

BEYOND SCENARIOS

What
Happens
Next

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The Built Strategy: Executive Summary

The Built Strategy

This **Executive Summary** provides an overview of the extensive research and analysis that went into the strategy. We have provided the full report as an appendix to this summary.

Note, this report is a student project based on researched public information. No Jacobs employees or company affiliates were involved in this project.

Strategy is a long-term way of thinking and planning that creates an actionable way for organizations to achieve their goals. Most organizations develop and follow a business strategy in an effort to support their vision and mission as well as to facilitate business success.

The utilization of **futures research** greatly enhances the development of an effective strategy that takes the future into consideration and proactively prepares the organization for potentially disruptive strategic emerging issues.

What happens after scenarios?

Our report, *The Built Strategy*, takes you **beyond the scenarios** and provides a tailored strategy for *Jacobs Engineering Group*. This proposed strategy is based on the potential future scenarios identified in the forecast report conducted for the Construction Industry Institute (CII) that examined *The Future of the Built Environment*.

This approach combines **scenario planning** with **advanced business strategy** methodologies to get the best of both worlds. The outcome is a more powerful and specific actionable strategy that looks to the future. More significantly, this approach allows for those outside of the futures field to better understand how futures work can utilize forecast outcomes into an actionable plan that suits their business.

We provide two clear **action strategies** we call *Smart & Bold*: investing in creating emerging technology for the built environment and achieving Net 0 environmental impact on all projects. Both align with Jacobs vision and goals for preferred futures.

The Built Strategy

Our methodology and approach

Our methodology continues the foresight work done previously for CII and tailors a strategy and immediate action items to achieve Jacob's vision and goals well into the future.



Discovery: Gain the knowledge

Understanding the futures, Gaining industry insights, Getting to Know Jacobs.



Analysis: Apply intelligence

Compare what we know and determine implications and the strongest drivers.



