



BCG

THE BOSTON CONSULTING GROUP

The Future of Construction

Key findings from the Future of Construction initiative, led by WEF and BCG

SEPTEMBER 2019



We worked with WEF and E&C industry leaders on the Future of Construction initiative

abertis



ARUP



FLUOR



SIEMENS



SKANSKA



AECOM



AECON

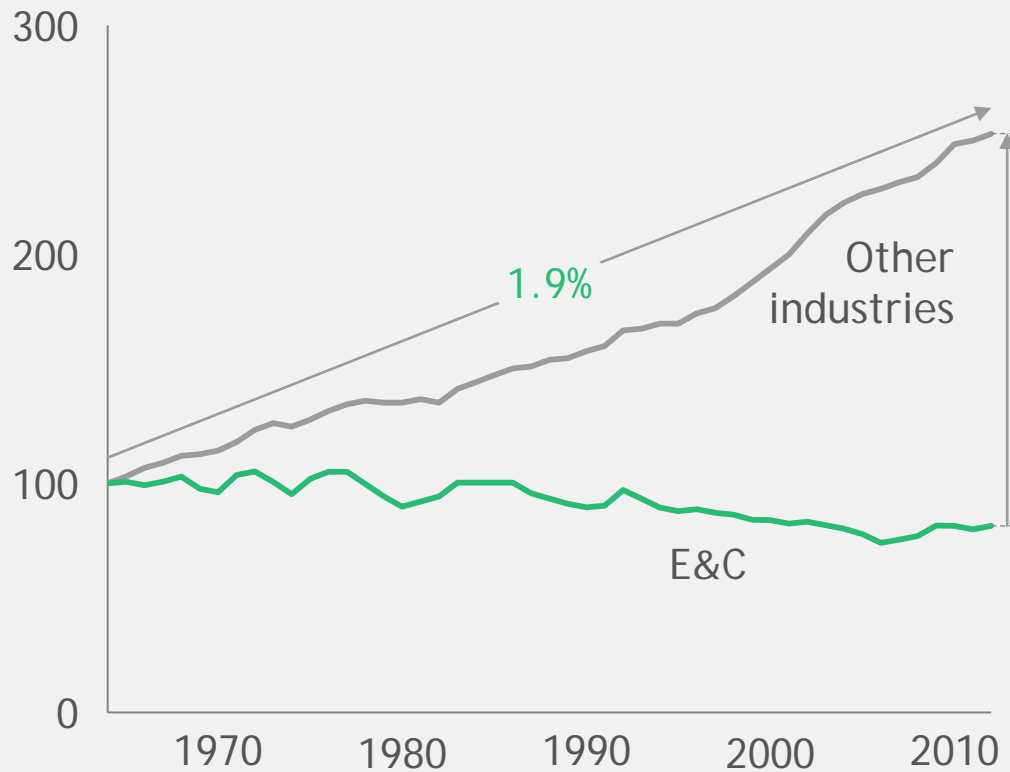


