25TH ANNUAL

25TH LCI CONGRESS
OCTOBER 24-27, 2023

Getting Decisions That Stick in Design & Construction

Kurt Neubek, FAIA, CFM, CSSBB – Principal, Page
Sarah Moser, RA, EDAC - Training Coach Strategist, Page

25 YEARS OF LEARNING: SUPERCHARGE YOUR LEAN JOURNEY IN THE MOTOR CITY

October 24, 2023

Instructor's Intro

Kurt Neubek

FAIA, FHFI, CFM, LEED AP, EDAC, CSSBB

Principal / Senior Director / Lean Advocate

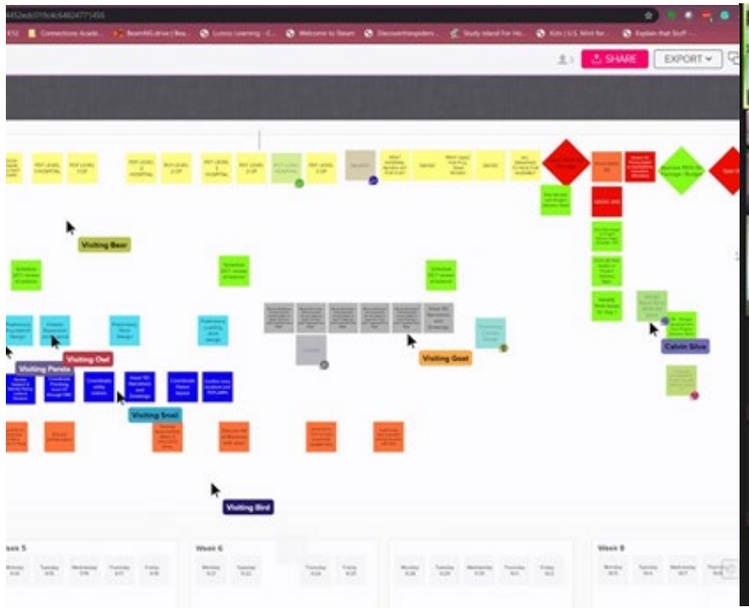
Page/

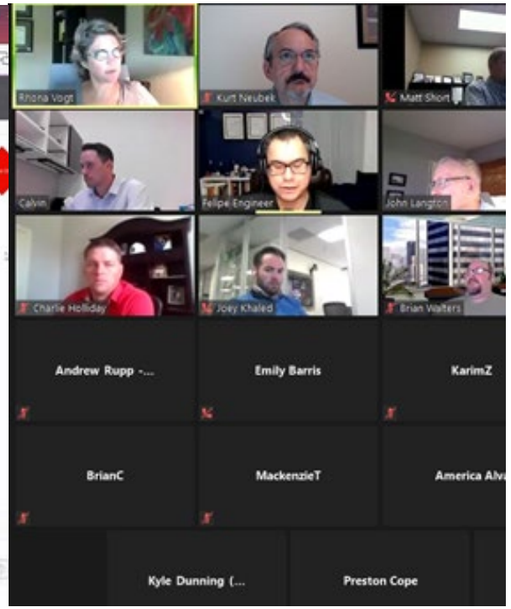
ARCHITECTURE / ENGINEERING / INTERIORS / PLANNING / CONSULTING
Albany / Albuquerque / Atlanta / Austin / Boston / Charleston / Dallas / Denver / Dubai / Houston / Los Angeles / Mexico City / Orlando / Phoenix / Raleigh / Richmond / San Antonio / San Francisco / Tampa / Washington DC

Getting Decisions that Stick in Design and Construction (Part 1)

By Kurt Neubek / March 15, 2021

The design process is an organized method to gather the thousands of decisions needed to design a building, ranging from the big picture vision and architectural image to excruciating details about every system and every surface in every room. Despite having a well-established process honed over centuries, too many projects ...





Instructor's Intro

Sarah Moser
RA, EDAC
Training Coaching Strategist

Page/

ARCHITECTURE / ENGINEERING / INTERIORS / PLANNING / CONSULTING
Albany / Albuquerque / Atlanta / Austin / Boston / Charleston / Dallas / Denver / Dubai / Houston / Los Angeles / Mexico City / Orlando / Phoenix / Raleigh / Richmond / San Antonio / San Francisco / Tampa / Washington DC

EQ-i 2.0 CERTIFIED

EQ 360 CERTIFIED

Course Description

Even when you are using all of the best practices in Lean design and construction, do the so-called “decision-makers” too often delay needed decisions or make last-minute changes--costing everyone time and money? **Indecision is one of the worst forms of waste** in design and construction, yet you may have more influence over it than you realize.

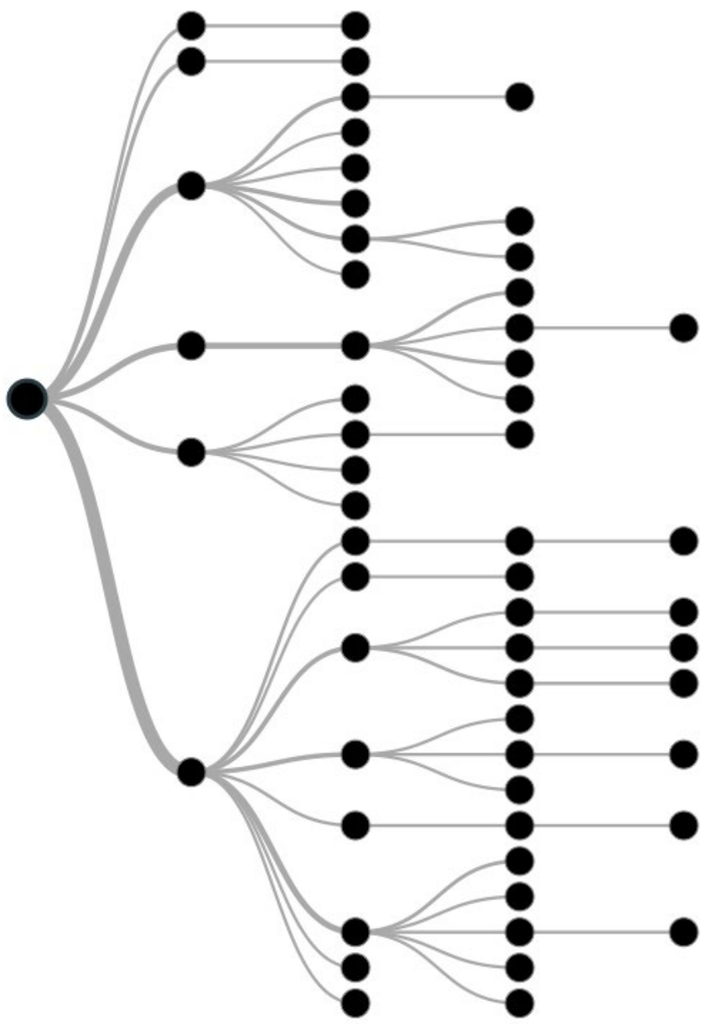
In “Getting Decisions That Stick!” you will learn ten techniques you can use today to reduce costly changes by helping others make better-informed decisions. Topics include the psychology of decisions, understanding how personality types impact decision-making, the importance of going to Gemba, analyzing data, simulation modeling, mock-ups, plus/deltas, A3s, and many more. Don’t miss this interactive and highly acclaimed presentation.

Learning Objectives

- Learn about the psychology of decisions and decision-making styles.
- Assess the types of information most people need to make decisions.
- Examine ten specific techniques to foster informed decision-making.
- Identify steps that any project participant can take to improve decisions.

Outline

1:00	Opening Remarks, Group Introductions
	1/ Why Facilitating Decisions Adds Value
	2/ What Makes a Decision Good or Bad?
	3/ The Psychology of Decisions and Decision-making Styles
	4/ What Do We Need to Make Decisions?
~2:45	Break
3:00	5/ Ten Methods Anyone Can Use To Foster Informed Decision-making
	6/ Sample Tools and Techniques
	7/ Bonus: Behavioral Economics & Choice Architecture
	8/ General Discussion, Q&A, Plus/Delta
5:00	Adjourn



Administrative Items

- Exits
- Restrooms / Washrooms

Conditions of Satisfaction

- Have Fun!
- Ask Questions
- Contribute Your Own Lessons
- Other Suggestions?

