



23-26 JULY 2023

Melbourne Convention
and Exhibition Centre

Early planning

for successful projects



Case study

Extreme

San Francisco-Oakland Bay Bridge

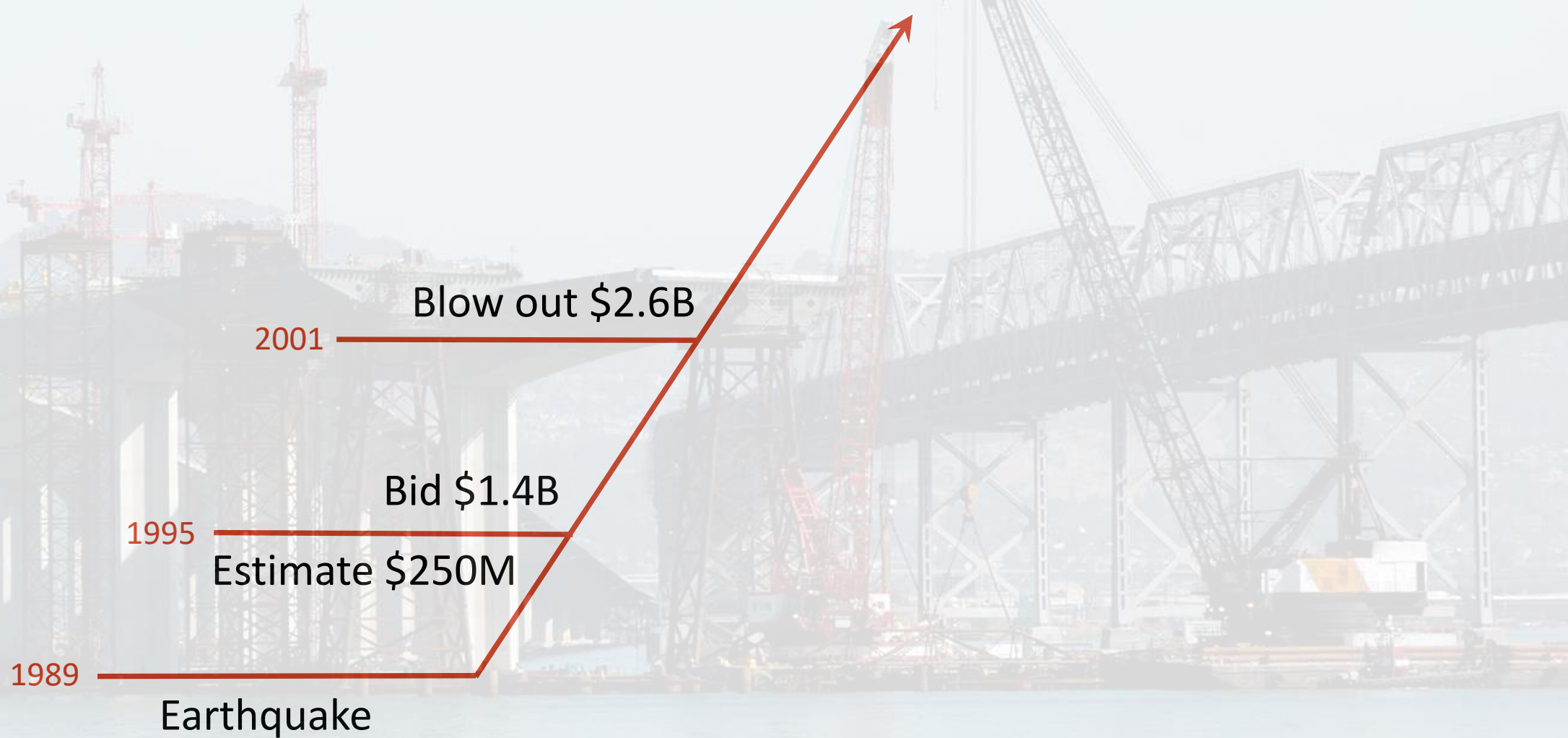


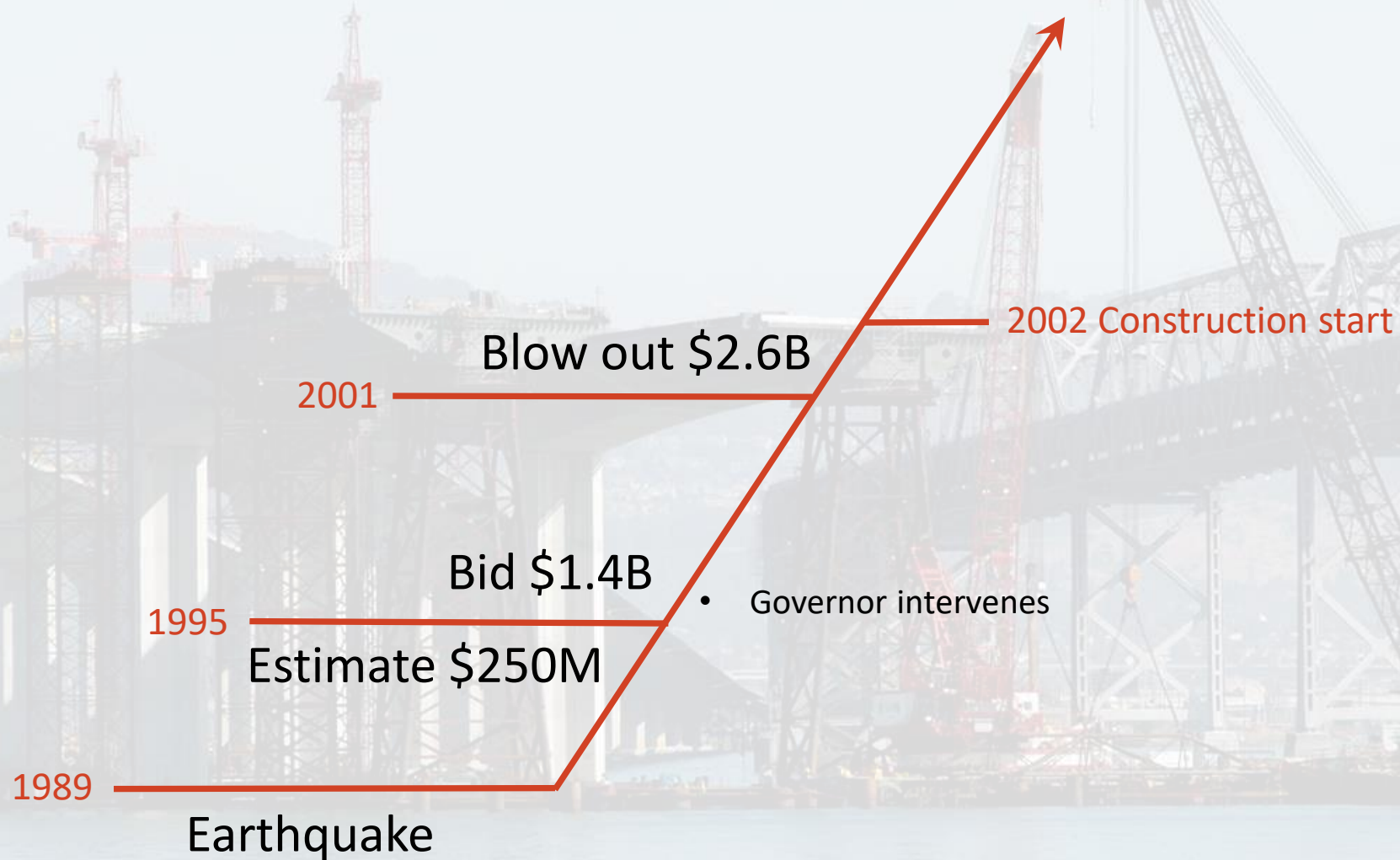


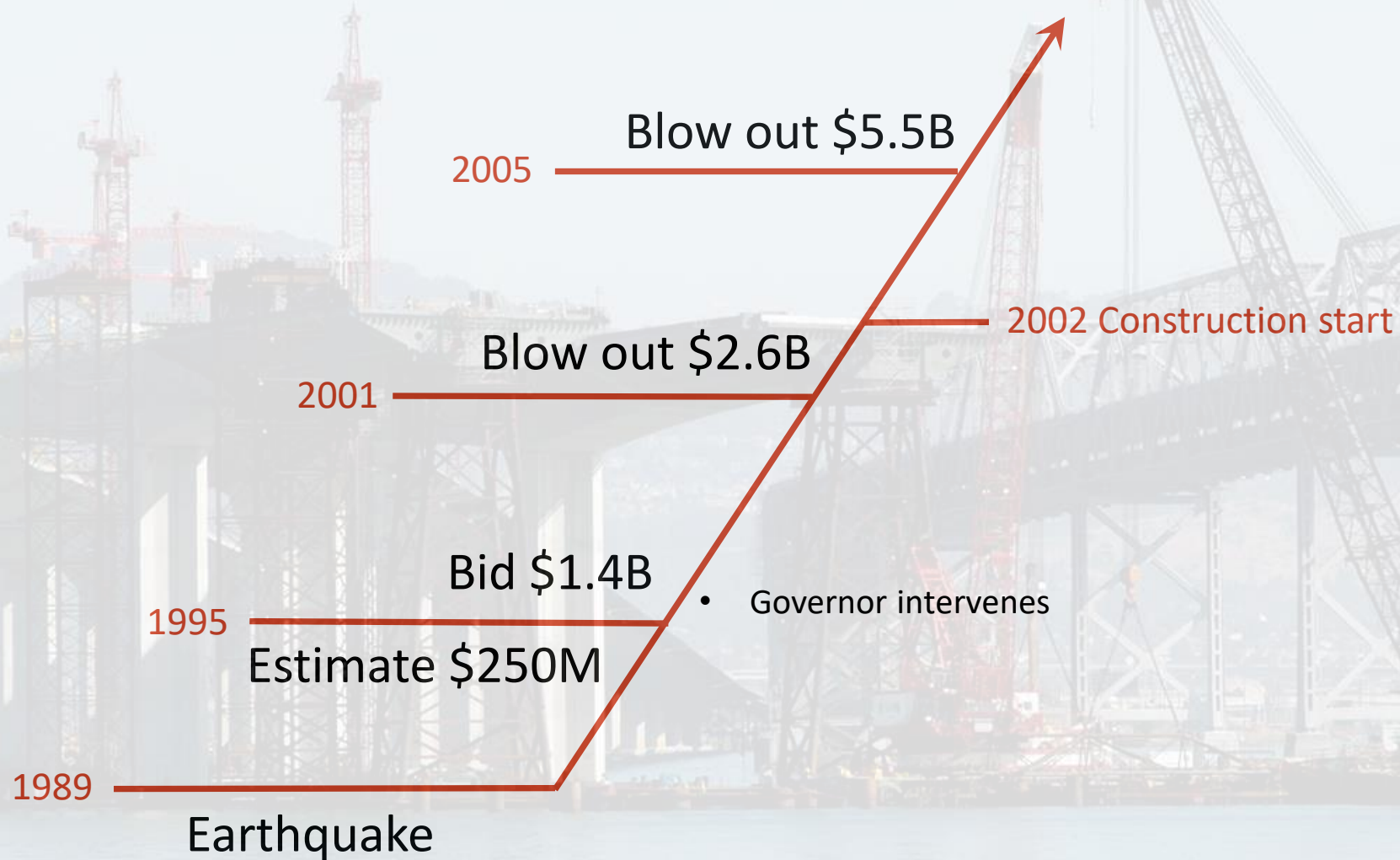
1989

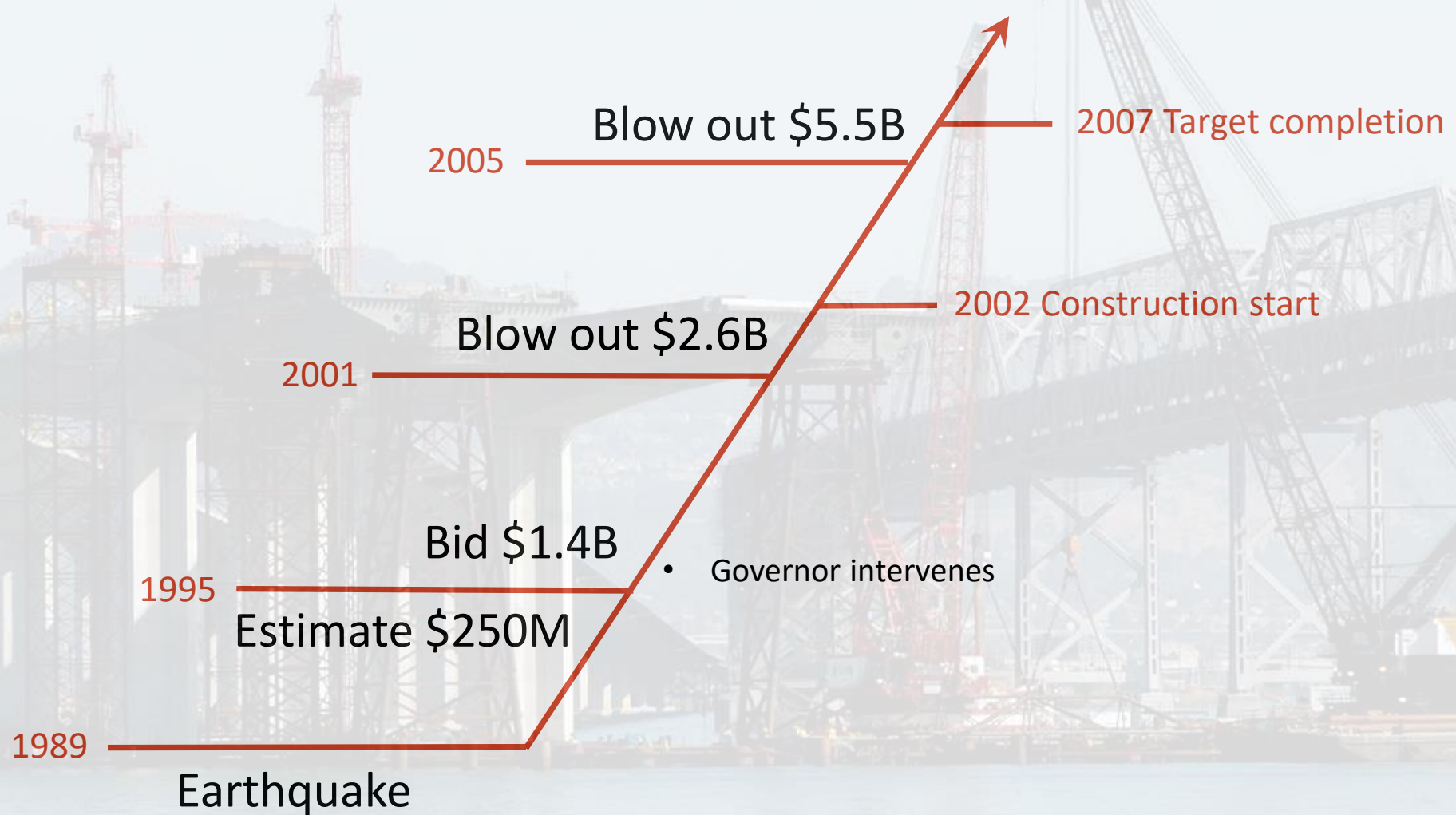
Earthquake

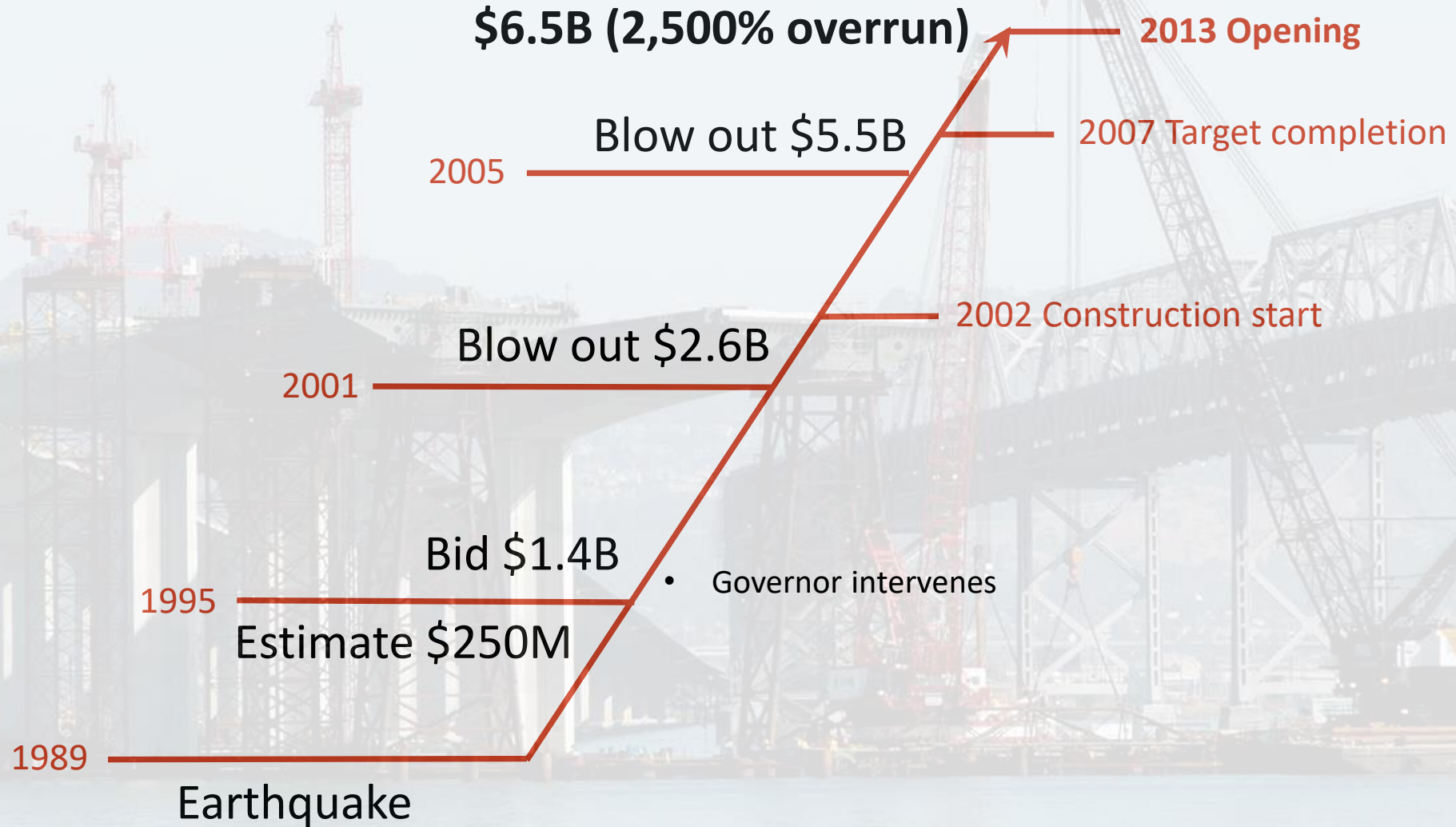












How does that happen?

San Francisco-Oakland Bay Bridge