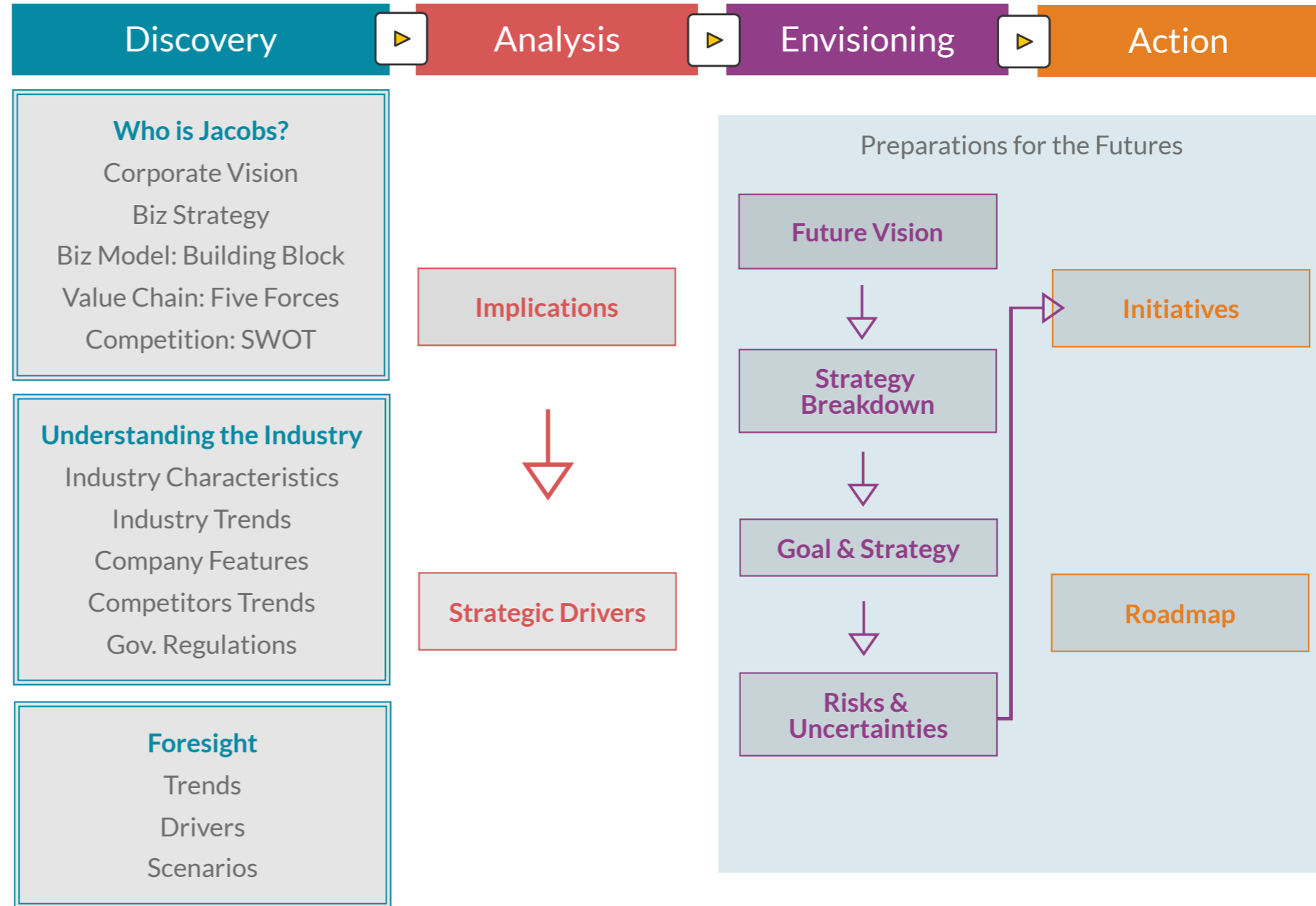
Envisioning: Create a way forward

Using the CII futures report and our analysis, determine the proper vision, goals, and strategies for Jacobs.



Action: Take control and move forward

Determine initiatives that will work best to achieve the goals, create a roadmap, get started!



The Built Environment

Foresight Study

In 2019, the Construction Industry Institute (CII) hired futures researchers to explore the potentially big disruptions for built environment over the next decade. The key findings included a map of the **Built Environment**, sixteen key drivers of change, feedback from twenty-three interviews with selected stakeholders, and key uncertainties.

These findings were used to develop scenarios of the Built Environment in 2028 and a recommended Research Portfolio for CII to consider. The themes of the research portfolio included, how to do business; technology; and environmental related issues.

This project takes the futures learnings from the CII report and applies it to Jacobs Engineering Group.

16 Drivers: The Future of the Built Environment

Impact of Climate Change

Transparency & Integration

More and Varied Regulation

Trade Power

Inertia
The Weight of the Past

**Plausible
Futures**

Sharing

Off-the-grid

Integration w/ Surroundings

Mixed-use Development

Voluntary Simplicity

Personalization

Momentum
The Push of the Present

6 Key Drivers
for Jacobs



Impact of Climate Change



Trade Power



Prefab Approach



Smartness



Net Plus



3D Printing

We identified six primary drivers that apply prominently for Jacobs considering the weight of the past, push of the present, and pull of the future.