Introductions

- ❑ Name
- ❑ Role
- ❑ Company
- ❑ Lean Experience
- ❑ Why This Course / What You're Seeking
- ❑ Memorable Childhood Toy or Game

1:00 Opening Remarks, Group Introductions

1/ Why Facilitating Decisions Adds Value

2/ What Makes a Decision Good or Bad?

3/ The Psychology of Decisions and Decision-making Styles

4/ What Do We Need to Make Decisions?

~2:45 Break

3:00 5/ Ten Methods Anyone Can Use To Foster Informed Decision-making

6/ Sample Tools and Techniques

7/ Bonus: Behavioral Economics & Choice Architecture

8/ General Discussion, Q&A, Plus/Delta

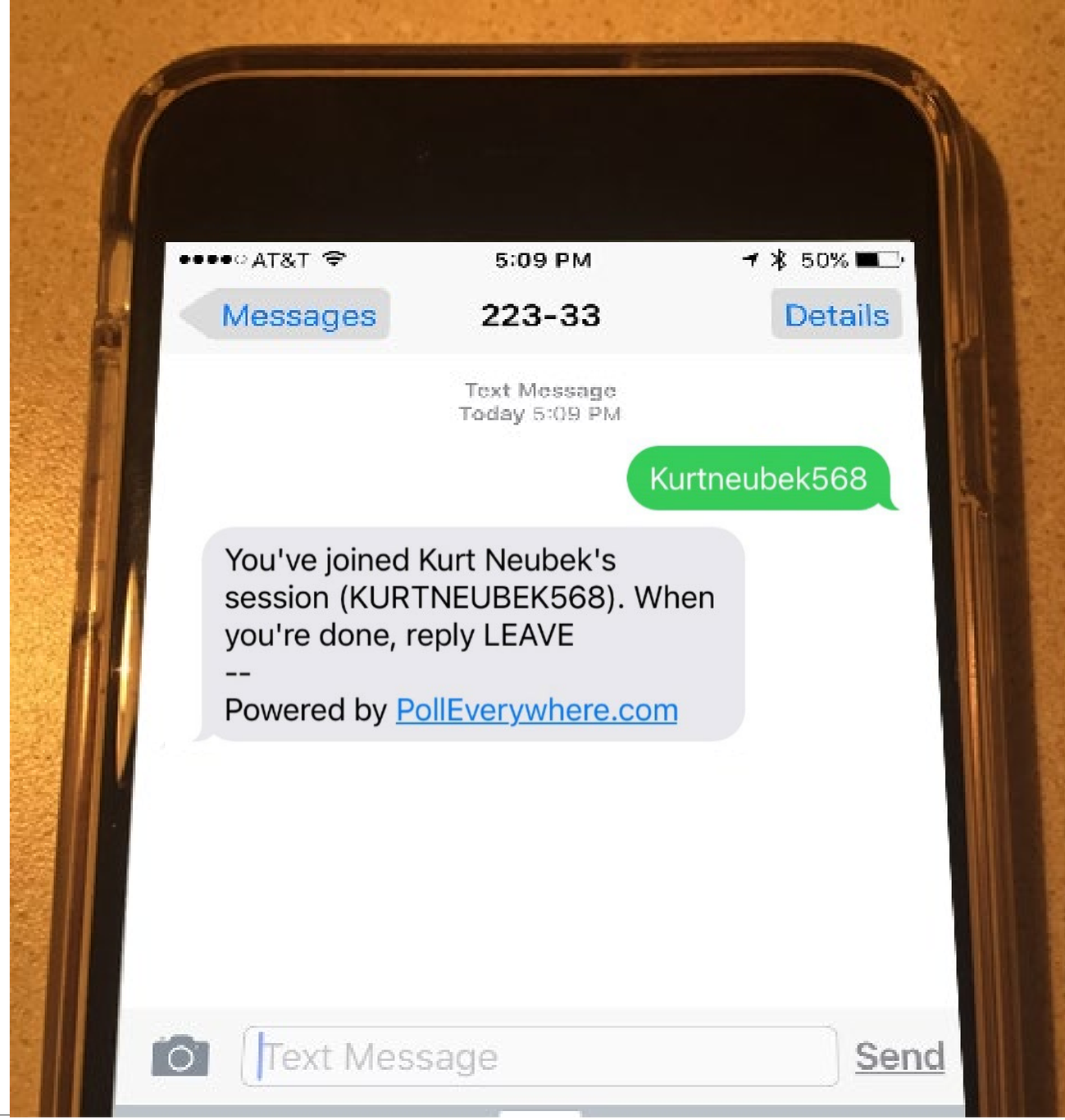
5:00 Adjourn

Time for a Poll

1)To join, text:
To (phone #): 22333
Message: kurtneubek568
(Send) (Upper or lower case)

2)On the next slide, to vote:
After seeing the question,
Text A, B, C, D, or E (Send)
(Upper or lower case.
You can only vote once.)

Polls are optional. Standard text rates apply.



How detrimental or costly are delays in decisions or late changes?

Lean systems recognize
8 Forms of Waste:

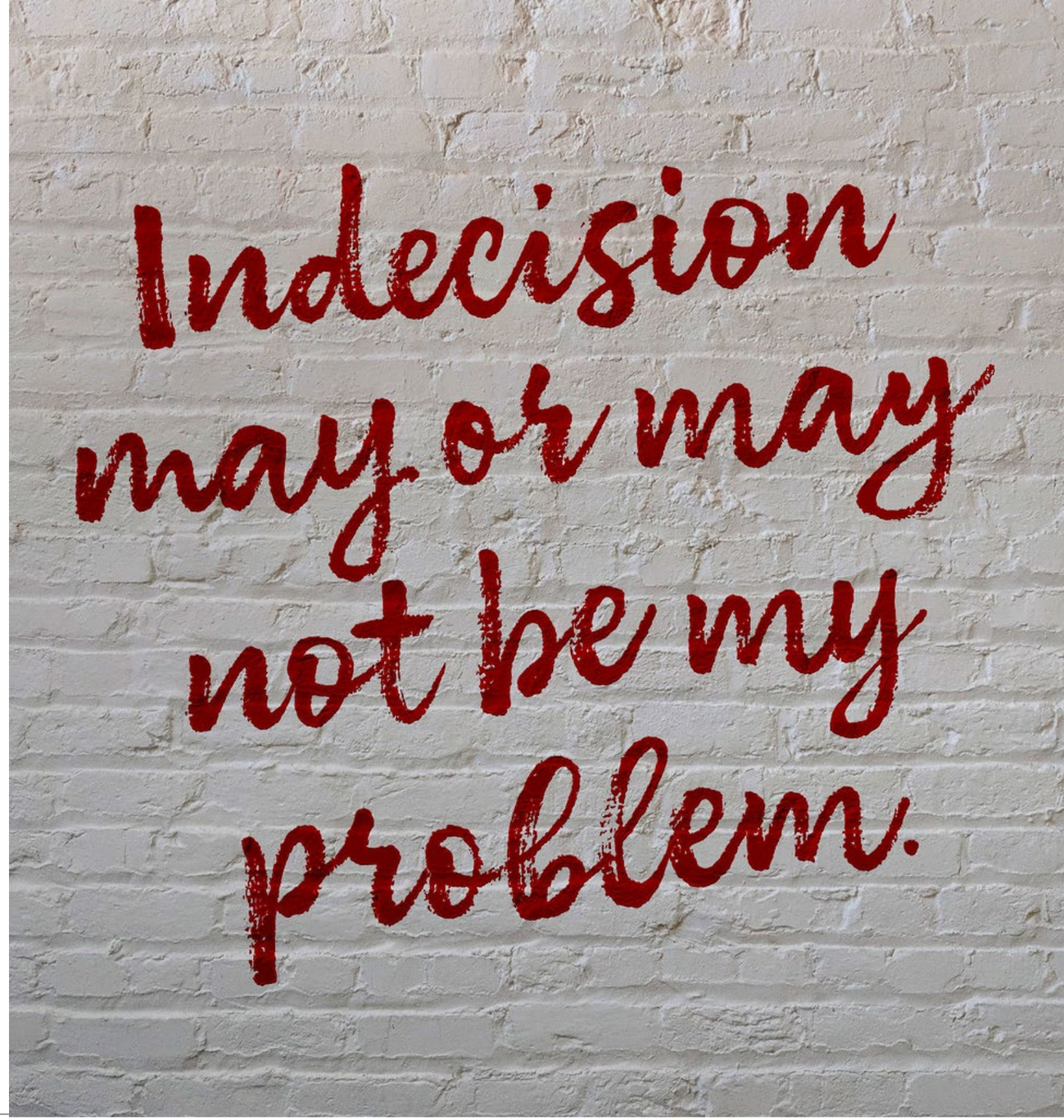
- **D**efects
- **O**verproduction
- **W**aiting
- **N**on-utilized Talent
- **T**ransportation
- **I**nventory
- **M**otion
- **E**xcess Processing

Jun Nakamuro
Certified Coach in Taiichi Ohno's Method of Lean and Kaizen

"The worst waste is the stagnation of decision making processes in top leaders."

