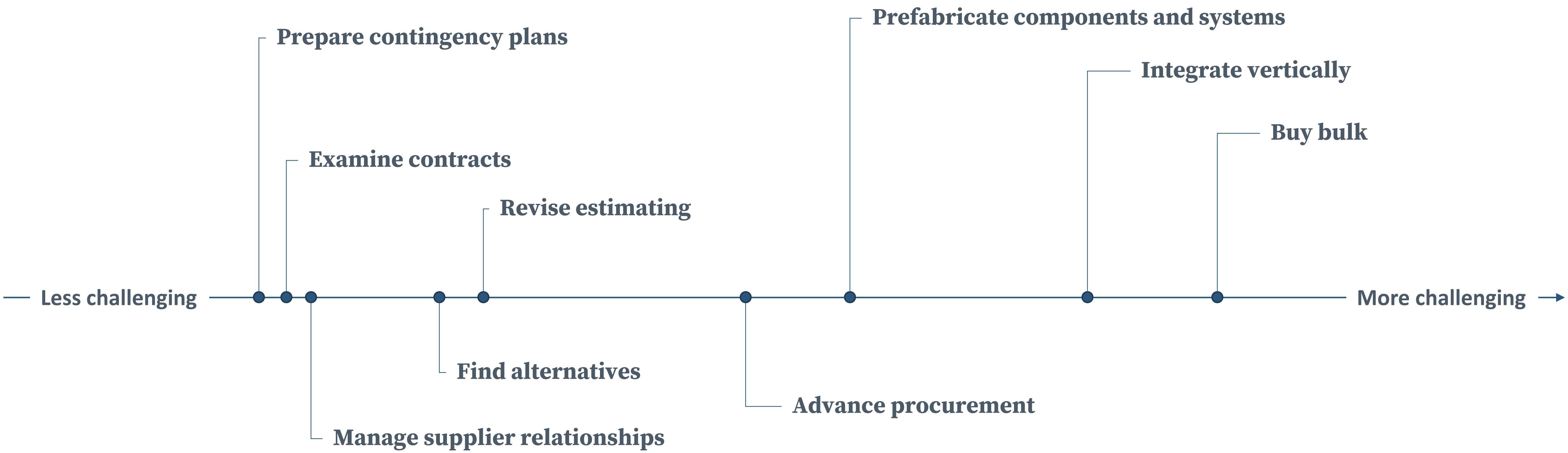


New York Federal Reserve

IS TRANSPORTATION THE REAL PROBLEM?