Wiley

Food and Beverage



Advisory services feasibility
Site selection
Master plan



Design facilities



Engineer processes



Deliver facilities
Construction
Project management

How do I design a food processing factory?

AI – ChatGPT Provided eleven steps

“Remember, designing a food processing factory is a complex task, and it's crucial to consider food safety, quality, efficiency, and regulatory compliance throughout the process. Seeking professional guidance and expertise will greatly contribute to the success of your project.”

Topics



- Brownfield vs Greenfield
- Master planning and budgeting
- The importance of early planning
- Rookie mistakes

Definitions



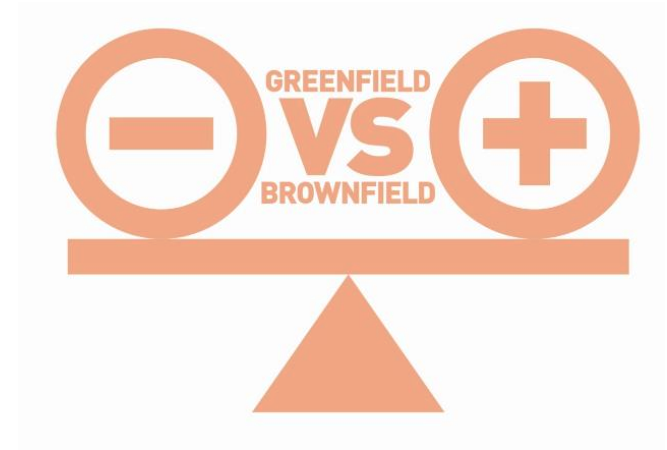
Brownfield:

Site with existing buildings/ structures

Greenfield:

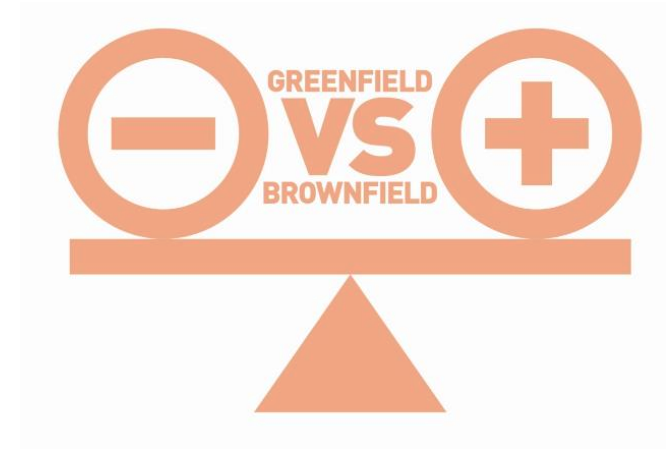
Site or part of site that is vacant

Fact or fiction?