Patrick Gray in Tech Decision Maker, September 12, 2013

“One of the great silent scourges of organizations is a culture of indecision.”



Forbes, March 11, 2016
"It's Not All About EQ: Study Suggests A New Balance Between Emotions And Intellect"

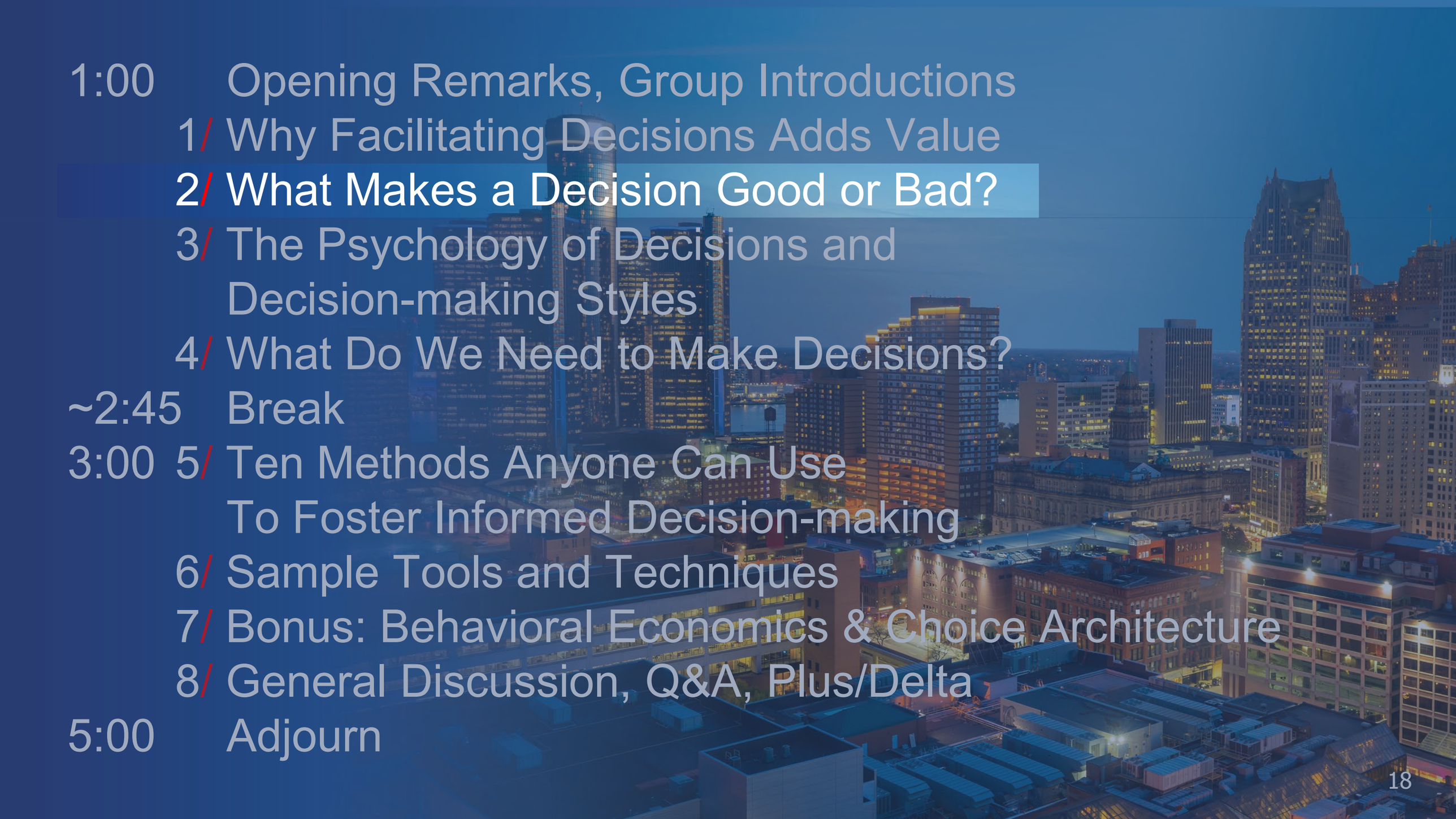
"After assessing **15,000 leaders** and managers in **300 organizations** spanning **20 industries** and **18 countries**, they found the following five skills to be the most important to the financial bottom line:

- Entrepreneurship
- Business Savvy
- Driving Execution
- **Decision Making**
- Leading Change"

"High Resolution Leadership Report" by Development Dimensions International

Getting decisions that stick is more about **facilitating informed decisions** than it is about design or construction.

The **"Design Process"** is simply an organized way to make the thousands of decisions that are needed.



1:00 Opening Remarks, Group Introductions

1/ Why Facilitating Decisions Adds Value

2/ What Makes a Decision Good or Bad?

3/ The Psychology of Decisions and Decision-making Styles

4/ What Do We Need to Make Decisions?