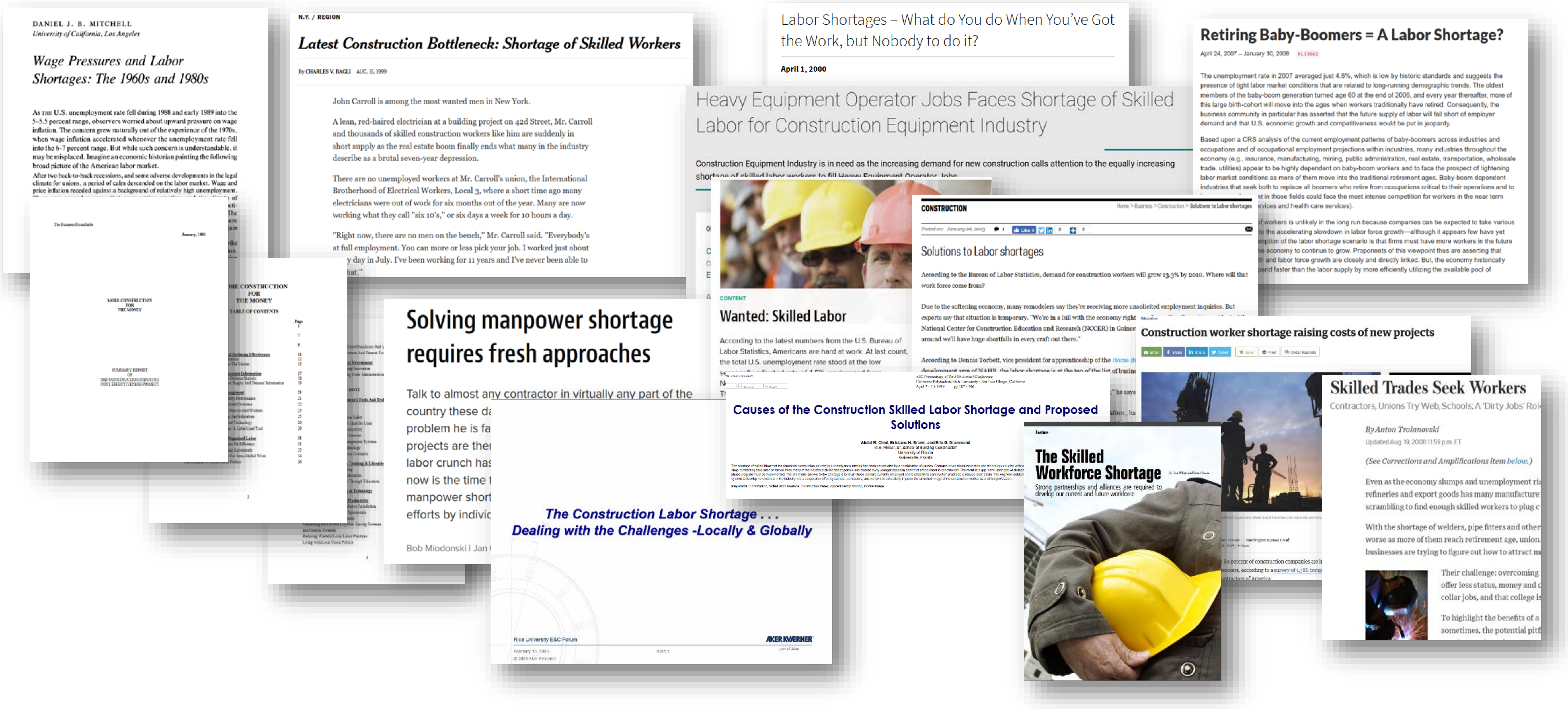


SCRAMBLING FOR ANSWERS



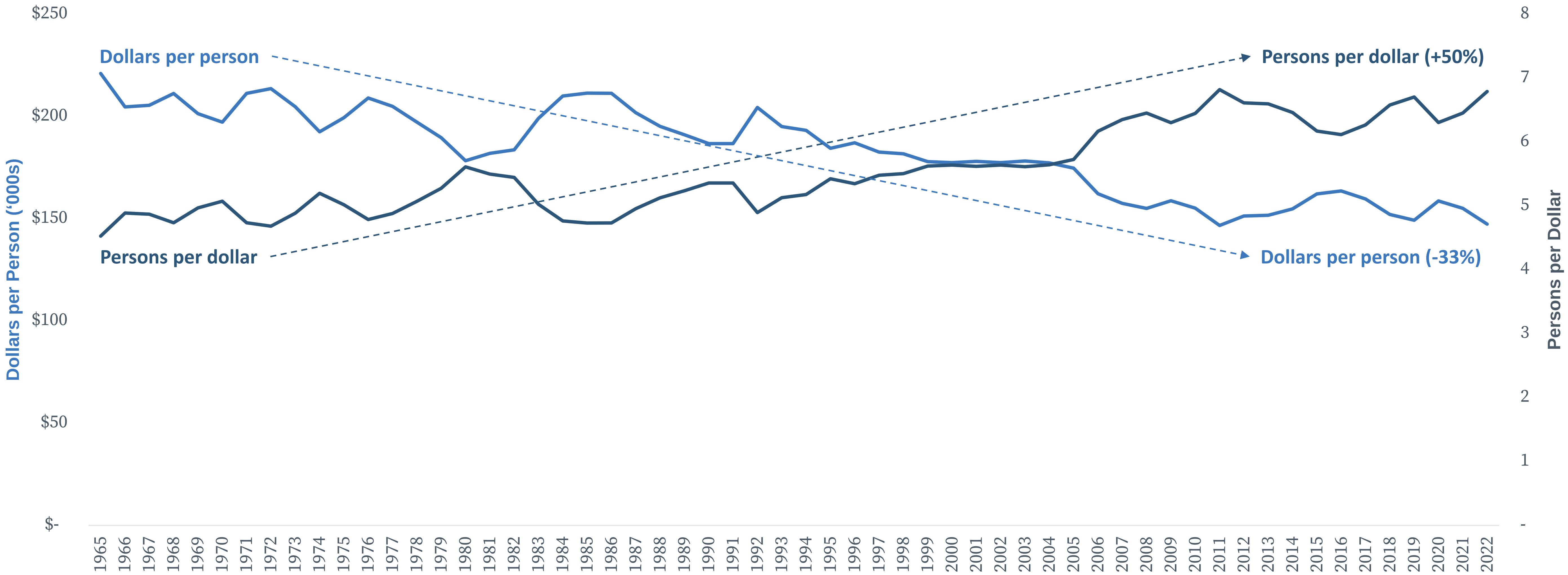
Regardless of tactics, contractors must design strategies for labor, materials, and costs.