Net Plus

Smartness

Prefab Approach

Shifting Sense of Place

Automation & Labor

3D Printing

Aspiration
The Pull of the Future

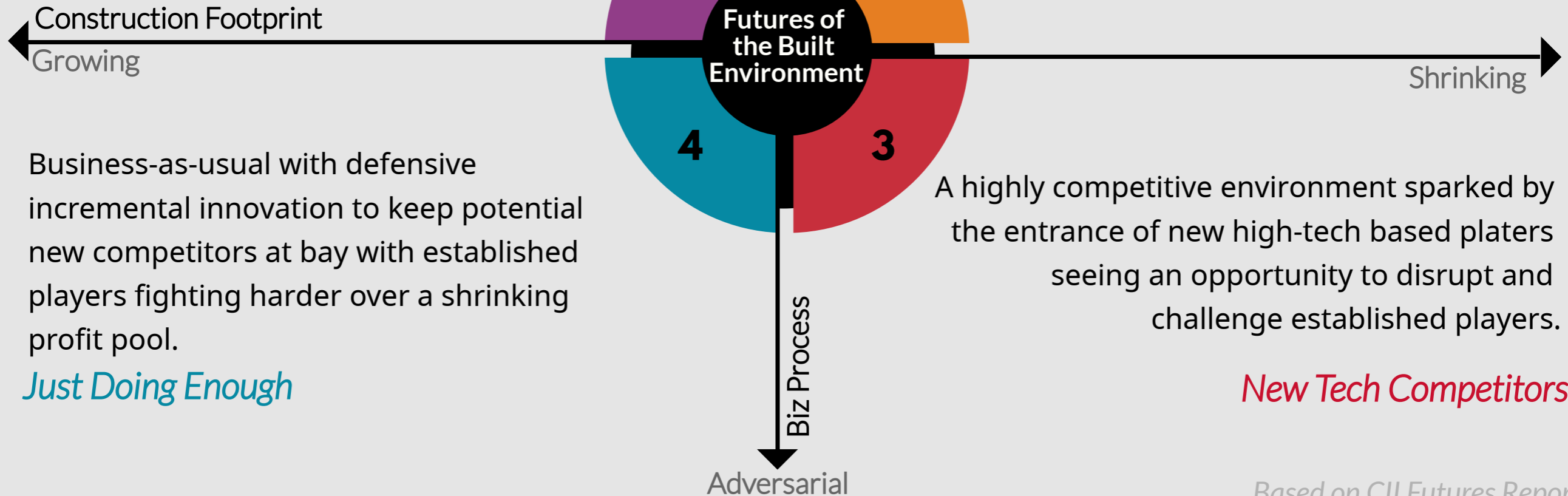
The Built Environment Scenarios

Manufacturing Model

The shift toward a manufacturing model helps the industry meet continued growth in structures that are put together flash mob style with projects coming together more quickly due to standardization and more effective collaboration.

Construction Smartens Up

Greater collaboration allows the industry to get more done with less to meet the shift to fewer, but smarter, more integrated, and multi-purpose structures.



Business-as-usual with defensive incremental innovation to keep potential new competitors at bay with established players fighting harder over a shrinking profit pool.

Just Doing Enough

A highly competitive environment sparked by the entrance of new high-tech based players seeing an opportunity to disrupt and challenge established players.

New Tech Competitors

Who is Jacobs?



Jacobs' is a highly innovative and forward thinking design, engineering, construction, and technical services firm. Jacobs' business model centers around brand, people, strong customer relationships, performance, innovation, and technology.

Jacobs is guided by the motto **Challenging today. Reinventing tomorrow.** People are at the heart of Jacobs' business, whether it be employees, partners, or customers.

How should Jacobs use the Built Future?

The Built Environment Industry directly affects Jacobs' business and operations. Therefore, the potentially large disruptions identified from the forecast conducted for CII futures are important for Jacobs to acknowledge and prepare for when determining their strategy and plans for the future.

However, it is not practical for Jacobs to incorporate all key findings and strategic issues from the CII report. A more suitable approach to utilize the developed scenarios and select the key drivers most in line with Jacobs' vision and mission.

How should Jacobs use the Built Future?