~2:45 Break

3:00 5/ Ten Methods Anyone Can Use To Foster Informed Decision-making

6/ Sample Tools and Techniques

7/ Bonus: Behavioral Economics & Choice Architecture

8/ General Discussion, Q&A, Plus/Delta

5:00 Adjourn

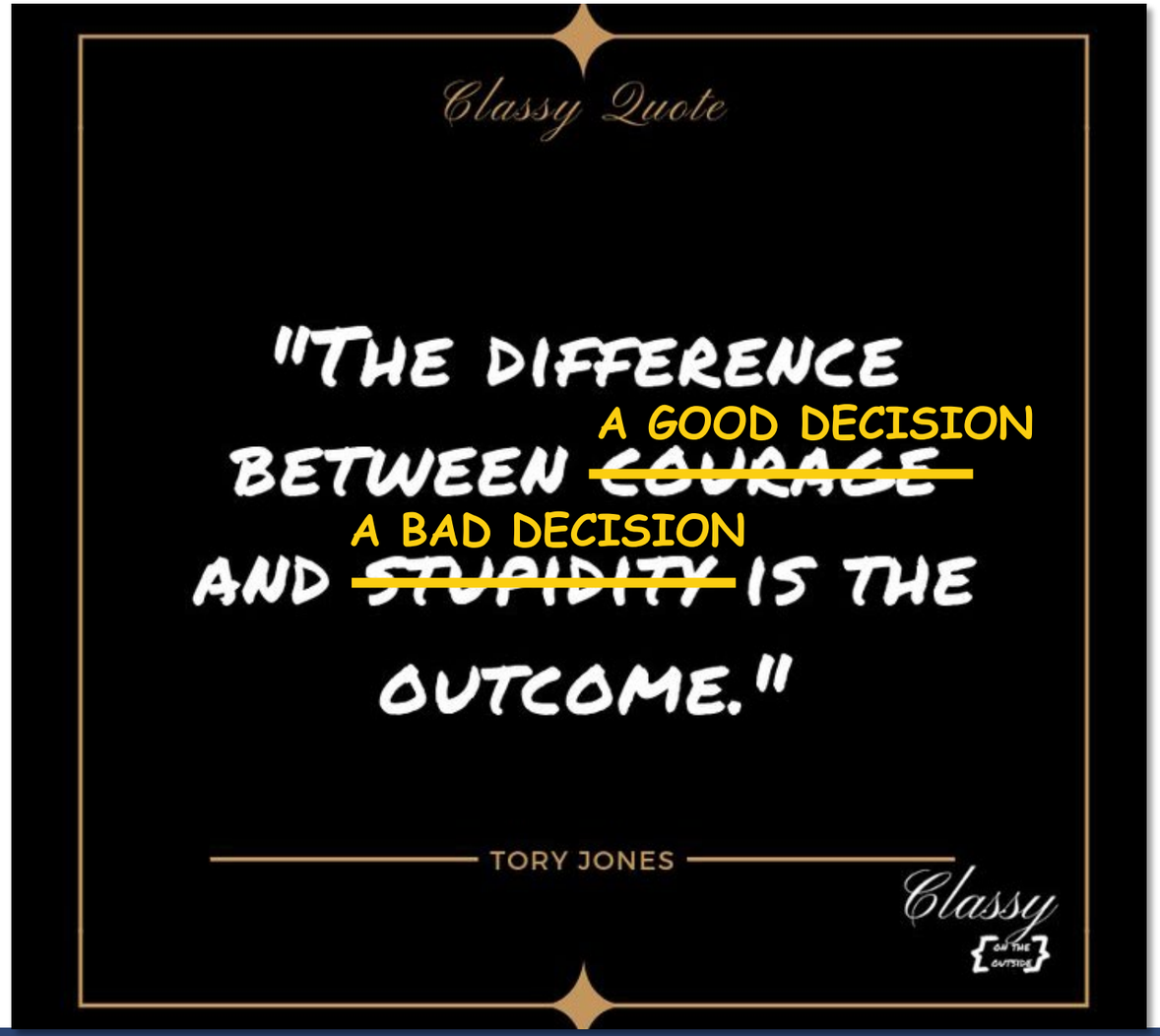
Good Decisions / Bad Decisions?

Courage is knowing it might hurt, and doing it anyway.

Stupidity is the same.

And that's why life is hard.

— Jeremy Goldberg



Good Decisions / Bad Decisions?

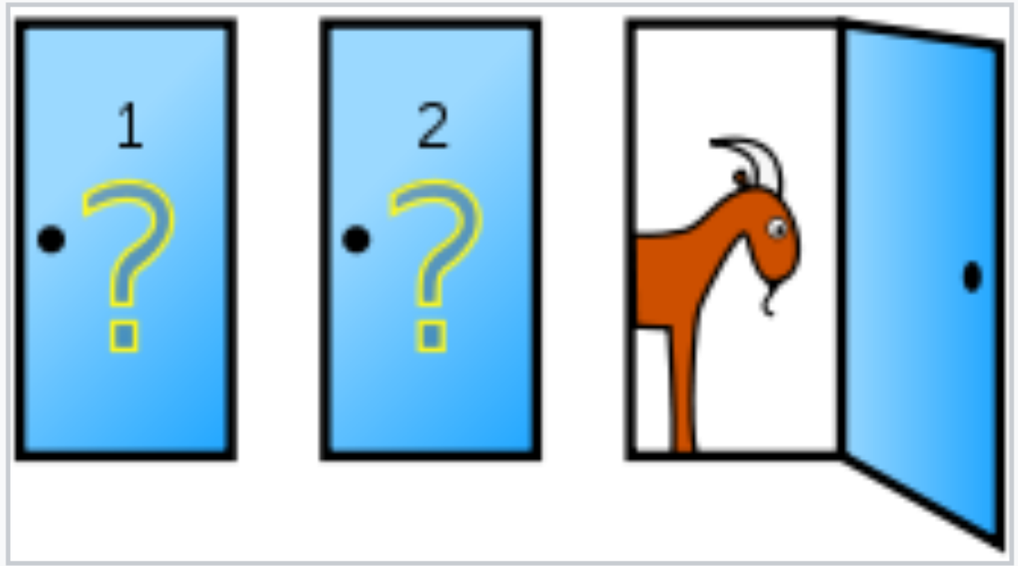
Actual Outcome	Decision
Achieved the Goal / Won	"Good Decision"
Missed the Goal / Lost	"Bad Decision"

It's not just the outcome, but also what you **expected** to happen.

What Decision Was Based On

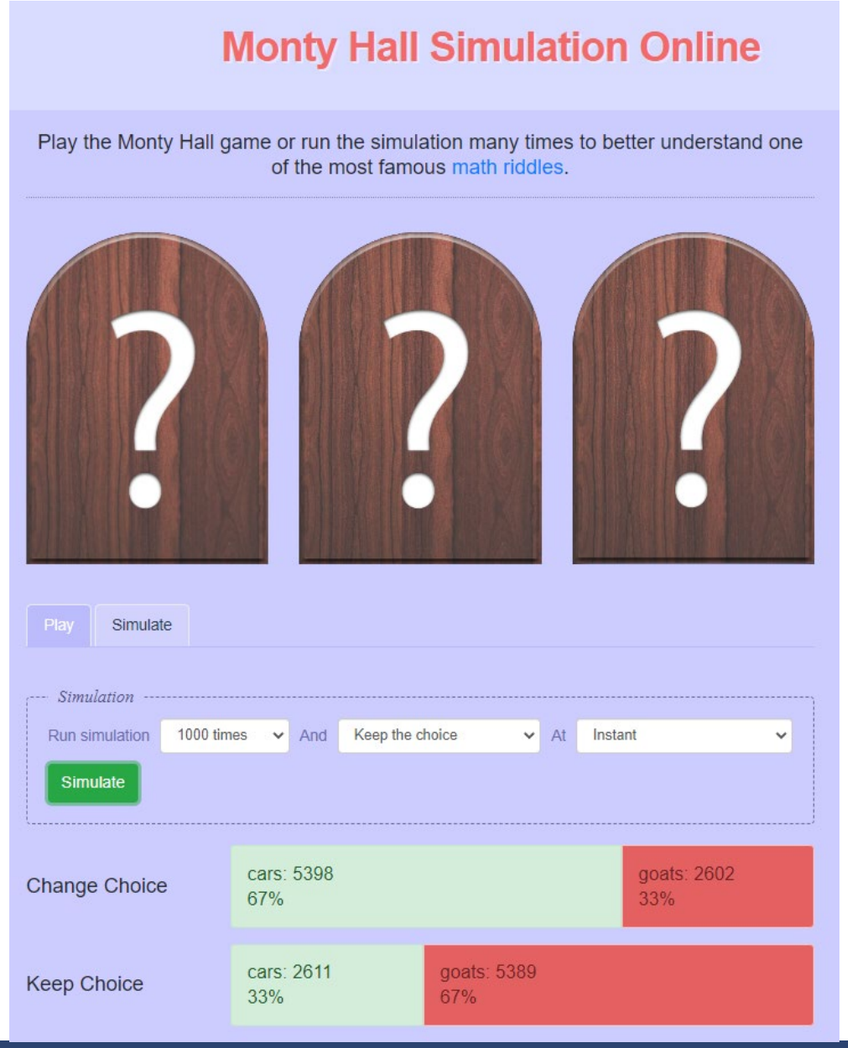
Actual Outcome	Likely Outcomes/Consequences Known & Acted On	Likely Outcomes/Consequences Unknown (or Ignored)
Achieved the Goal / Won / Positive Outcome	"Good Decision"	
Missed the Goal / Lost / Negative Outcome		"Bad Decision"