LABOR CHALLENGES PERSIST AND INTENSIFY



INCREASING PROJECT COMPLEXITIES DEMAND MORE LABOR

Construction Employment vs. Construction Spending in the U.S.
Constant dollar basis (2012)



BLS, FMI

Many in today’s construction industry have neither managed nor led through a significant downturn, and almost no one has managed during an extreme inflationary environment.

CONTRACTORS BENEFIT GREATLY FROM ENGAGED EMPLOYEES

1. **Increased productivity**
   Individual productivity improves by 15% to 20%

2. **Higher quality**
   Rework can be reduced by up to 25%

3. **Fewer safety incidents**
   Safety incidents may be reduced by roughly 33%

4. **Superior customer service**
   Repeat work can increase more than 50%

5. **Lower absenteeism**
   Poor engagement results in 30%-plus higher absenteeism

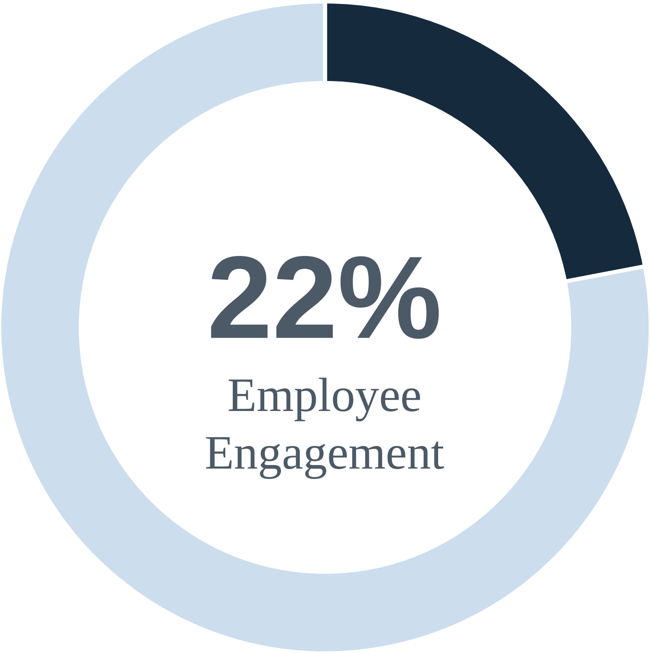
6. **Reduced turnover**
   Employee retention improves by almost 40%

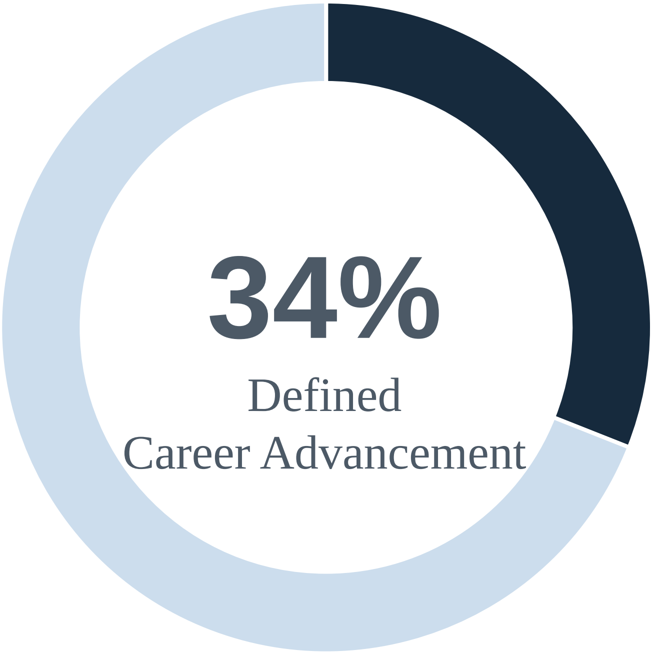
7. **Greater profitability**
   Contractors with highly engaged employees experience 20% to 25% greater job profitability