LIXIL



Construction was lagging behind other industries

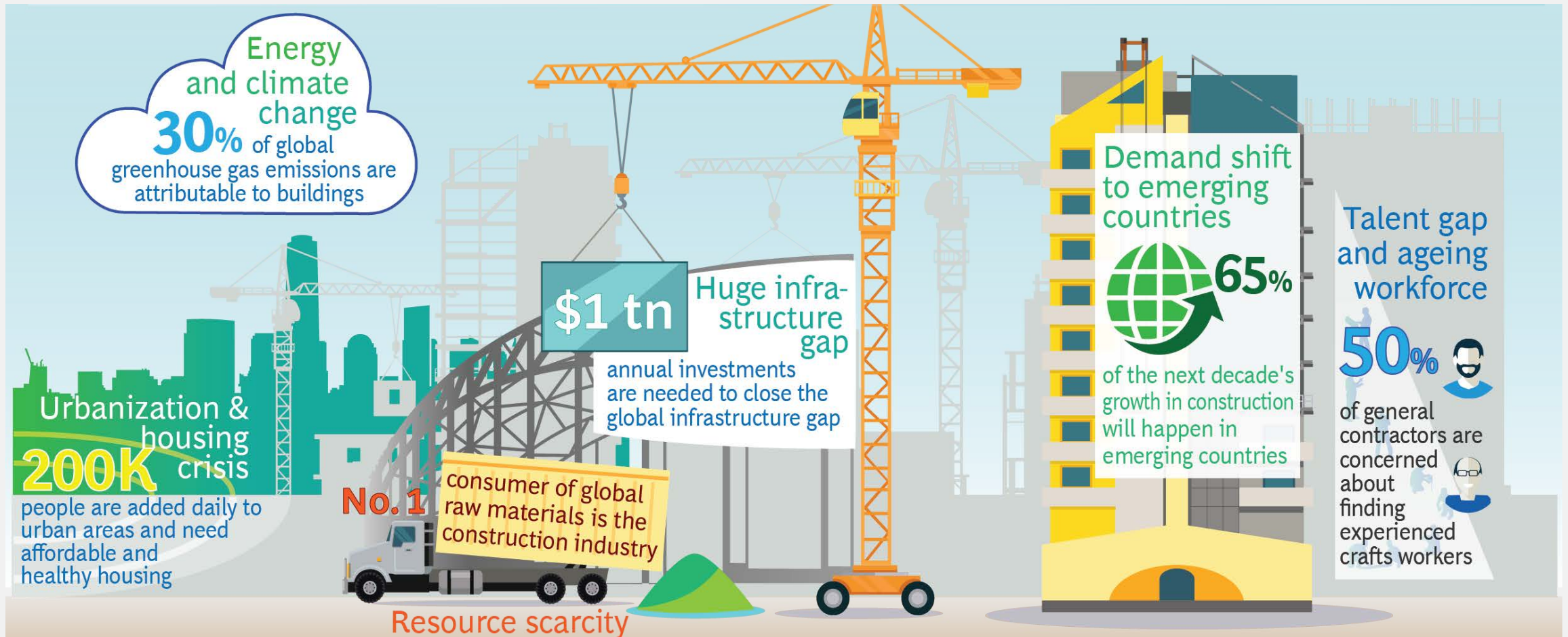
Index of US labor productivity



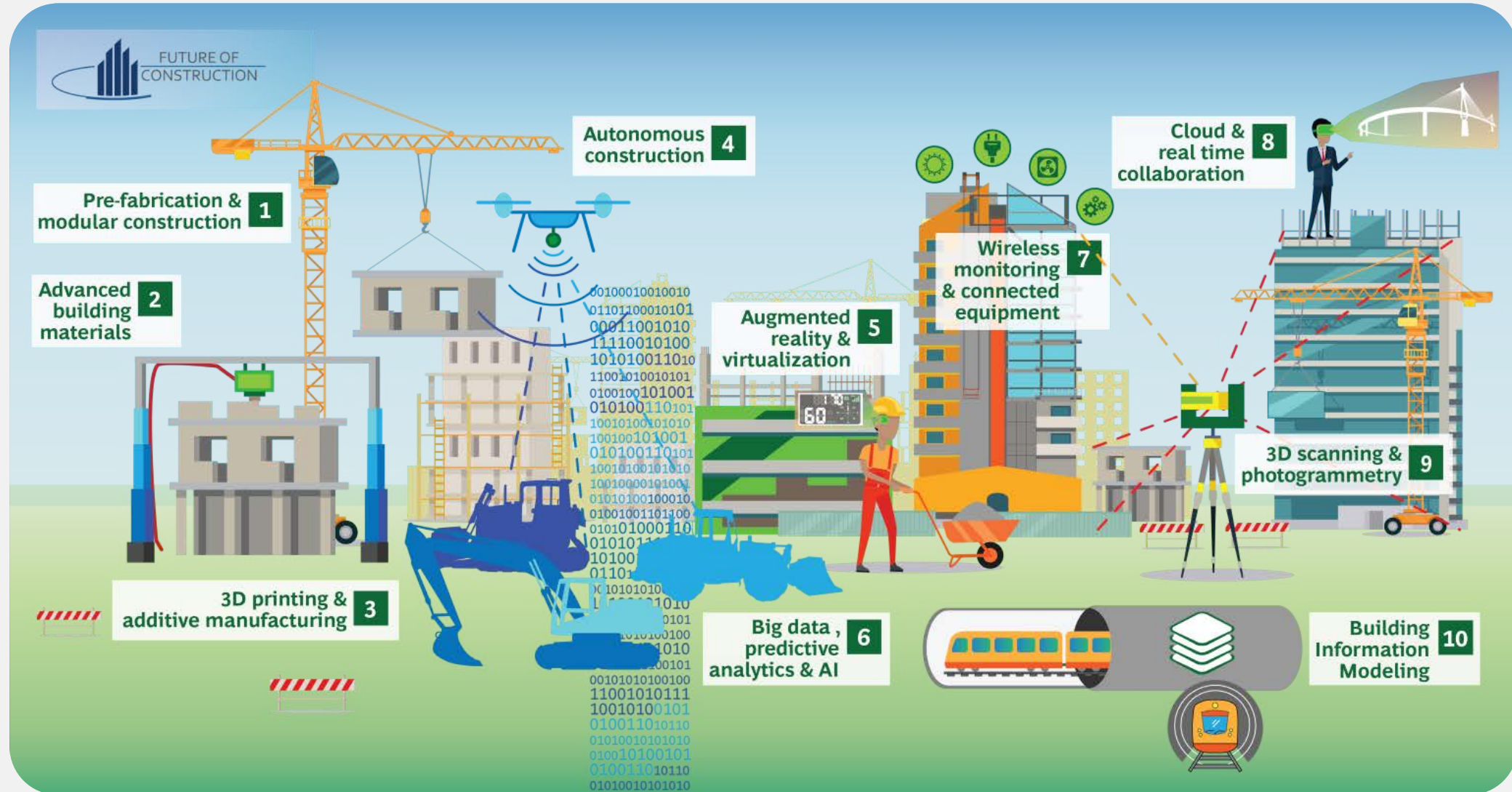
“ E&C industry is not even in the third Industrial Revolution, let alone in the fourth; a step change is required. Thanks to new technologies a new industrial revolution is feasible.