“Brownfield will be our best option to save cost”

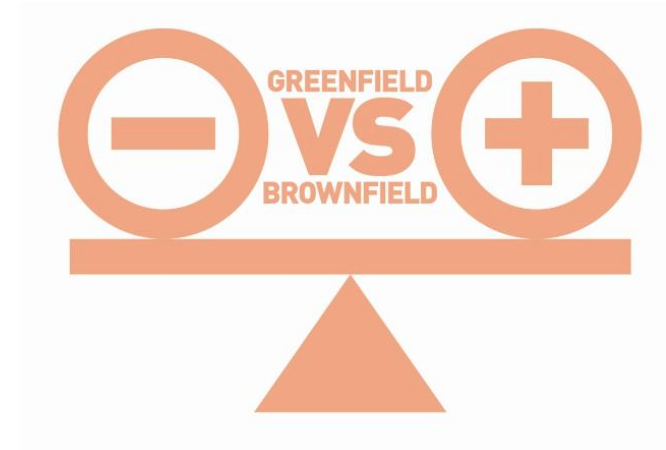
“Brownfield will be our best option to save cost”



Brownfield benefits

- Existing infrastructure - save time and cost
- Existing approvals / avoid DA
- Earlier possession and operation
- Location advantages

“Brownfield will be our best option to save cost”



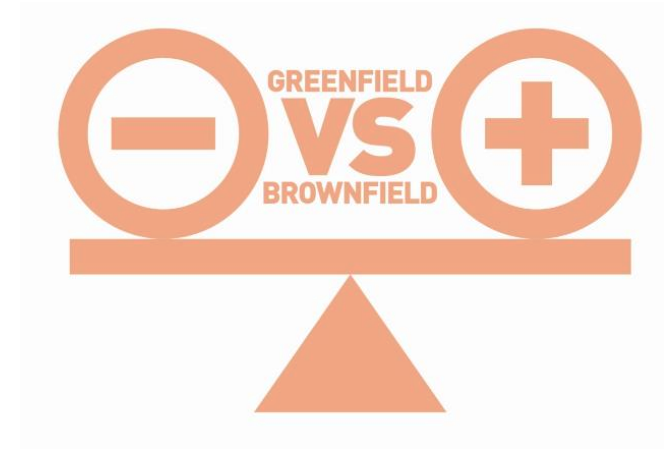
Brownfield benefits

- Existing infrastructure - save time and cost
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Greenfield benefits

- Purpose built
- Flexibility and less compromises
- Location advantages – road network
- New and shiny presentation

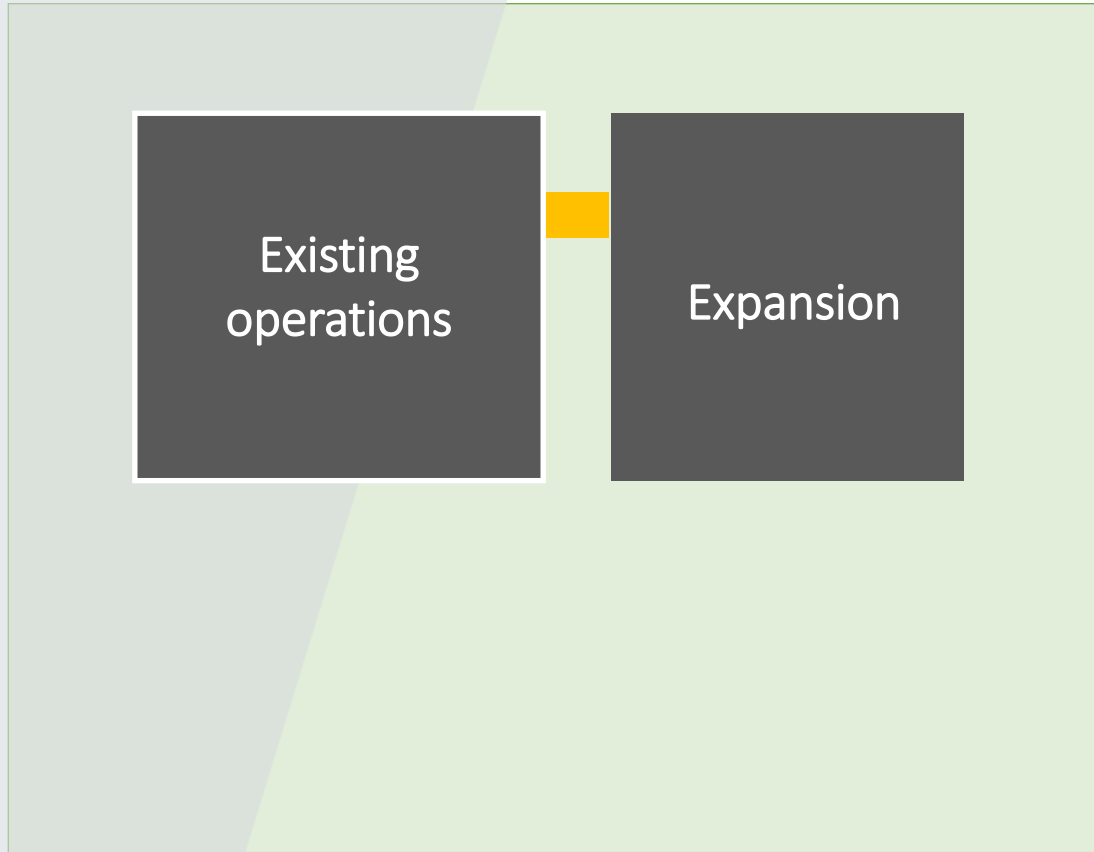
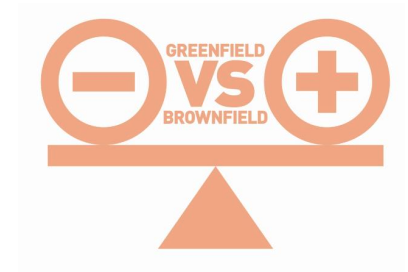
“Brownfield will be our best option to save cost”



The costs can add up....what is the retained value?

Trade	Cost
Demolish floors – drainage and cost new floors. Freezer floor, PT floor?	\$\$\$\$\$
Strengthen roof – ceilings and services	\$\$\$\$
Roof height – too high / too low	\$\$\$\$\$
Create cold chain docks	\$\$\$
Add service gantries	\$\$\$\$
Add / move columns - footings	\$\$\$\$
Add / upgrades - fire services	\$\$\$
Add staff amenities	\$\$\$\$
Upgrade HV and electrical	\$\$\$\$\$\$
Total cost	\$\$\$\$\$\$

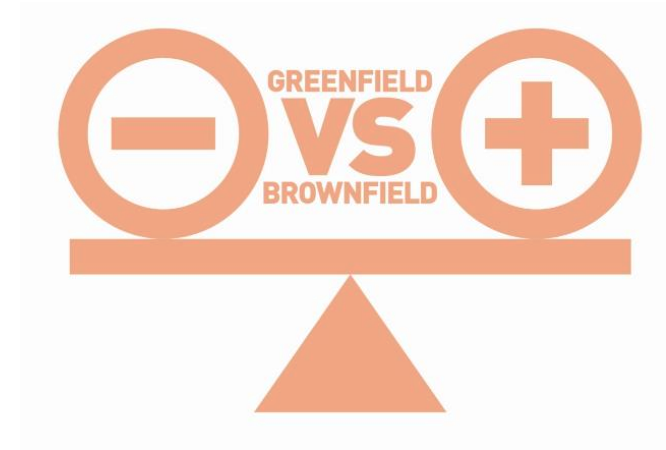
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Weigh it up...