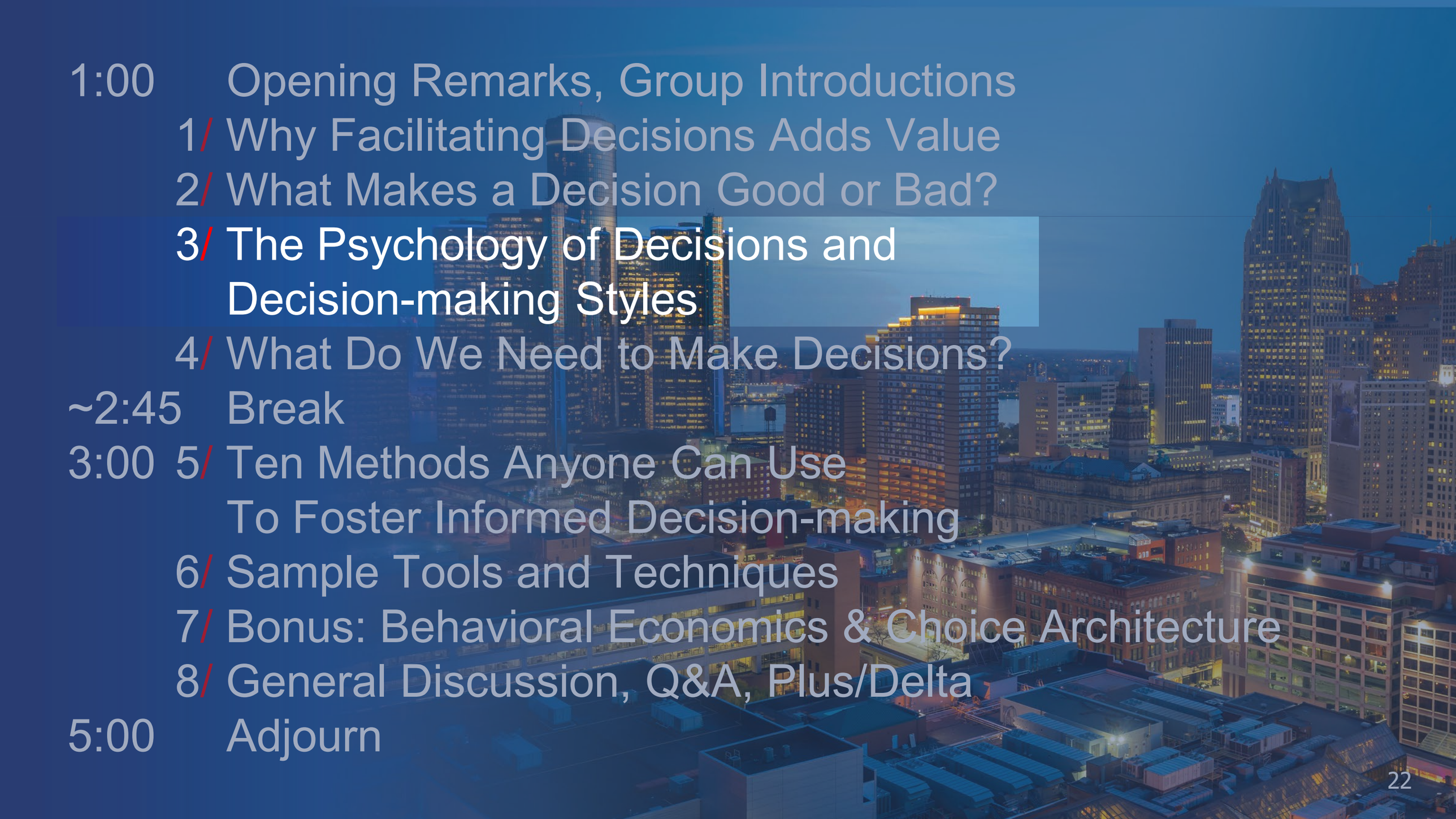
Monty Hall Problem



In search of a new car, the player picks a door, say *1*. The game host then opens one of the other doors, say *3*, to reveal a goat and offers to let the player switch from door *1* to door *2*.

Public domain image from Wikipedia





1:00 Opening Remarks, Group Introductions

1/ Why Facilitating Decisions Adds Value

2/ What Makes a Decision Good or Bad?

3/ The Psychology of Decisions and Decision-making Styles

4/ What Do We Need to Make Decisions?

~2:45 Break

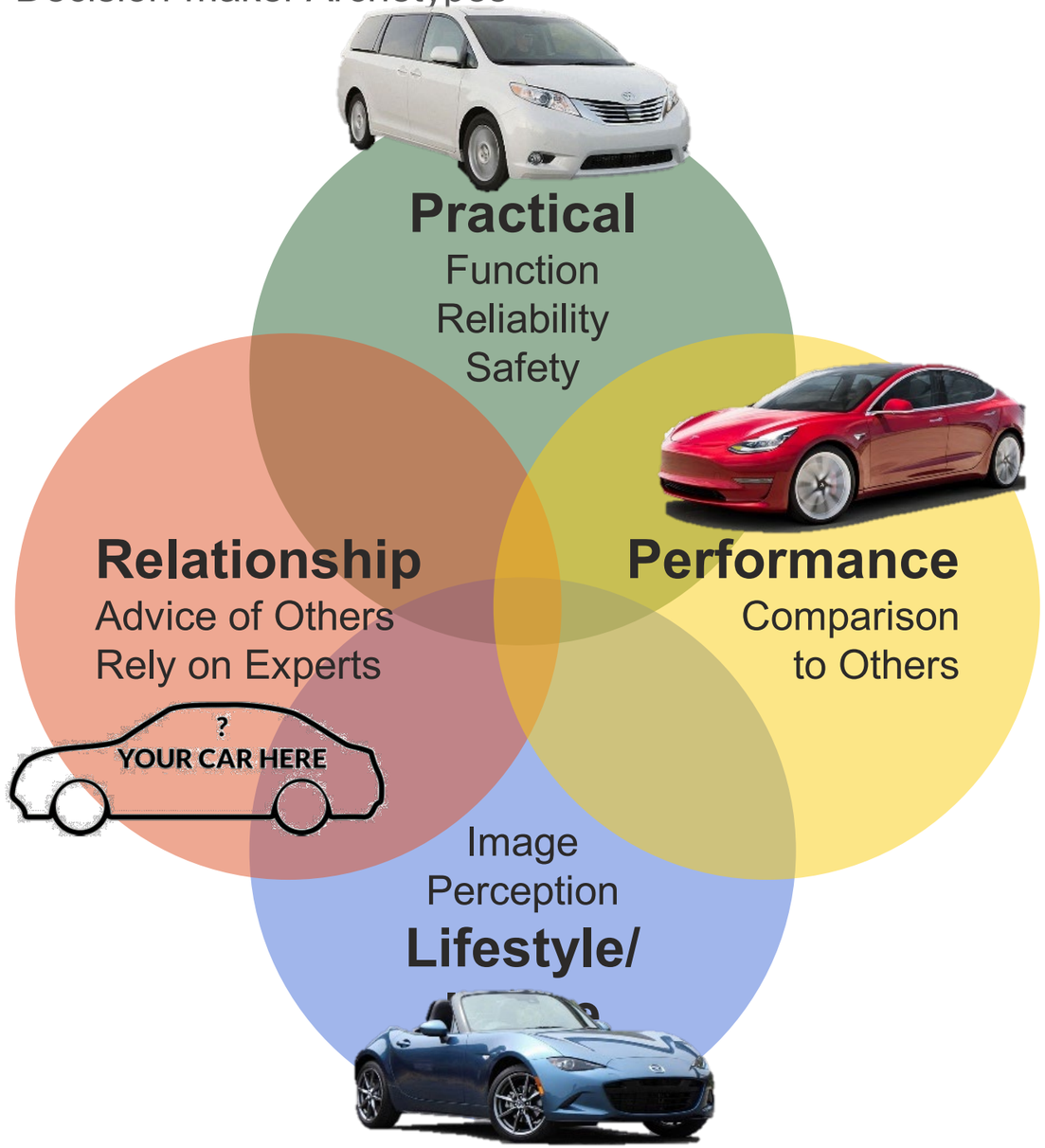
3:00 5/ Ten Methods Anyone Can Use To Foster Informed Decision-making