Future of Construction session, Davos

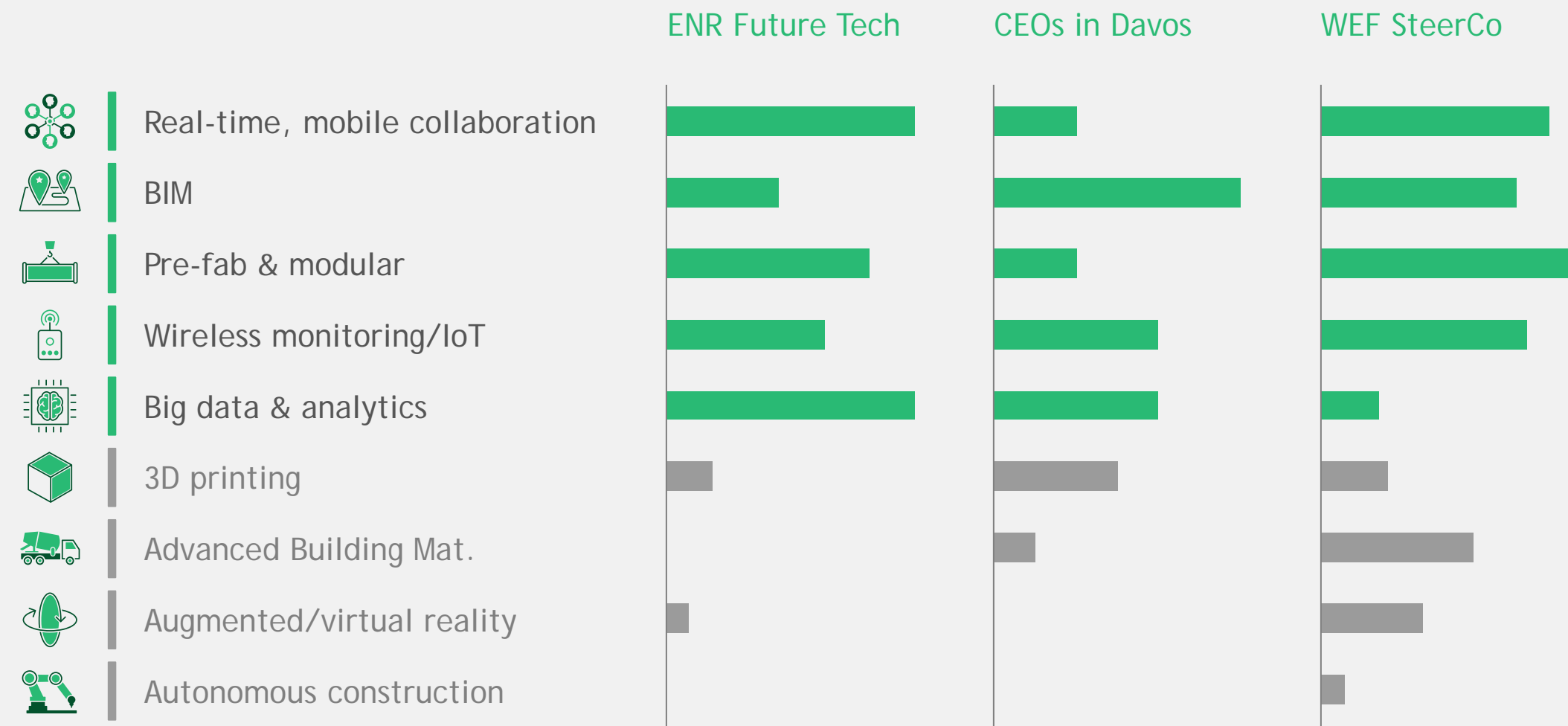
Megatrends create imperative for change in E&C