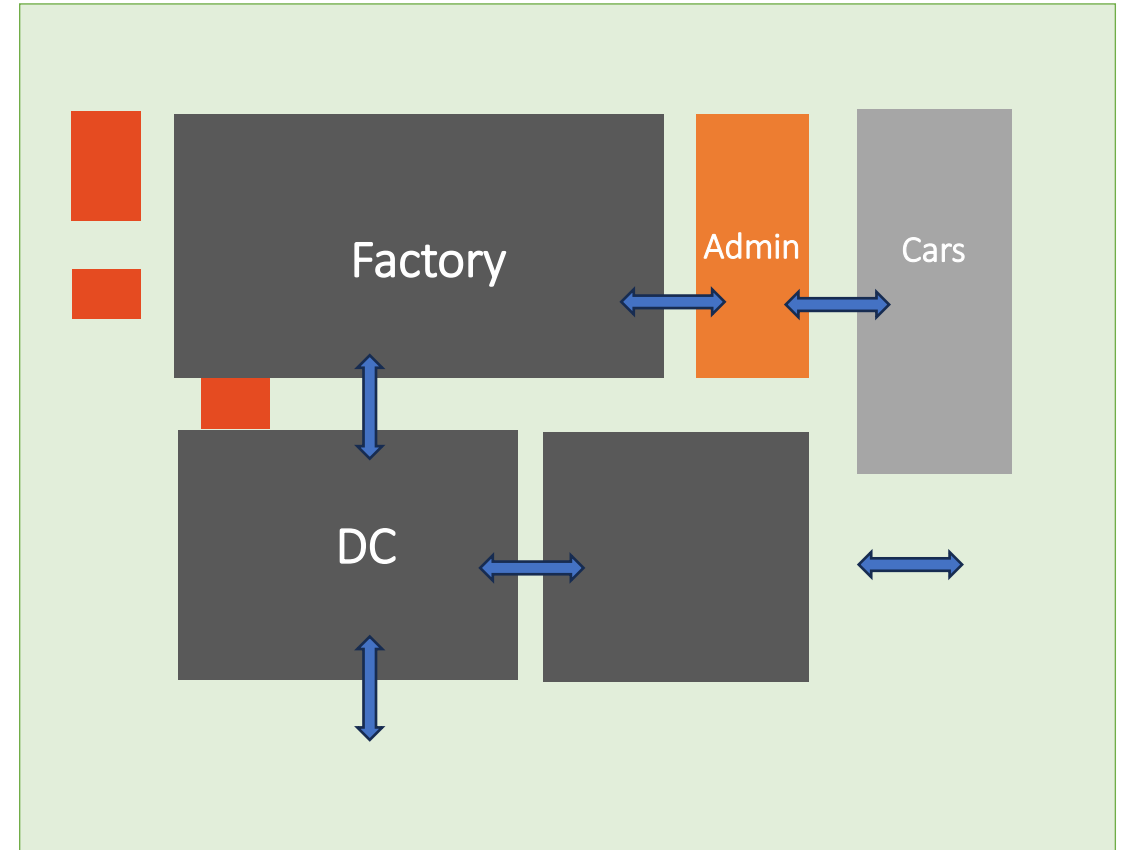
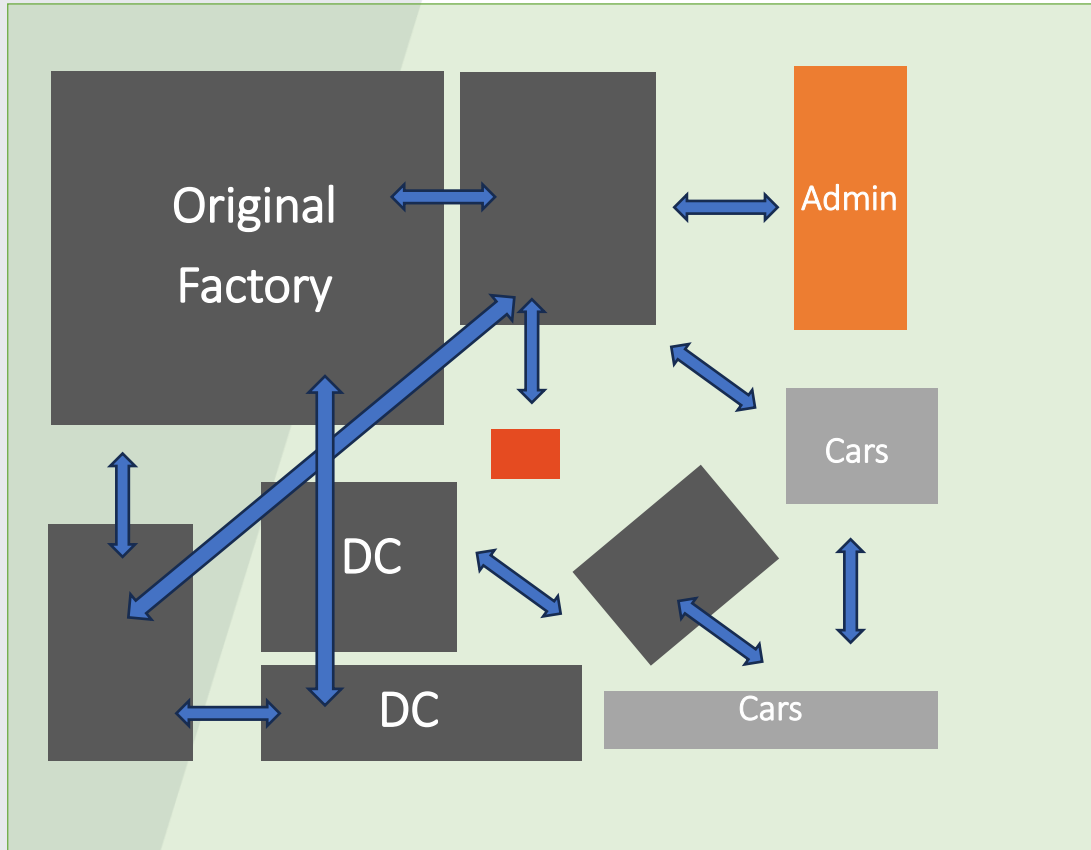
- Value and Compromises
- Staging - how many and \$\$
- Risks of unknowns and costs – structure, services, site contamination
- Leasing, funding, make good

Due diligence before purchase/lease



*“Have a master plan – start with the end
in mind”*

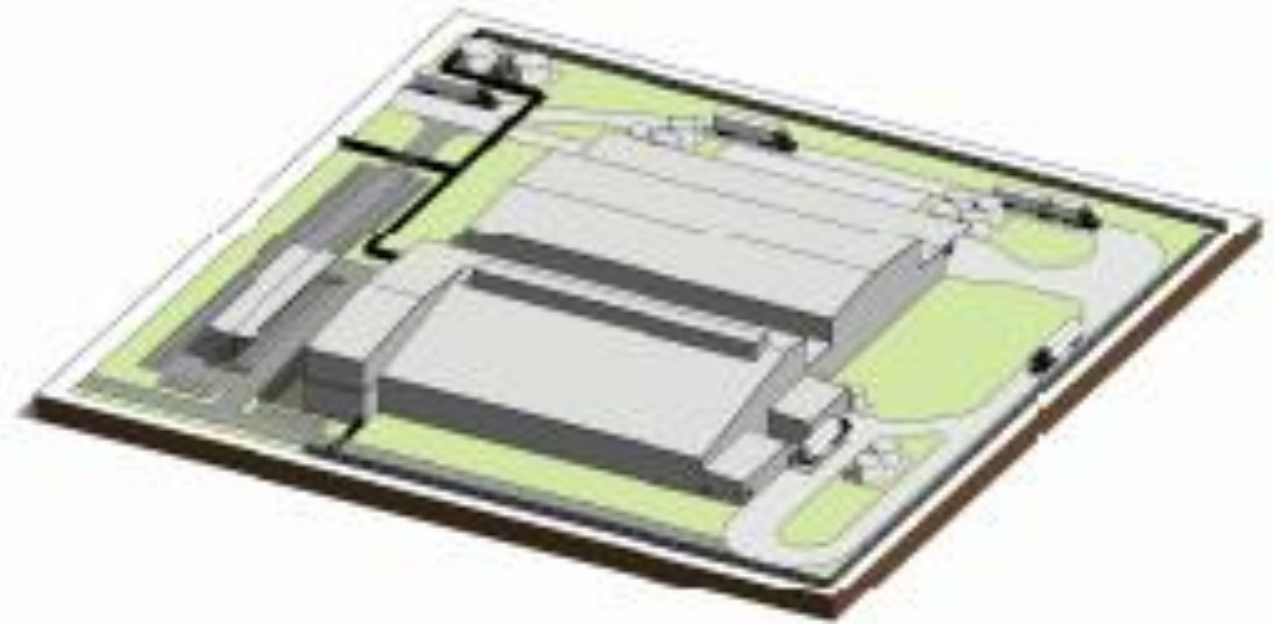
Have a master plan – start with the end in mind