6/ Sample Tools and Techniques

7/ Bonus: Behavioral Economics & Choice Architecture

8/ General Discussion, Q&A, Plus/Delta

5:00 Adjourn



Most decision-makers consider all of these aspects

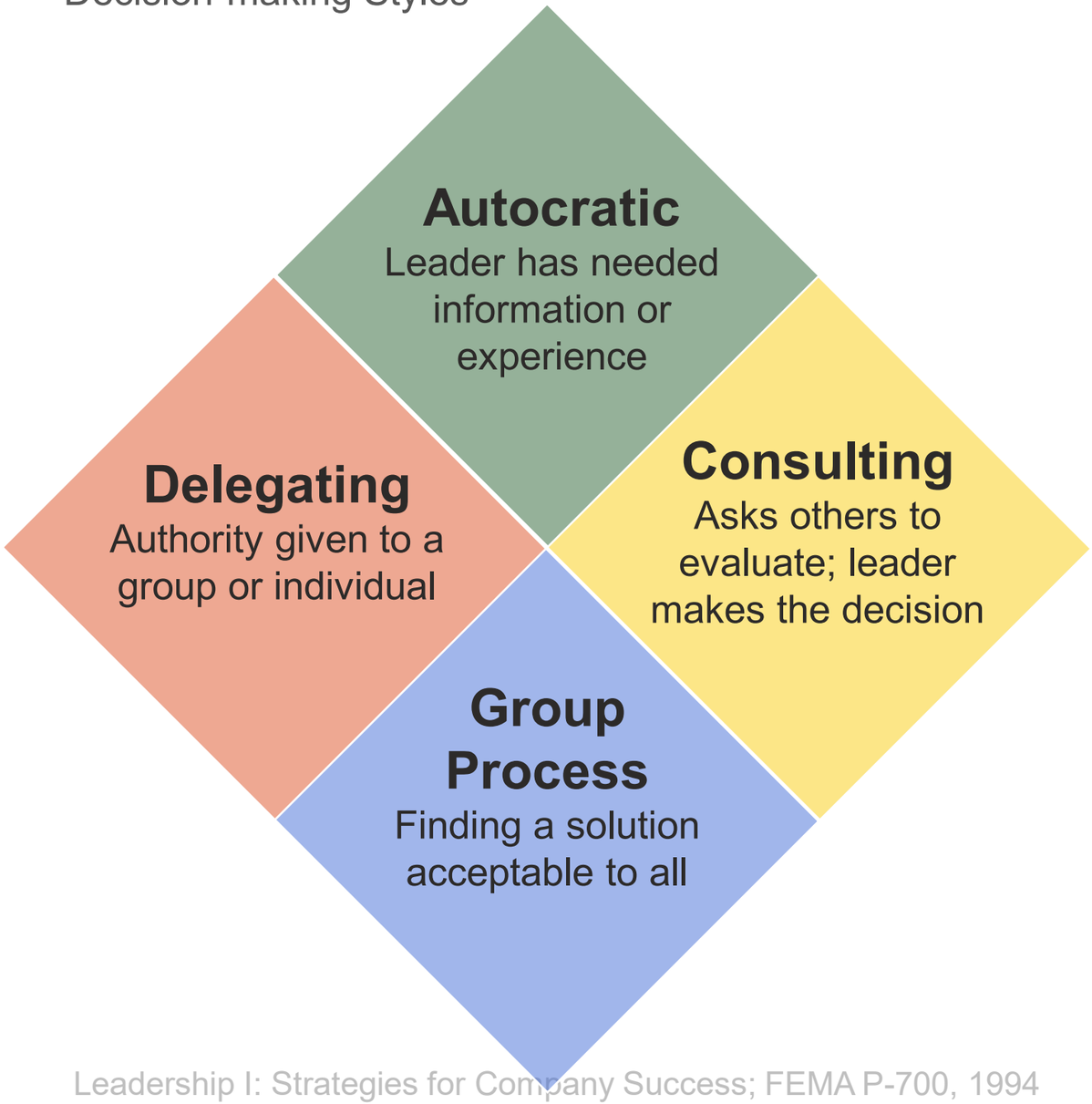
Some lean toward one or two

Review how people decide:

- Cars
- Computers
- Diet & Exercise
- Career
- Spouse
- Buildings

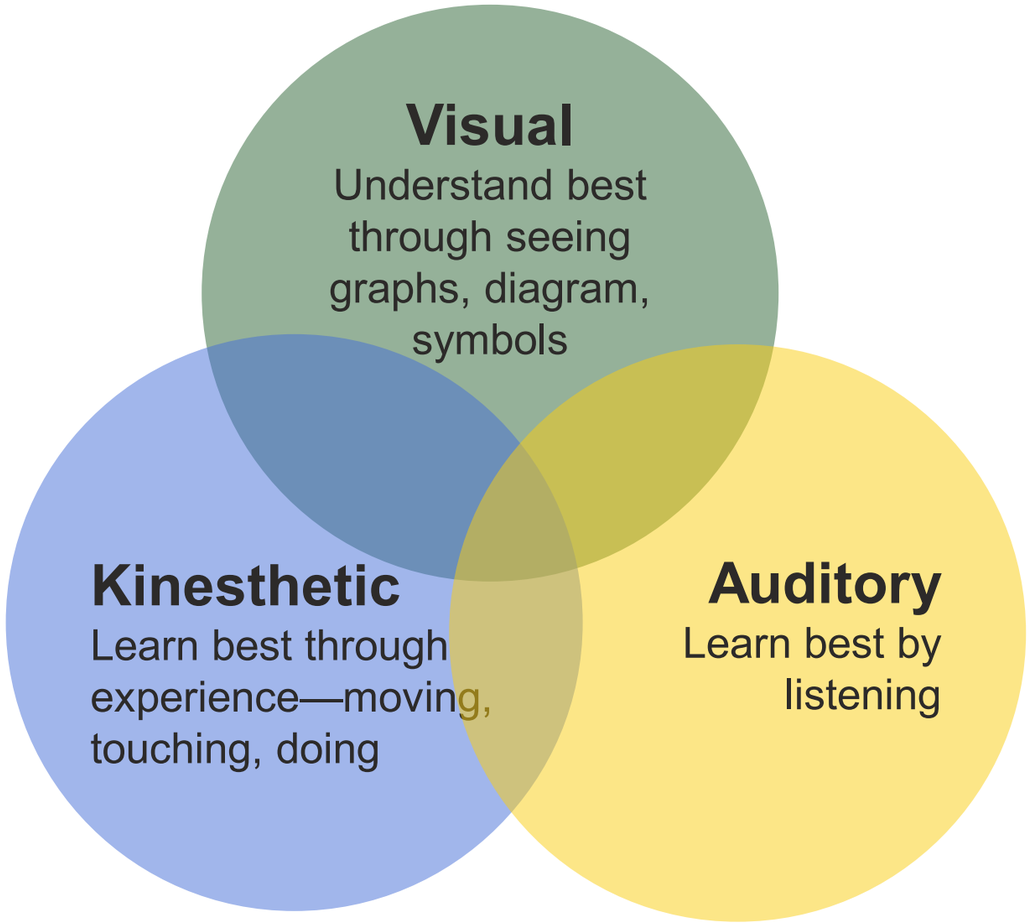
Look For Clues Showing What Types of Information the Decision-maker Values.

Decision-making Styles



Leadership I: Strategies for Company Success; FEMA P-700, 1994

Decision-makers generally have a default style, but it can vary with the situation.



Most people have one dominant modality by which they learn best.