E&C has started to adopt digital technologies

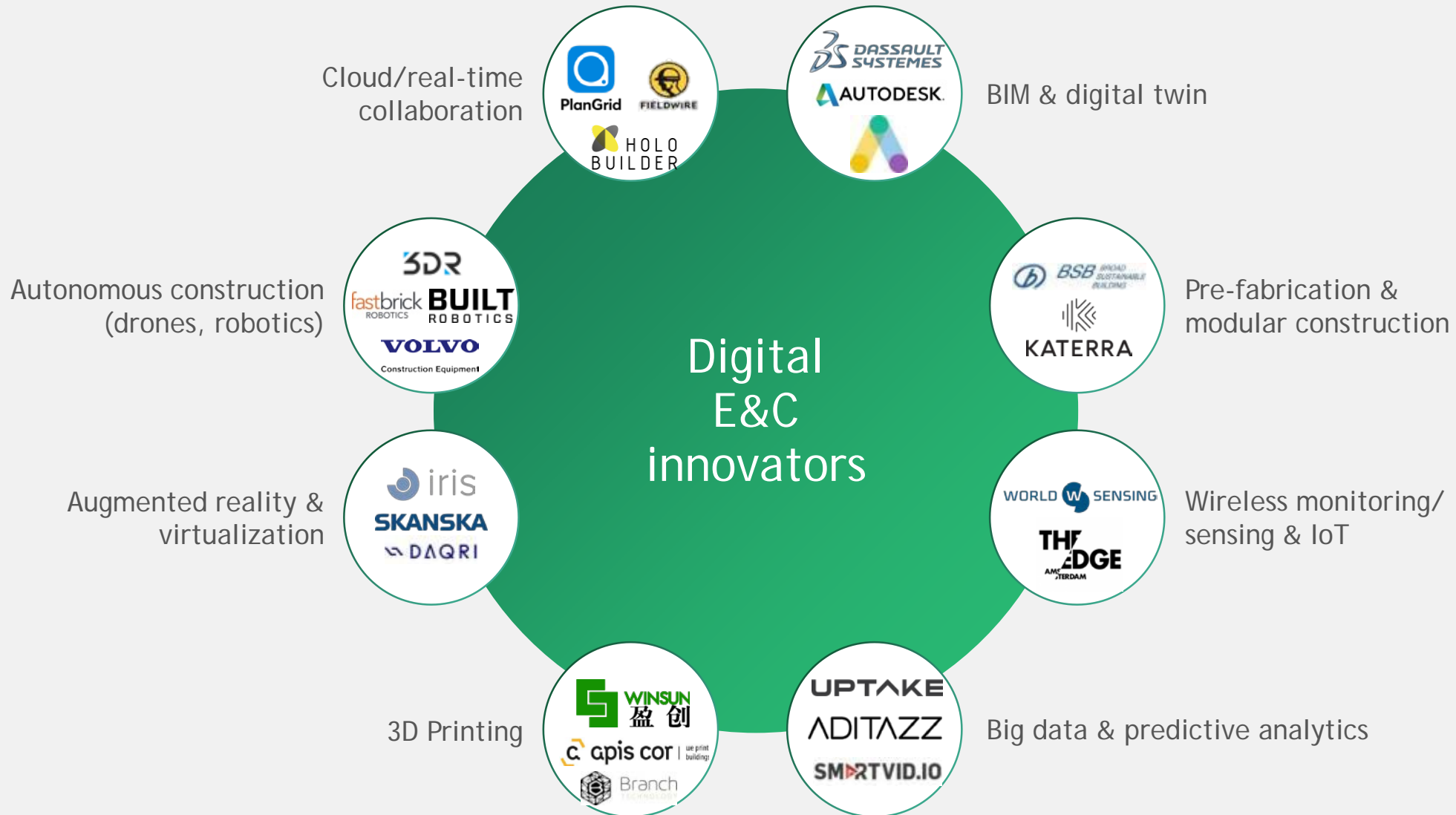


Five technologies considered most impactful

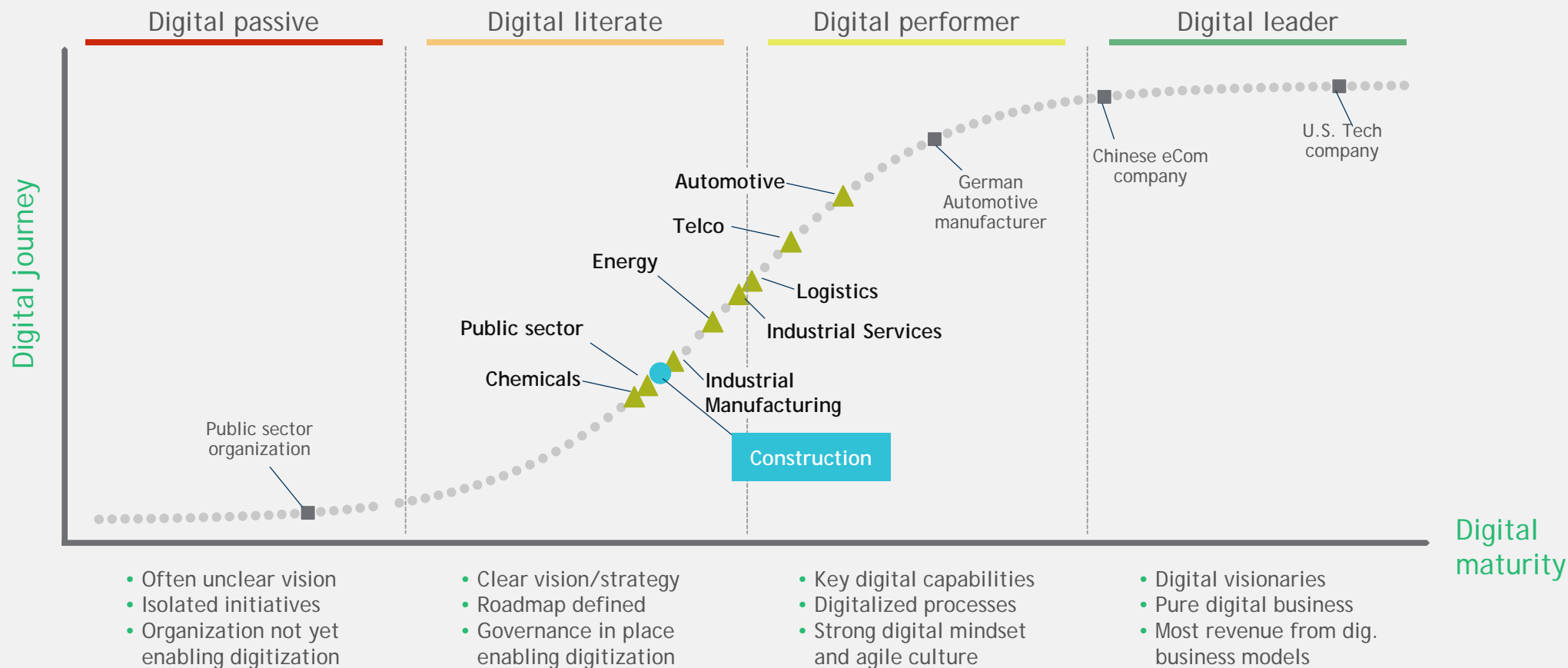


Note: Answers were scaled to 1 = highest impact mentioned in survey, 0 = lowest impact mentioned in survey; values in between are linear interpolated

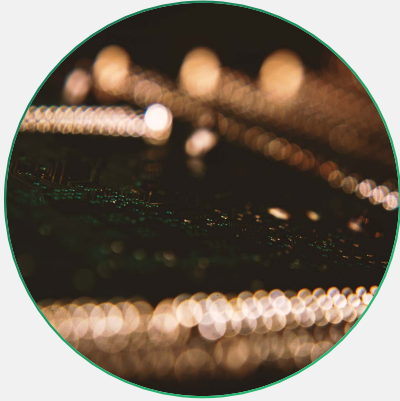
Ecosystem of E&C innovators is emerging



E&C made progress in digital, but still room to catch up



Next-gen of digital technologies: Artificial Intelligence



Data@scale
becoming available

"Infer like a human"



Machine vision
has come a long way

"Understand like a human"