Business Model Canvas

KEY PARTNERS Kp Joint Ventures Subcontractors Material suppliers	KEY ACTIVITIES Ka Intelligence / Resiliency programs Infrastructure development Water solutions Environmental renewal Innovative discovery Transit mobility solutions Regulation navigation Research and Development Futures and Foresight Designing, developing, and implementing its services for its clients.	VALUE PROPOSITIONS Vp Brand Status <ul style="list-style-type: none"> • We do things right • We challenge the accepted • We aim higher • We live in inclusion People Innovation Connected sustainable solutions High performance Technology-enabled execution Customization	CUSTOMER RELATIONSHIPS Cr All about clients' needs <ul style="list-style-type: none"> • Personal Assistance • Dedicated Personal assistance • Long term relationships • Close relationships 	CUSTOMER SEGMENTS S Niche Market (caters to specific needs of their clients) US gov. Non-US gov. Private sector companies
KEY RESOURCES Kr Human resources Physical materials: construction/machinery Construction equipment Partner/Subcontractor Patent/IP			CHANNELS C Jacobs.com Salesforce Business Development Team Social Media Conferences	
COST STRUCTURE Value driven Fixed-Cost Contracts Cost-Reimbursable Contracts			REVENUE STREAMS Rs Technology and Consulting Product Delivery and Services Pass-through Revenue	

Current Assessment

Porter's 5 forces is a tool to describes key sources of competitive pressure within an industry or sector- new entrants, supplier power, buyer power, substitute products, and competitive rivalry. By analyzing these 5 forces, we identified opportunities to take advantage of a strong position or improve a weak one.

The Five Forces

Threat Of Supplier Power

Jacobs must carefully select suppliers with core technology and experience and maintain strong partnerships.

Threat Of Buyer Power

primarily from industry forces, such as the contract bidding process



Threat Of New Entrants

High barrier to entry keeps this threat low

Rivalry Among Existing Competitors

The number of competitors for Jacobs is low. Most competitors focus on their key customers and relationships.

Threat Of Substitute

The construction industry is competitive with little differences in the actual products or services.

JACOBS' SWOT ANALYSIS

(based on *Business Model Generation*)

Customer Alignment

Partner Relationships

Margins

Resources Replication

Product/Service Synergy

Execution Quality

Cost Incurement

Cost Structure

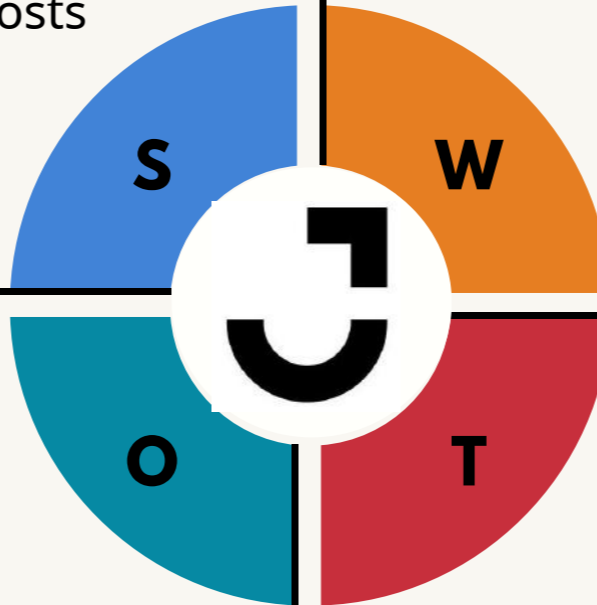
Customer Satisfaction

Switching Costs

Customer Acquisition

Economies of Scale

Brand



Strengths

Weaknesses

Opportunities

Threats

Conversion

Supply Chain Disruption

Customer Needs

Advanced Outsourcing

Competitor Pricing

Partner Dependency

Partner Collaboration

New Customer Segments

Substitute Products

Market Share

IT Enhancements

Channel Efficiency

Margins

Competition Intensification

Jacobs Visioning Drivers

Taking what we learned from Discovery, we *Analyzed* Jacobs current strategic opportunities and concerns compared to the current market and the information in the CII Built Futures report, specifically the scenarios and trends. With Jacobs current conditions in mind, we focused on futures specific to Jacobs, starting with creating a vision drivers and a strategic vision statement.

PREFAB APPROACH

Move to more of construction working being done offsite and shipped to and assembled onsite.



SMARTNESS

The growing capability to add intelligence to any item and link into connected networks w/ data.