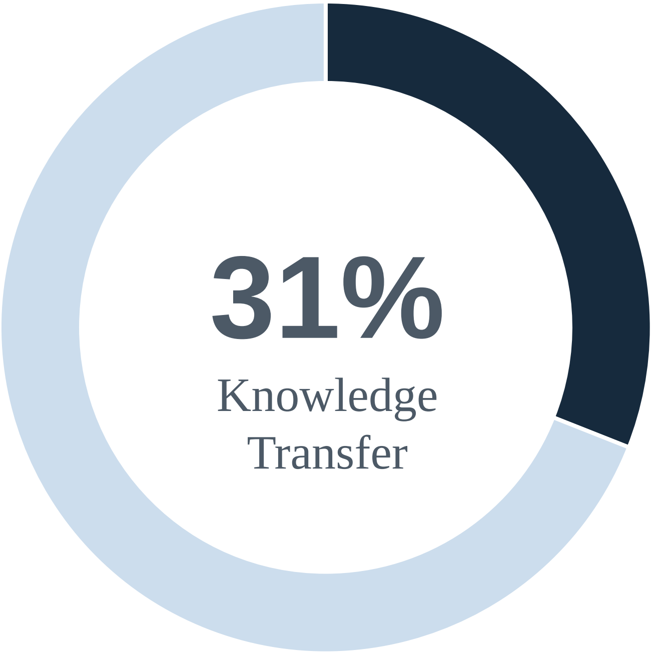
FMI analysis of multiple sources

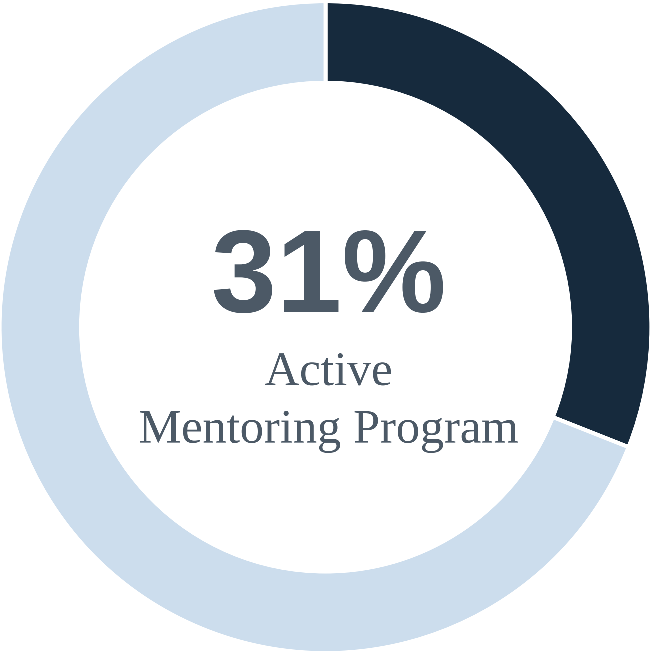
LESS THAN 25% HAVE AN ACTIVE EMPLOYEE ENGAGEMENT STRATEGY

Which of the following does your organization have formal plans for?
FMI survey of multifamily and nonresidential building/ infrastructure contractors