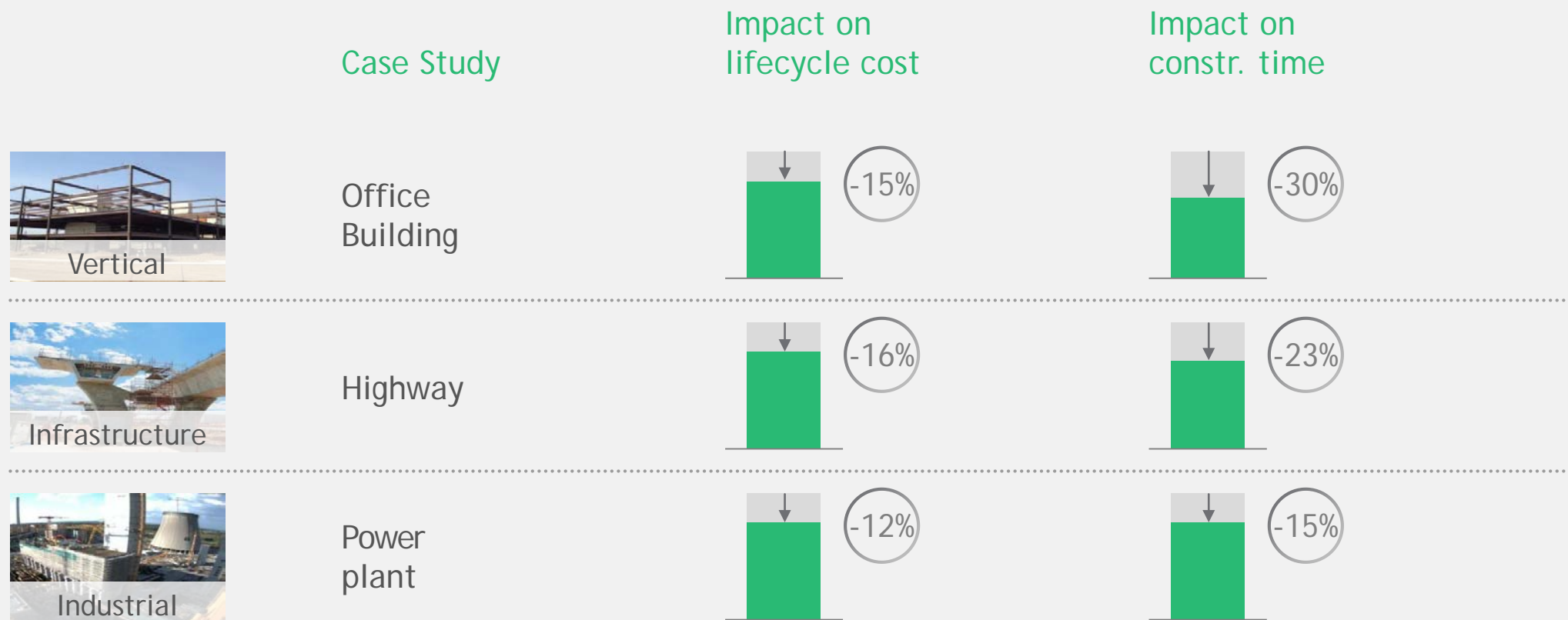


Robotics
has greatly improved

"Act like a human"



High long-term cost & time upside from digitalization



Note: Efficiency gains estimated based on a systematic evaluation of 50+ technology reports and demonstration studies, and verified in 10+ expert interviews.

All stakeholders have to act for the digital transformation



Governments

- Plan strategically, e.g. sector plan
- Regulate smartly (e.g., building codes, permits, ...)
- Incubate innovation & fund flagship projects
- Develop education & training programs
- Contribute as key project owner



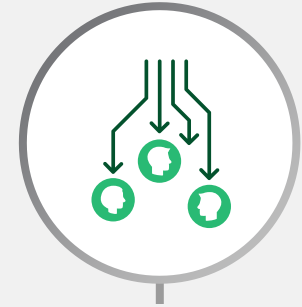
Project owners

- Develop pipeline and innovation/productivity roadmap
- Create foundation and incentives for digital, data & innovation
- Pilot & scale technology
- Refine skills & culture
- Review LPM setup & processes
- Adjust procurement, specs & collaboration