NET PLUS

Evolution of social responsibility from being bad, to neutral, to being a net benefit



3D PRINTING

Emerging paradigm shift to manufacturing from the “bottom-up” influences construction.



IMPACTS OF CLIMATE CHANGE

Perceptions of ongoing shifts drive demand for proactive building and infrastructure approaches.



TRADE POWER

increasing impact of the global geopolitical shifts on the supply chain.



Drafting Jacobs' vision...

Using the results from *Discovery* and *Analysis*, we crafted a handful of strategic visions for Jacobs and put them through a collaborative evaluation process, ranking them on seven criteria from 1-10. We then looked for two that not only scored high, but that can support each other and not be exclusive. We then crafted these results into a unified vision and values.

Vision Statement One

Delivering responsible solutions to humanity's most complex infrastructure problems – mobility, energy, security, and water – by building a safer, smarter, sustainable, and equitable future on earth and beyond.

Team Eval

8	An image (not an abstract idea)	3
5	About the future (not the past)	5
8	Attractive, appealing, even compelling	6
6	Bold and ambitious, yet possible	4
3	The best I (we) can be or do	3
5	Unique (if I don't do it, no one will)	2
4	Motivating, energizing	7

Vision Statement Two

To fiercely inspire and build a more connected and sustainable world by being stewards of tomorrow, today.

Building a Better Tomorrow, Today

How we see ourselves tomorrow is where we start now

Jacobs motto is at the heart of its vision strategy: **Challenging today. Reinventing tomorrow.**

People are at the heart of Jacobs' business, whether it be employees, partners, or customers.

Jacobs leading efforts and achievements towards sustainable practices are what distinguishes them from competitors. Commitment and values guide their actions. Jacobs will continue to drive positive contributions that promote economic prosperity, environmental benefit, and social value.

Jacobs futures will use *emerging technologies* that we will help build safer, smarter, and more *sustainable futures*. Jacobs will be the market leader in innovation and a safe built world. Technology and safety are not add-ons - they are at the core of everything Jacobs does.

As a market leader, Jacobs will make the rules and be proactive in promoting safe and equitable regulations and trade practices. Jacobs will not be vulnerable to trade disputes and disruptions.

Jacobs must succeed to ensure tomorrow is better than today. And in doing so, must always remember that all people, customers, employees, partners, and even competitors, should be treated fairly and with respect.

Vision Values

Costs

Sustainability

Innovation

Market Leader

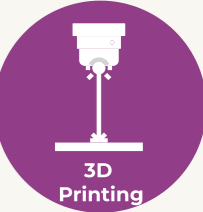
Equality

Regulations

Safety



Prefab

3D
Printing

Smartness



Net Plus



Trade



Climate

Drivers

The Power of Stories

A personal look 10 years ahead for Jacobs

Futures and strategy goes beyond trends, analysis, and reports. Here we take a look at what Jacobs' strategic vision in ten years through an interview with Jacobs' VP of Foresight (a plausible new role at Jacobs). The complete interview is available in the full report.

Jacobs' 2031 Annual Futures Report: An Interview With Our VP of Foresight Mariah Senge



Who are our stakeholders? How do we work with them and how do we produce value for them?

What a great question. At Jacobs, we like to think of everyone as a stakeholder since we are building the future. Specifically we think of course of clients, employees, investors, governments, and our peers.

We work as partners with all of our stakeholders to develop both private and public spaces. We are working hard to make our built world more sustainable, environmentally friendly, and equal.

What are the most influential trends in our industry?

To some people, the trends seem the same, large on-site construction industry. But most everyone has seen the trends in the last 10 years with innovations on-site with IoT, drones, and robots, in remote worksites with 3D printing and fabrication, with new "living materials", and of course all the new space vertical for colonies, transport, and space stations.

One area people forget is the trends of new in-house IT and data platforms that have allowed us to survive labor shortages, increased regulations, and tightening insurance markets.

What is our image in the marketplace? How do we compete?