Have a master plan – start with the end in mind

5 Key considerations

1. Plan to max – land and building
2. Functional Areas – now and future
3. Blocks and Flows – inside and outside
4. Utility location, capacity and growth
5. Compliance – planning and Building Codes



3D VIEW

Importance of early project planning

Discover phase



Importance of early project planning

Discover phase

7 Key actions	Common problems
1. Establish clear objectives	Objectives change – PPR not documented
2. Performance criteria - Volumes and growth	Lacking growth data / ambitious growth
3. Basic scope, technology, equipment automation	Not investing in early engineering
4. Timeline	Unrealistic expectations. Decision times
5. Inputs – utilities, people, materials	Insufficient due diligence
6. Risks – planning laws, geotech, survey, as-existing	Insufficient ‘risk digging’
7. Business case – early order of cost	Unrealistic cost expectations – source of estimate?

Chat GPT “Test and iterate”:

Validate your concept

- *Once the design is finalized, it's important to prototype and test the processes and workflow before full-scale implementation.*
- *Identify any bottlenecks or inefficiencies and make necessary adjustments to the design.”*

Test and iterate:

Validate your concept



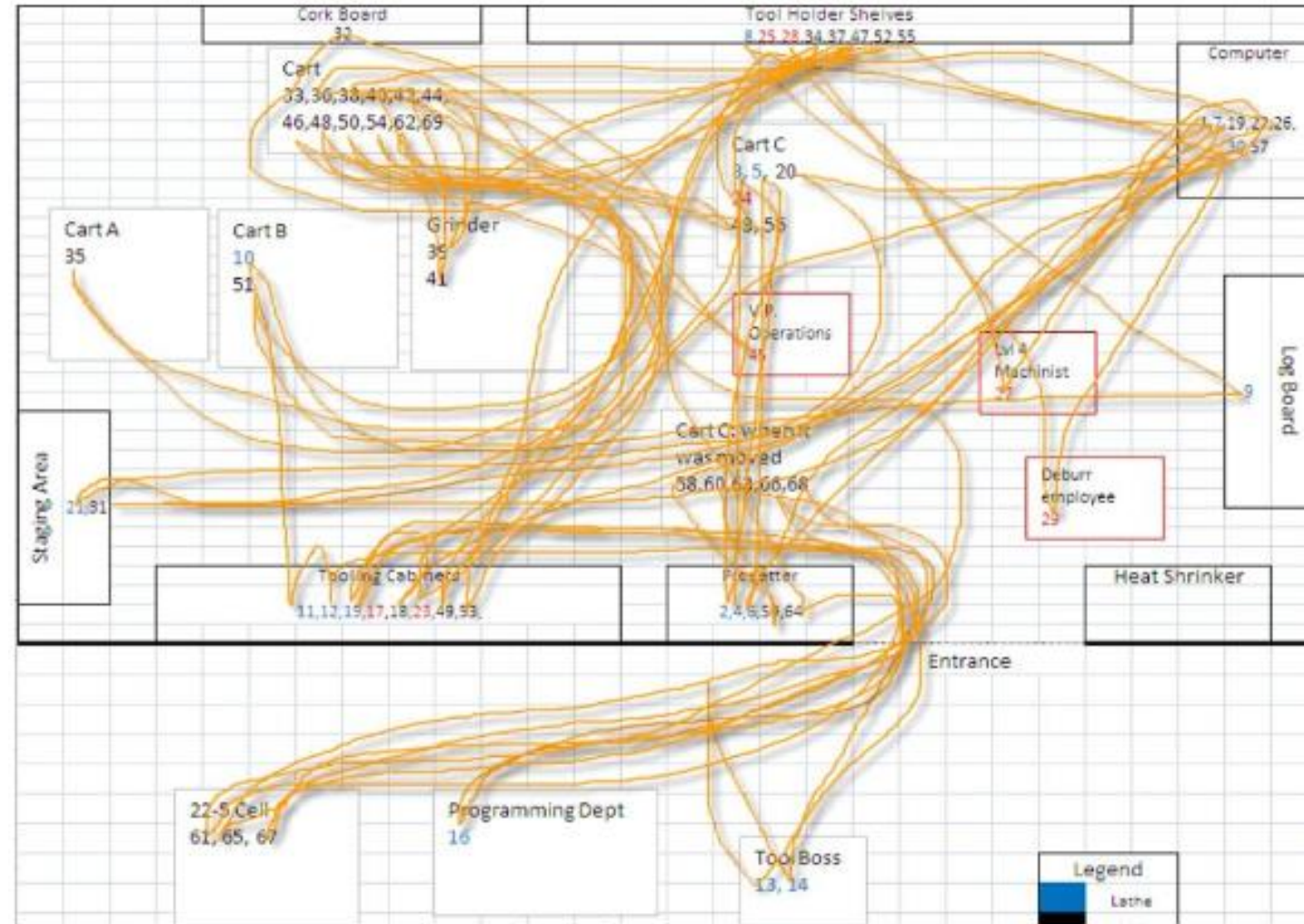
Test and iterate:

Validate your concept



Test and iterate:

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Test and iterate:

Validate your concept



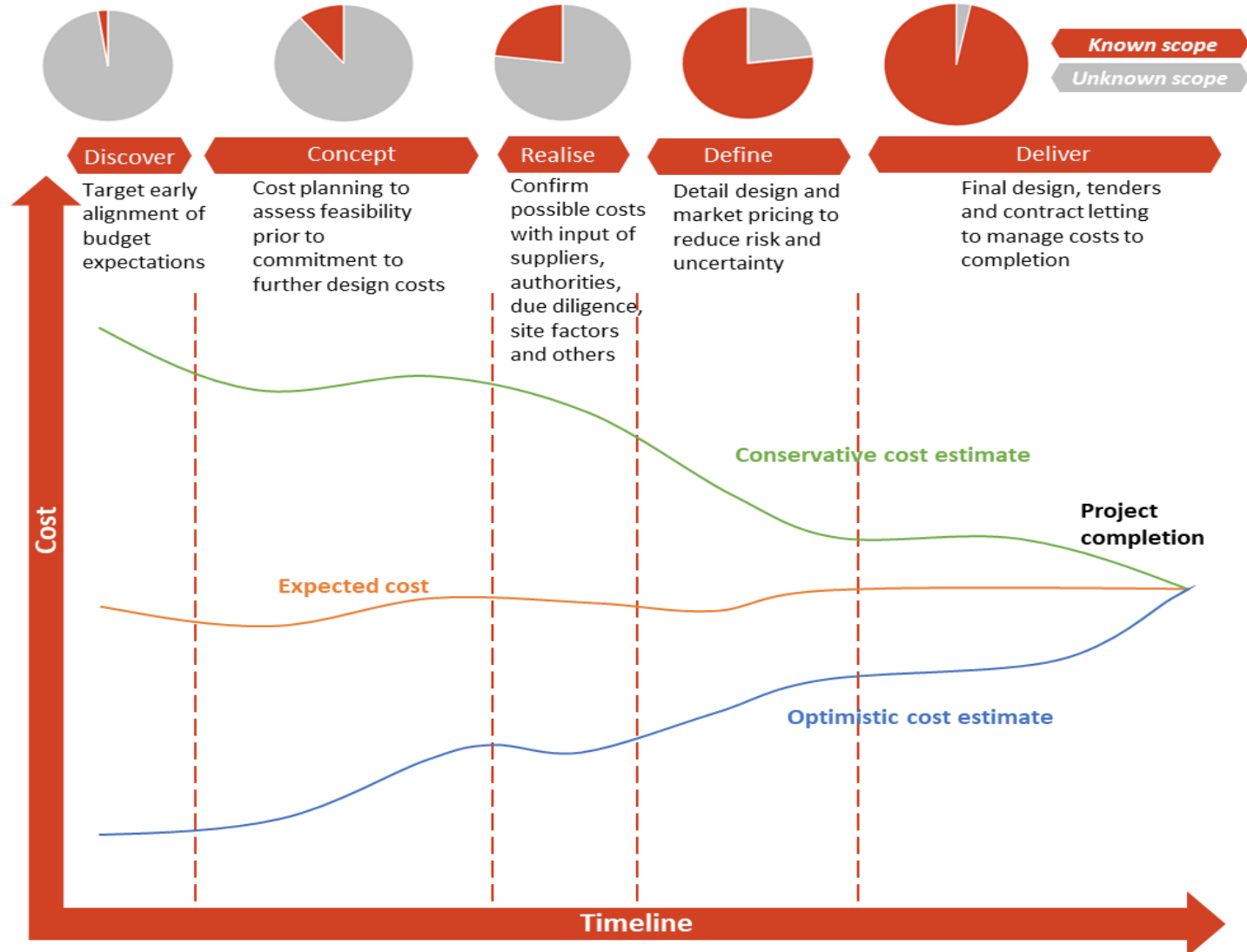
Image: Siemens Process Simulate

“Give me an early budget, but I
won’t hold you to it”

Cost expectation management

Cost as the project matures

Pie diagram illustrating how *known scope* replaces *unknown scope* through each phase.

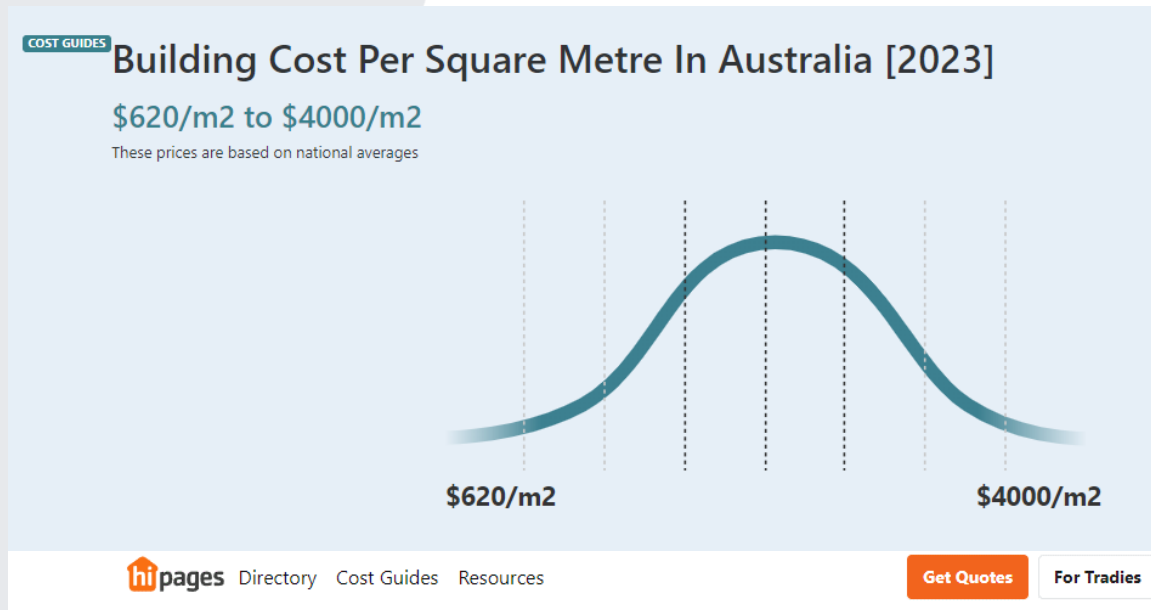


Early order of cost

Similar projects – beware of the variables, escalation, location factors, complexity

Cost/m2 – beware the exclusions, provisional sums, scale impacts

Cost guides - Rawlinson



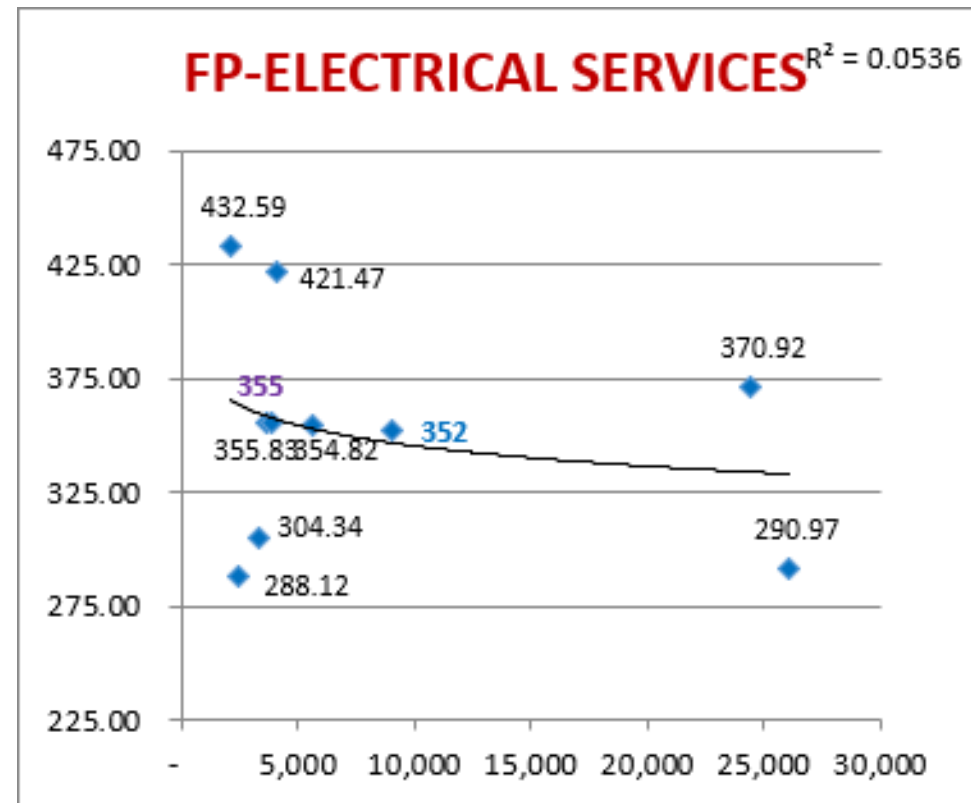
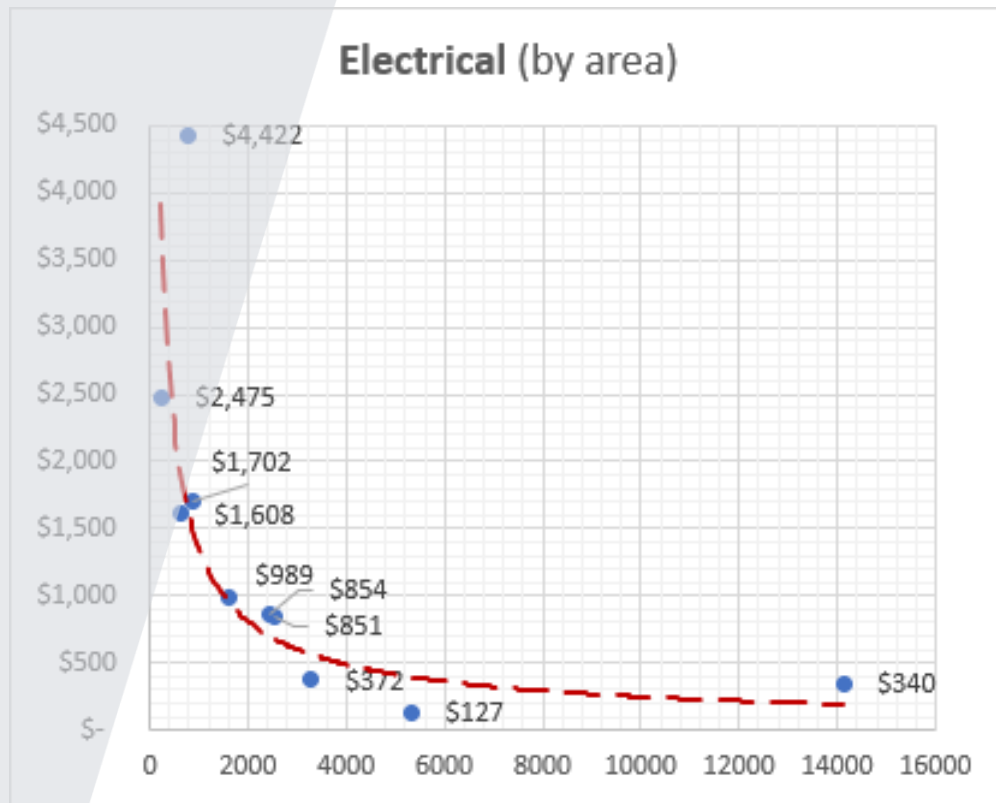
COST OF A CLEANROOM PER SQUARE FOOT