E&C companies

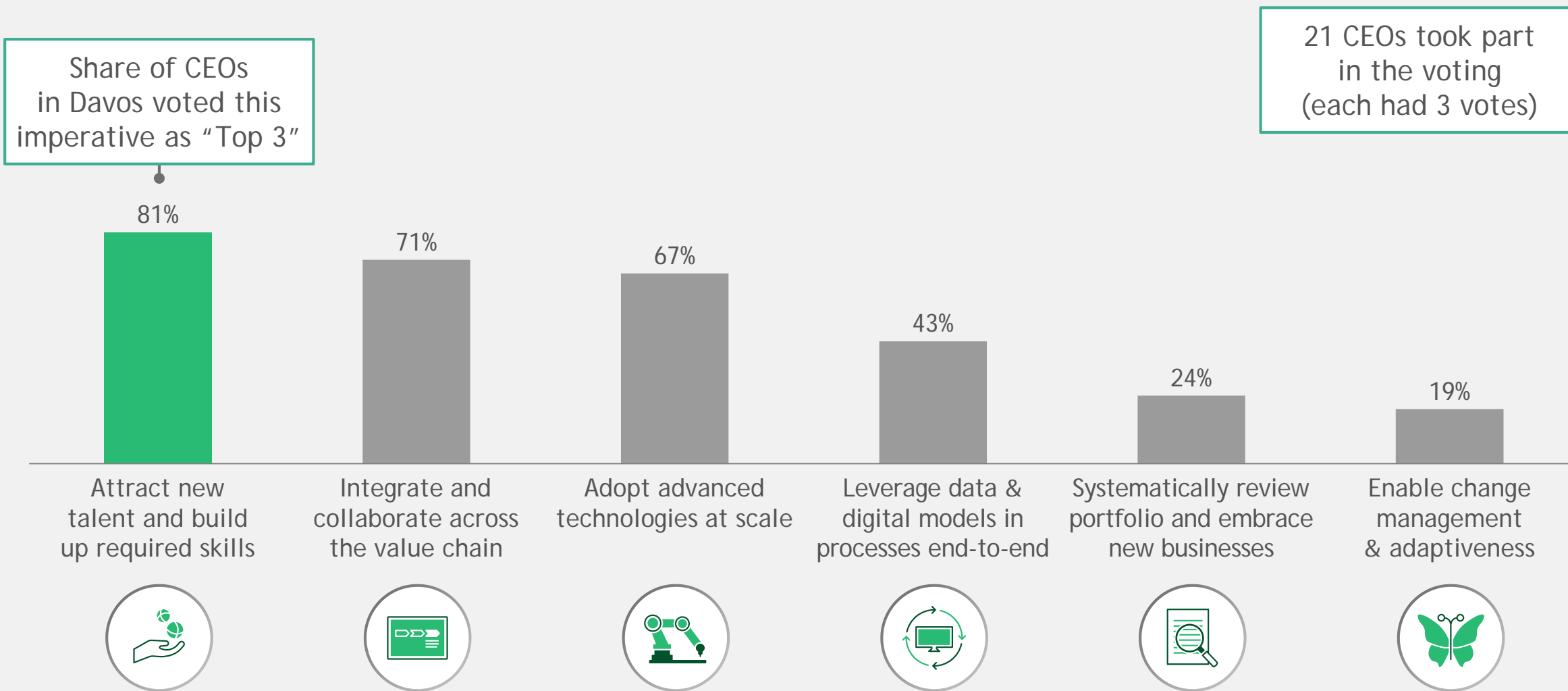
- Adjust business model & strategy
- Prioritize, pilot & scale key tech & use cases starting at pain points
- Build up innovation teams & foster innovation culture
- Develop data platforms
- Collaborate with the eco-system



Suppliers

- Prepare for new sales approach (e.g., object libraries) incl. whole-life value
- Develop new offers (e.g., prefab, integrated sensors)
- Agree on standards for interoperability

For E&C CEOs talent is key to enable this transformation



It's a vicious circle: We need digital talent to adopt new technologies, but to attract them we need new technology