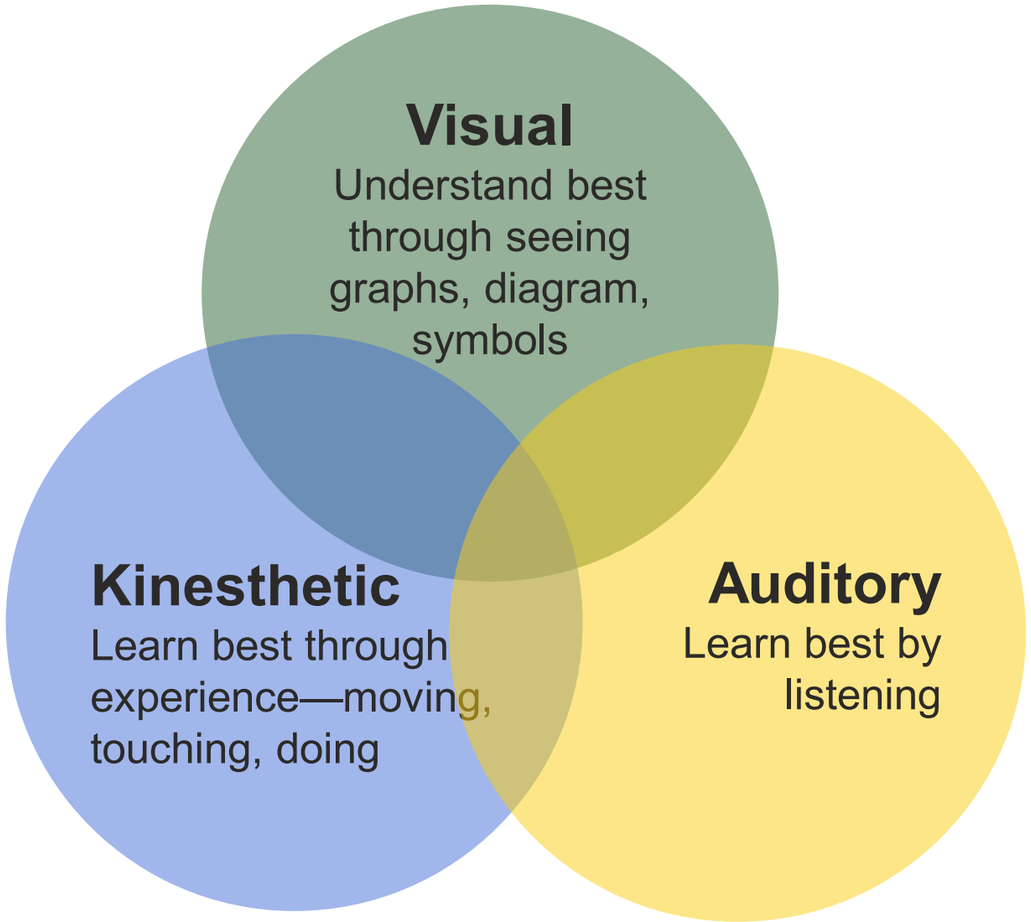
Look for clues, such as:
"You'd have to see it to understand."

"Tell me and I will forget.
Show me and I will remember.
Involve me and I will understand."

-- Chinese Proverb

Generally attributed to Walter Burke Barbe et al, 1979-1981

Learning Styles

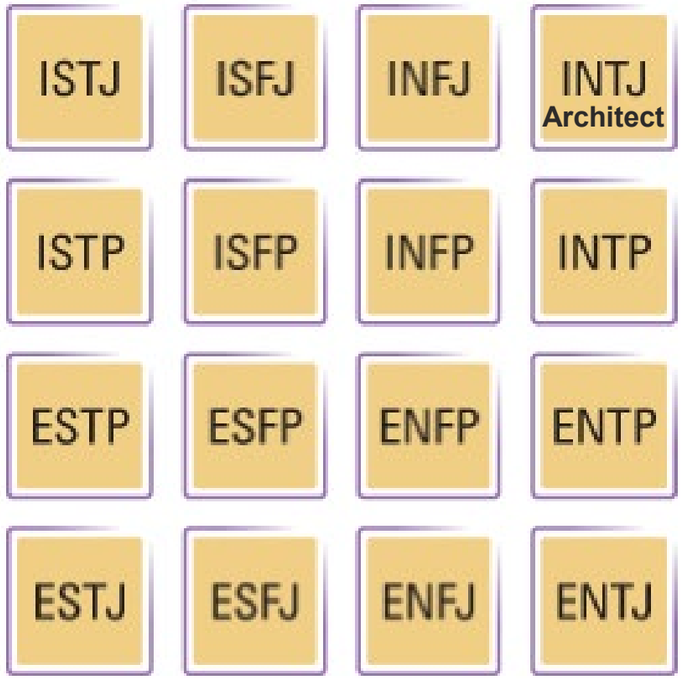


Generally attributed to Walter Burke Barbe et al, 1979-1981

Scouting's EDGE Method For Teaching

Explain
Demonstrate
Guide
Enable

Meyers Briggs Personality Types



Favorite World:

Extraversion ⟷ **Introversion**

Information:

Sensing *(Factual, Practical)* ⟷ **iNtuition** *(Impressions, Possibilities)*

Decisions:

Thinking *(Analytical, Logical)* ⟷ **Feeling** *(Harmony, Tact)*

Structure:

Judging *(Planned, Organized)* ⟷ **Perceiving** *(Flexible, Spontaneous)*

http://www.myersbriggs.org/my-mbti-personality-type/mbti-basics/

Break-out Session 1

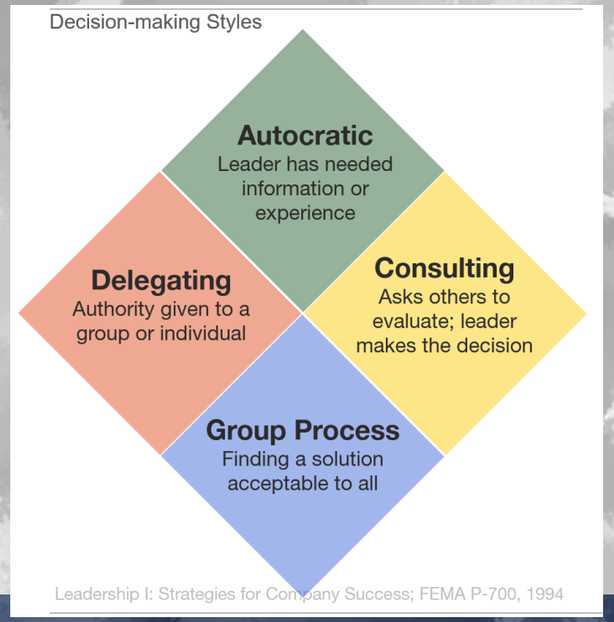
Tips for Team Success
(These apply here and in life.)

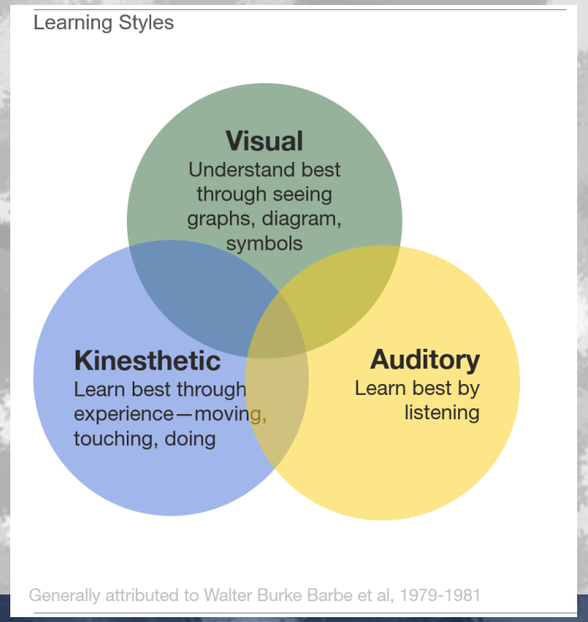
- Listen genuinely.
- Give everyone a chance to speak.
  Don’t dominate the time available.
  Ensure everyone participates.
- Everyone appreciates a good facilitator. If the team needs gentle redirecting, speak up.

Pick a Project or Client.

Is there a Dominant Decision-making Style?

What Have Been (or Would be) Effective Ways to Communicate With Them for a Decision?





1:00 Opening Remarks, Group Introductions

1/ Why Facilitating Decisions Adds Value

2/ What Makes a Decision Good or Bad?

3/ The Psychology of Decisions and Decision-making Styles

4/ What Do We Need to Make Decisions?