The cost of a clean room can range from less than **\$100** to more than **\$1,000** per square foot. Although you can find both lower and higher prices, more than 90% of projects typically fall between these amounts.

Early order of cost

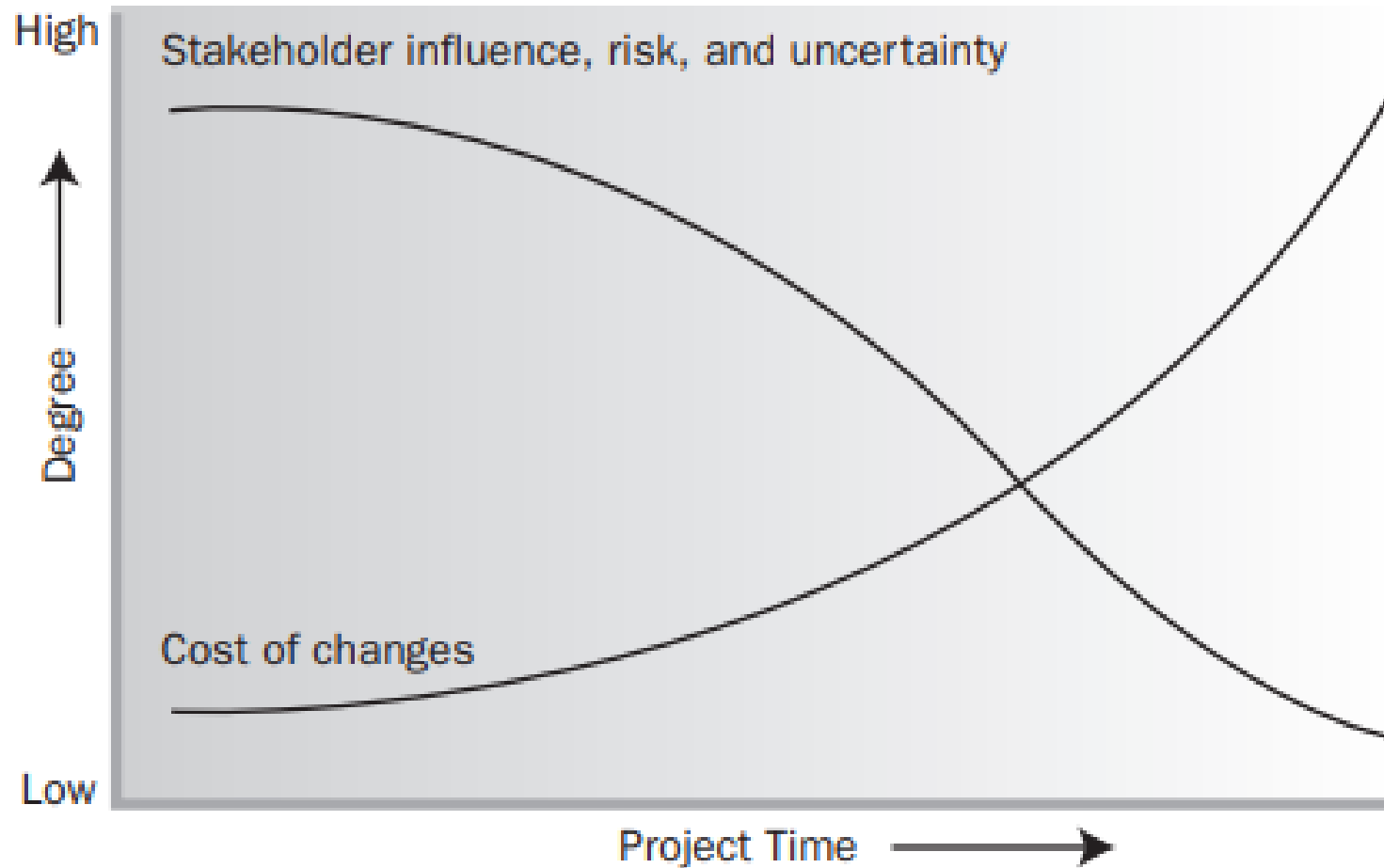
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Cost management

Cost Management – time for influence



Have a framework

Project management knowledge areas



Scope management

Scope creep is the enemy – 6 ways to avoid it



Integration



Comms
Stake-
holders



Must have
versus
nice
to have



Your scope
and
their scope



Design –
test the
concept



DD

Avoid
changes

Procurement management

- Consultant led design + bid + build (EPCm)
- ECI contractor led – D&C (EPC)
 ...but design to 20% 50% 80%?
- Turnkey equipment supplier incl civil works

Who is best to manage the risks? (experience and capability)

What contracting model suits the risks? (time, cost, performance)

Procurement management

How to choose which option is best fit

Factor importance	Consultant led – EPCm Competitive tender	Contractor led - EPC Collaborative model	Supplier - turnkey
Cost risk management	Consultant Risk to owner	Contractor Shared risk/share savings	Supplier
Time	Slower	Faster	Faster
Ops Interface complexity	Less flexible - interfaces specified?	Collaborative	Within supplier agreement
Performance	Risk to owner	Risk allocation	Risk to supplier
Reliance on Solution	Consultant	ECl practical	Suits supplier offer

Five key takeaways

1. Thorough due diligence on brownfield v greenfield
2. Have a master plan – start with the end in mind
3. Don't rush early planning phase (pre-concept)
4. Use extreme caution using \$/m² in decisions
5. Have a framework for your projects:
 - Stakeholder management – avoids scope and cost creep
 - Document your requirements – PPR
 - Procurement plan - choose appropriate procurement to manage risk
 - And more...

“Seeking **experienced** professional guidance and expertise will greatly contribute to the success of your project”

Wrap up

- Budget expectations?
- Allowance for cost escalation?
- Sufficient due diligence?
- Experience of the team?
- Procurement method -ECI approach?

San Francisco-Oakland Bay Bridge



Andrew Newby

Advisory Services Director

- www.wiley.com.au
- 0417 714 254
- andrew.newby@wiley.com.au
- www.linkedin.com/in/andrewfnewby/