Conrad Oostrom, CEO, OVG Real Estate—at the WEF Annual Meeting 2018 in Davos

Addressing the talent gap requires coordinated actions

86%

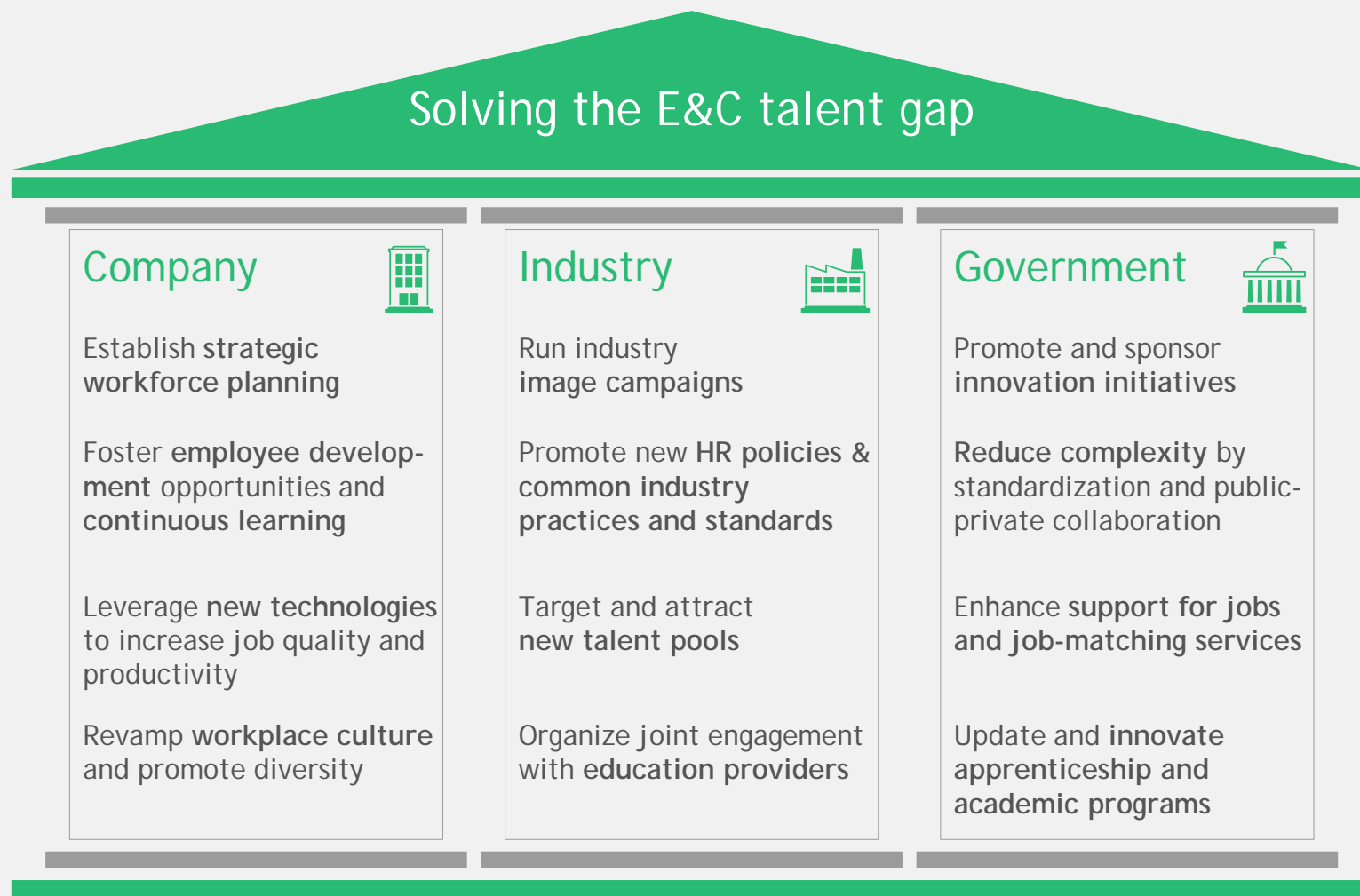
... of contractors
face difficulties
in recruiting

13%

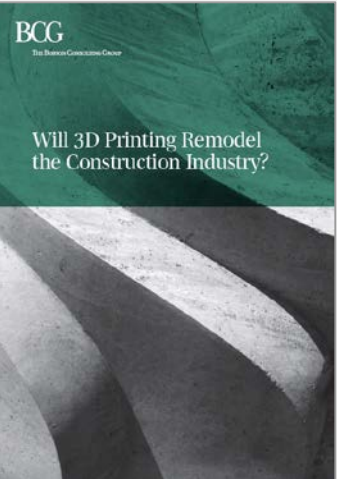
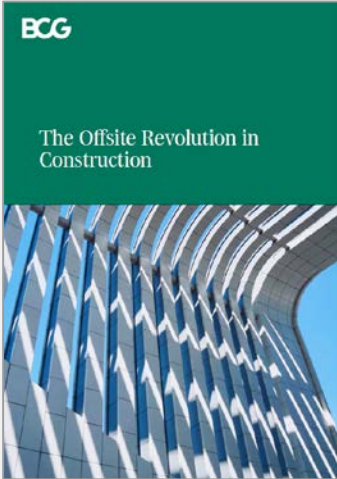
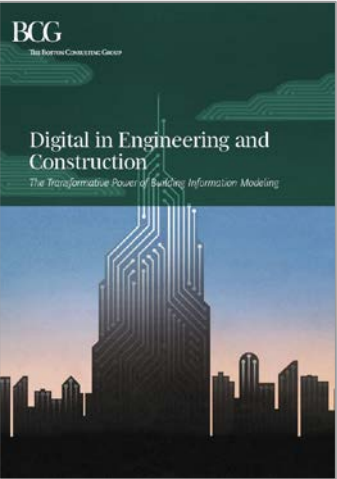
... of construction
workforce
are women

17%

... of young
people could
imagine a career
in construction



Read our reports to learn more



www.futureofconstruction.org



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