I think people view us as the 'Eco-Transformation Provider' that provides services to convert existing buildings into eco-friendly ones. That is a new space for us, but one I hope people see as being a positive change in the marketplace.

Jacobs has strong partnerships with space program actors in major countries around the world. We have captured the market faster than anyone else and have a monopoly position in the industry.

What is our unique contribution to the world around us? What is the impact of our work?

This is my favorite question, and perhaps as a futurist, one I ask every day. Jacobs greatly contributes to transforming the environment we live in into an eco-friendly and clean environment. In addition, we contribute to the development of space and extra-terrestrial infrastructure to build a world beyond our own.

What are our values? How do people treat each other?

We often like to quote our values at Jacobs because we are proud of them: We do things right. We aim higher. We challenge the accepted. We live inclusion.

Part of "We do things right" is we always act with integrity – taking responsibility for our work, caring for our people, and staying focused on safety and sustainability.

How do we know that the future of our organization is secure?

Well, they pay me to do something around here. I remember when I started here a professor of foresight at the University of Houston was wondering if we had a futures program, now we are the industry leaders in infrastructure foresight.

Through our Foresight team we constantly monitor trends and drivers of change that could affect our organization and the industry as a whole. We act proactively by making strategic plans and implementing the necessary processes to ensure we are prepared for uncertainties.

[Read the full report...](#)

Bold & Smart

Strategic Approach

In almost every industry technology is converging with traditional business practices and completely new values are being created. Jacobs should be bold and take the lead on technological consolidation and a brave dash to 0 carbon.

Being bold is not without risk, therefore, Jacobs needs to formulate a meticulous strategy for transformation into construction 2.0, including paying attention to multiple futures.

To take full advantage of the first mover advantage, Jacobs will need to tilt the playing field and stay super-differentiated from the competition. This requires either a fast paced phased business migration, creating friction for competitors, or working in partnerships for a positive sum outcome for the industry.

The Best Choice

Core/Satellite: This strategy allows Jacobs to put an emphasis on the most preferred future and it is most in line with the company's vision. It is plausible, realistic, and protects the company from failure. It allows Jacobs to play both offense and defense, and pivot if needed.

Jacobs should keep a close eye on signposts and re-evaluate the scenarios regularly.

Looking at the Options

Hedge Your Bets & Robust: Jacobs scored well in the wind tunnels for all scenarios, scoring the highest for *Construction Smartens Up* and *New Tech Competitors*. *Doing Just Enough* will not get Jacobs to their preferred future and *Manufacturing* will not have much impact. So it does not make sense to pay equal attention to all four.

Bet the Farm: *Construction Smartens Up* was the closest scenario that fit Jacobs' preferred futures, but if Jacobs does not pay enough attention to the New Tech Competitors scenario, especially since there is a strong focus on innovative solutions, Jacobs could be caught playing catch-up. Therefore, this is too risky and too much chance of being wrong.

Jacobs' Core/Satellite Strategy Breakdown

Manufacturing Model

Why 10% - Well Positioned

Jacobs has a good relationship with suppliers and is able to recruit and retain highly skilled employees, making them generally well-prepared for this scenario. Strategic attention for the manufacturing model should go towards growing standardized manufacturing capabilities.

Look for:

- Worsening labor shortage
- Push towards standardization and pre-fab approach
- Scarcity of resources

Construction Footprint

Growing ←

Why 5%

Jacobs' brand and preferred future is about starting today to build a better tomorrow. Additionally, innovative solutions are their core and what sets them apart. Therefore, Jacobs is focusing little attention in here since Jacobs has this one covered and has a high success outlook in this scenario.

Just Doing Enough

Cooperative ↑

Why 60% - Offensive

Jacobs is investing heavy in new technology and will benefit greatly from this future, making its goals easier to achieve. This is the closest to Jacobs preferred future.