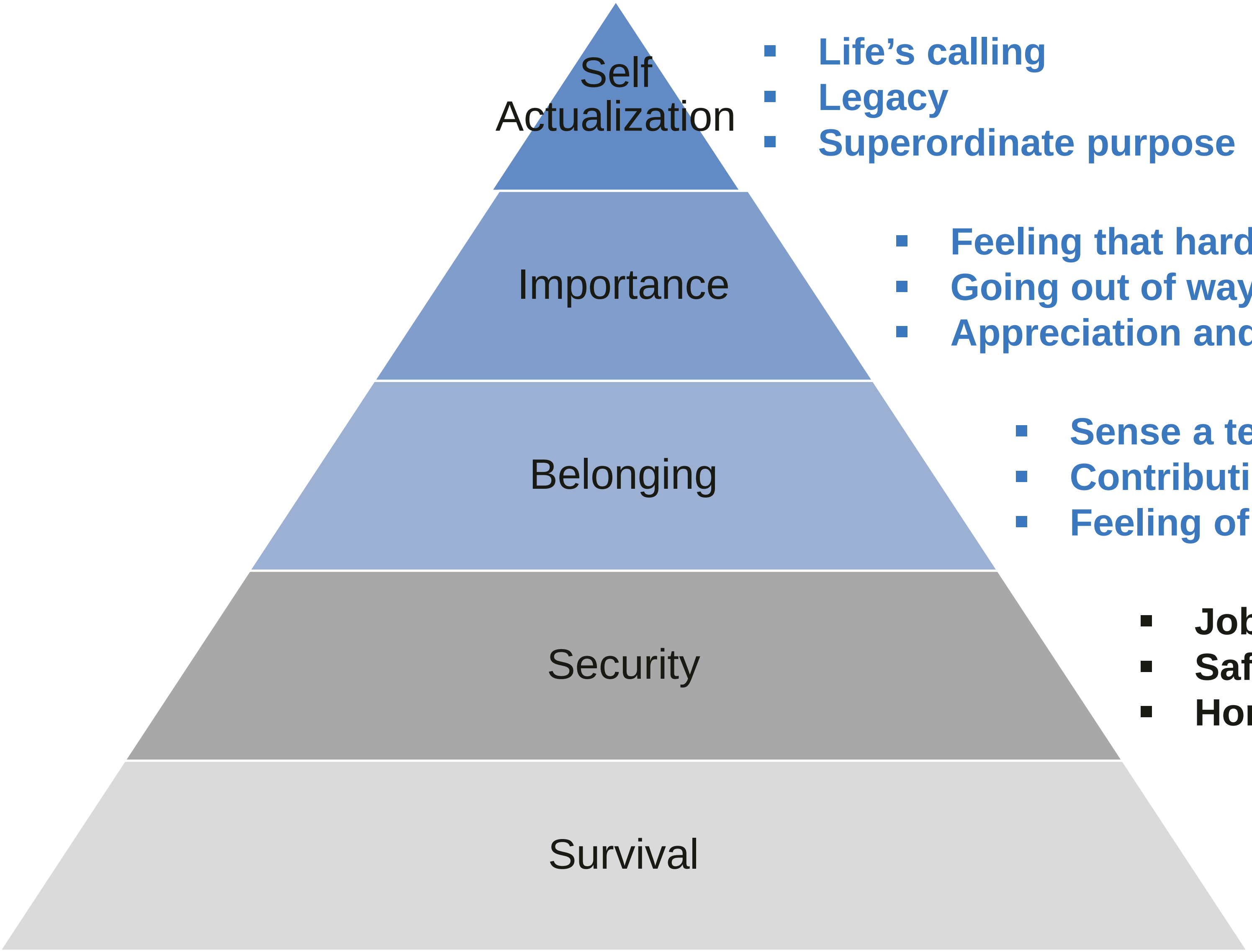








MASLOW'S HIERACHY OF NEEDS APPLIED TO EMPLOYEE ENGAGEMENT



Engagement Factors

- **Life's calling**
- **Legacy**
- **Superordinate purpose**

- **Feeling that hard work results in more gain than money**
- **Going out of way to show family / friends results of work**
- **Appreciation and recognition from the senior level**

- **Sense a team / collaborative environment**
- **Contributions that benefit the organization**
- **Feeling of personal / professional development**

Basic Needs

- **Job security and savings**
- **Safe / non-hostile environment**
- **Honest / ethical leadership**

- **Ability to make mortgage / rent**
- **Food for family**
- **Maintenance of health**

WHAT ELSE SHOULD WE BE CONSIDERING?

1. Understand the customer
2. Recruit the people you have
3. Leverage your strengths to overcome obstacles
4. Develop scenarios based on sustained 10% to 15% increase in cost
5. Build your network
6. Remember what’s not going change in the next 5 to 10 years
7. Focus on the WIN – “What’s Important Now?”

Thank you

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FMI Consulting

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.

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