Look for:

- Disrupting technology (6G, AI, Fuel cell, unknown)
- Advances in 3D Printing
- Mixed use zoning

Construction Smartens Up

10%

60%

5%

25%

Why 25% - Defensive

Jacobs will be the frontiers of the new segment, but it's clear that new follow-up contenders will emerge before long. In order for Jacobs to remain competitive in the market, it must maintain a super-gap from the rest of its competitors.

Look for:

- Preempting key large customers and partners
- Industrial standardization of own technology
- Developing unique technology at an unmatched speed

→ Shrinking

Biz Process

Adversarial ↓

New Tech Competitors

GOAL 1 By 2026, 80% of Jacobs new projects are 100% Net 0

Strategy

Invest heavily in net 0 business ecosystem(ex.partners), supply chain(ex.supply network), and new sustainable materials discovery



Relation to current plan

Jacobs has a Climate Action commitment to:

- 100% renewable energy for business operations
- Net Zero for business operations and business travel
- Carbon Negative for ops and business travel by 2030

Measures

- Revenue from 0 carbon projects
- Net carbon scores for each project
- % of renewable materials used in the project
- Amount of non-renewable energy used in construction and logistics

Jacobs achieved their goal of Net Zero Carbon Emissions and 100% Renewable Energy in December 2020. The next step towards a more sustainable future is to push/help others do the same and become the leader in sustainable construction.

Launched Pledge to Action Campaign which strives for immediate action to address the climate emergency

July 2021 Introduced PlanBeyond 2.0 Strategy with six sustainable business objectives that are aligned with the UN SDGs

GOAL 2

Start new technology service offering based on Jacobs' construction IP and obtain 5% of revenue from service by 2027

Strategy

Invest in creating and owning industry emerging technology



Jacobs currently relies heavily on the IP obtained through M&A and strategic partnerships related to technology and innovative solution capabilities. Instead, Jacobs should invest and support internal enterprise technology initiatives. Jacobs should also try to acquire tech/innovation companies rather than form strategic partnerships.

Relation to current plan

March 2021 Jacobs takes 65% Stake in PA Consulting, a leading innovation and transformation consulting firm

November 2020 Jacobs Teams with Biomimicry 3.8 to Deliver Sustainable Designs with Nature in Mind

Jacobs buys CH2M and works with National Graphene Institute

Measures

- Number of patents filed and awarded
- Recurring revenue dollars for IP licenses
- Number of successful patent infringement settlements
- The proportion of sales from tech integration



Should Jacobs risk existing business to be leader in lowest carbon construction?

Be bold and fully commit

IMPORTANCE

Jacobs could lose clients to their competitors. This could cause falling stock prices, loss of reputation, and financials would be impacted. However, as the grace period for the application of the UN's Principles for Responsible Investment (PRI) ends in 2021, almost all multinational companies are forced to do ESG management.

Moreover, due to the UN PRI, public, defense, and government customers will have to maintain business partnerships with zero carbon technology-based operators as a national policy.

Our Foresight team strongly suggests that Jacobs enter the market earlier than its competitors and become a game dominator with full control over the entire market by making the services, platforms and technologies developed by Jacobs industry standard.

WIND TUNNEL

Doing Just Enough	New Tech Competitors	Manufacturing Model	Construction Smartens Up
+	+	+	+
Feasible	Feasible	Feasible	Feasible



ACTION STRATEGY

Gradual Shift: Relocate and augment in-house resources and suspend follow-up projects and order activity.

Global Ecosystem: Discover partners/suppliers, merge with key tech partners, and support activities for existing partners and subcontractors to enable zero carbon business.

Net 0 Dominance: Implement proof-of-concepts/pilots, and lead the industry standards for technology and service systems.



NEXT STEPS

Research how many companies have made net-zero commitments as well as the projected growth of additional commitments.

Project the amount of potential business loss.

Develop an interim plan to compensate for potential loss.



OWNERS

Leading: CEO and Executive Management, dedicated task force sponsored by the CEO

Execution: R&D, business development, service/product planning, SCM, investment, PR, IR

David Strader- VP of Energy Transitions

Sustainable Stewardship



How can Jacobs integrate its business with leading tech innovation?

IMPORTANCE

Although they have innovation capabilities in their other businesses, Jacobs is currently lacking in construction IP. If Jacobs becomes a leader in construction technology, they have the opportunity to increase margins, secure more contracts, attract top talent, create synergy with their other businesses, and redefine tomorrow's industry standard.

However, if Jacobs cannot successfully integrate construction with innovation, they risk higher long term costs and getting left behind by the competition. Technology innovation is costly however, not just with up-front costs but in operations and maintenance.

To be successful, Jacobs needs to commit to and support any enterprise technology initiatives.

WINDTUNNEL

Doing Just Enough	New Tech Competitors	Manufacturing Model	Construction Smartens Up
+	++	+	++
Feasible	Successful	Feasible	Successful

Grow in-house innovation capabilities, collaborate internally, take on innovative projects



ACTION STRATEGY

Become the Technology Leaders: Create and fund a Construction Technology CofE.

All in: Take on specialized and experimental construction projects that require a high degree of innovation

Nurture talent: Encourage workers to work on side projects that they feel will benefit Jacobs.

Work together: Take on projects that require high levels of collaboration between Jacobs businesses.



NEXT STEPS

Research other tech CoEs.

Create job descriptions with a goal of hiring within and attracting new talent

Form special business development task force looking at bold new projects

Create IP research team

Create innovation board with leaders from construction business and representatives from other businesses



OWNERS

Leading: Office of the COO, Jed Van Dyke-VP of Transformation and Innovation

Stakeholders: Ron Beckman-VP of Technology, Jan Walstrom - VP of Strategy & Solutions,

Execution: Laura Reed - Global Program Director

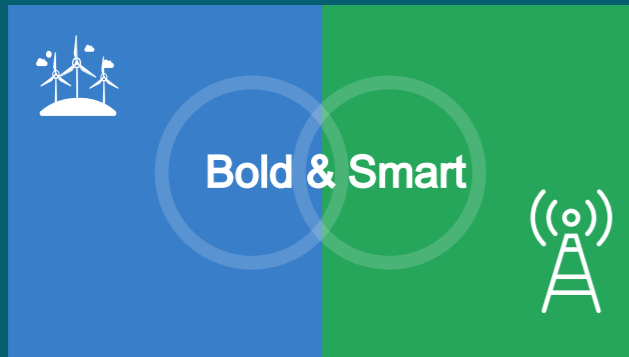


Action Initiatives

We have identified four immediate action initiatives that Jacobs can start today to move the visions forward.

Each initiative is created to kickstart Jacobs' strategy and build a foundation for future projects.

Estimated cost: \$2.1M



For details on each initiative, see the full report.

Initiative
1
Q2 2022

Hire a foresight consultants to forecast the mid- to long-term market

Objective: To ensure the strategies and plans continue to take in consideration latest trends and potential developments in the industry so Jacobs can pivot if needed.

Team Leader: VP of Strategy & Solutions
Team Members: Foresight Project Manager

Initiative
2
Q4 2023

Create pilot for Center of Excellence

Objective: To create a core team of engineers, business developers, and designers to develop rapid prototypes, generate ideas, and prove CoE viability both creatively and financially.

Team Leader: VP of Technology
Team Members: HR, Tech Directors, Biz Dev, Legal

Initiative
3
Q2 2022

Develop an Emerging Intellectual Property plan

Objective: Establish and implement Jacob's IP operation strategy to effectively secure an IP portfolio and maintain a business competitive advantage as an industry leader.

Team Leader: VP in Intellectual Property
Team Members: Legal Affairs, External Collaboration, Investment, R&D Strategy, Licensing, Human Resources

Initiative
4
Q2 2022

Audit Jacob's current net-zero capabilities to identify weak areas to invest in

Objective: Establish investment plan that would most effectively support net-zero ambitions across partners, materials, supply chains, technologies, etc.

Team Leader: VP of Energy Transitions
Team Members: Business Development, R&D, Investment