~2:45 Break

3:00 5/ Ten Methods Anyone Can Use To Foster Informed Decision-making

6/ Sample Tools and Techniques

7/ Bonus: Behavioral Economics & Choice Architecture

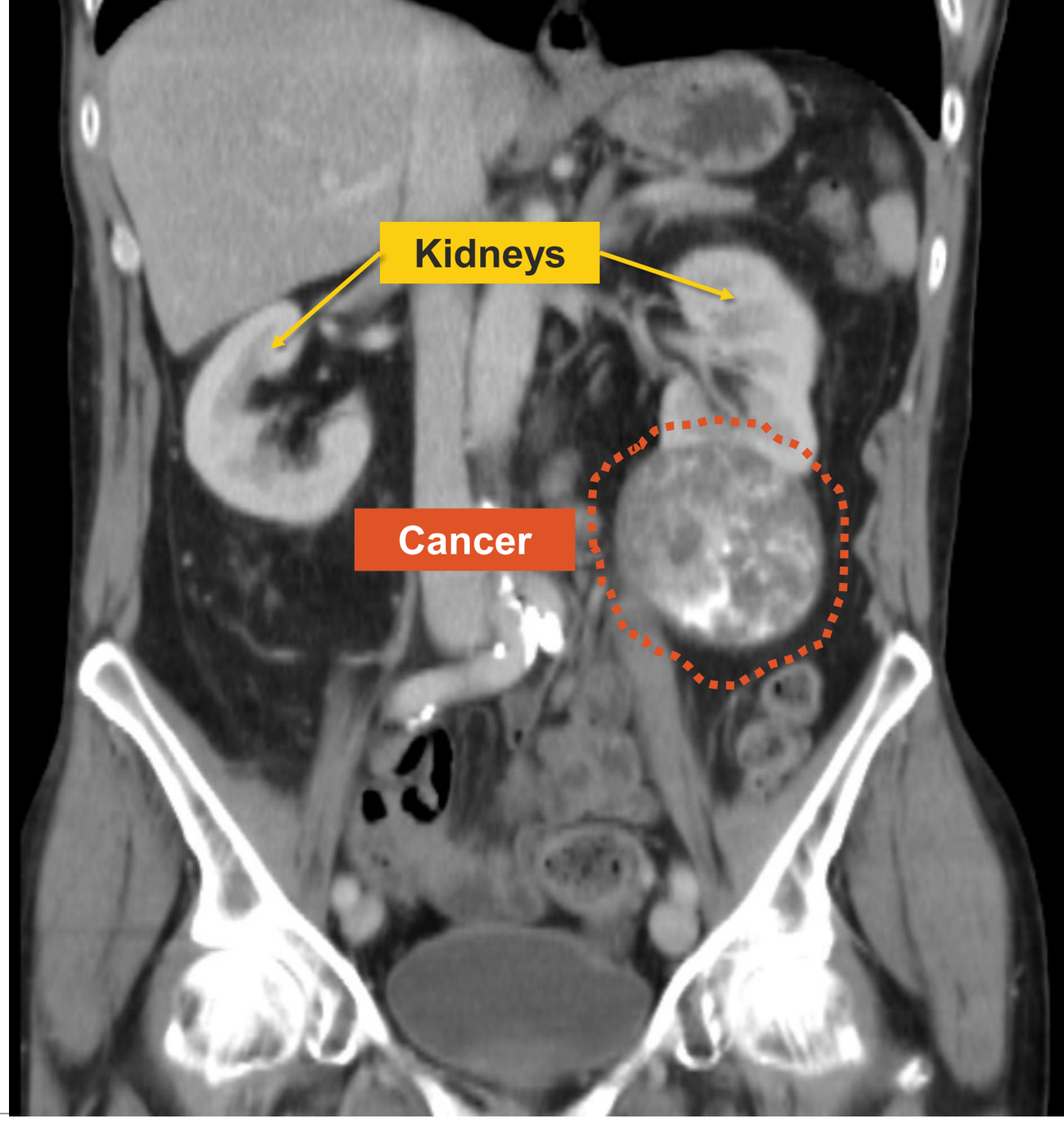
8/ General Discussion, Q&A, Plus/Delta

5:00 Adjourn

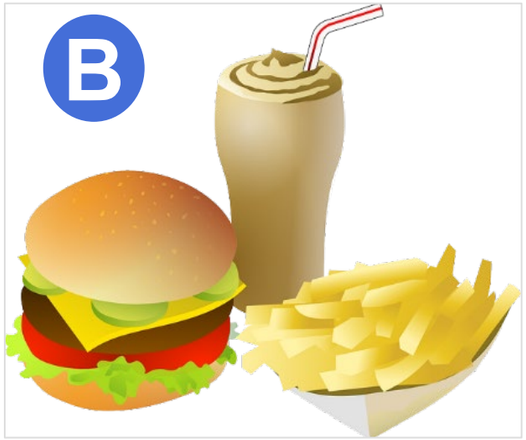
To Communicate Effectively, We Must Speak the Language of the Decision-Maker(s).

Here’s your CT scan. What do you want to do?

Our customers feel this way when we show them plans and ask them to review and approve.



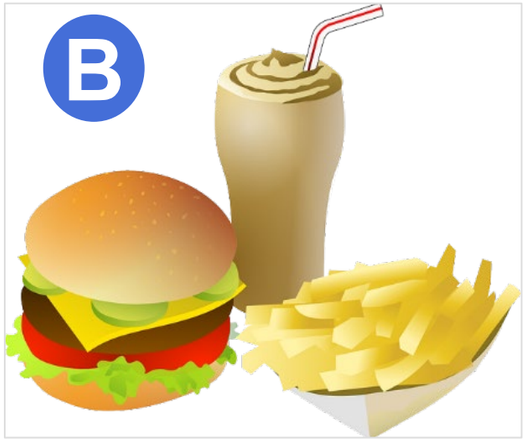
Exercise: Which Lunch Would You Choose?



Which Lunch Would You Choose?

Exercise: Which Lunch Would You Choose?

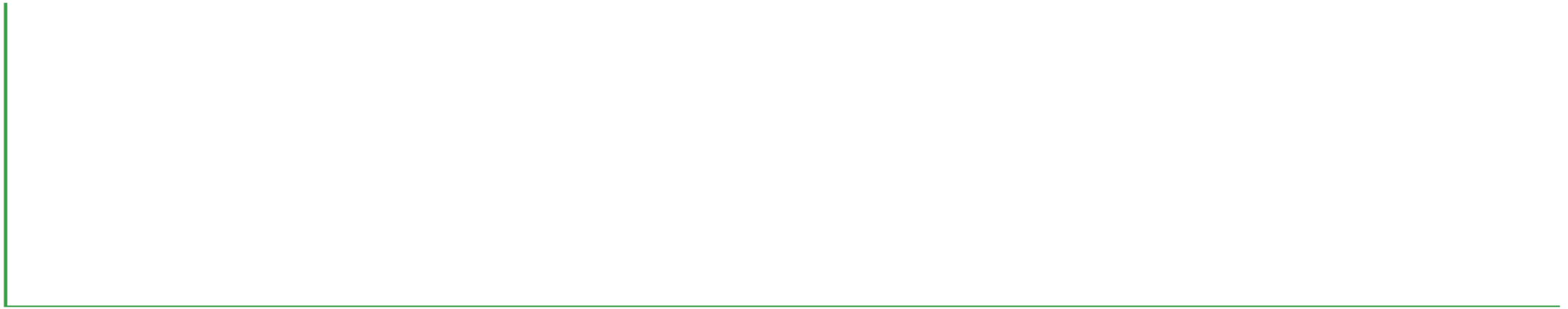
Free



$11.00

$22.00

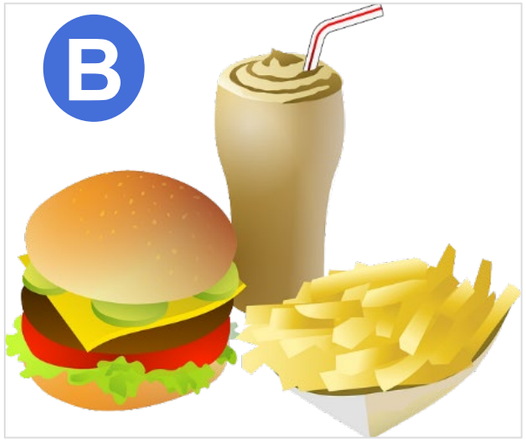
Now, With Budget Information?



Exercise: Which Lunch Would You Choose?

Free

Available Now



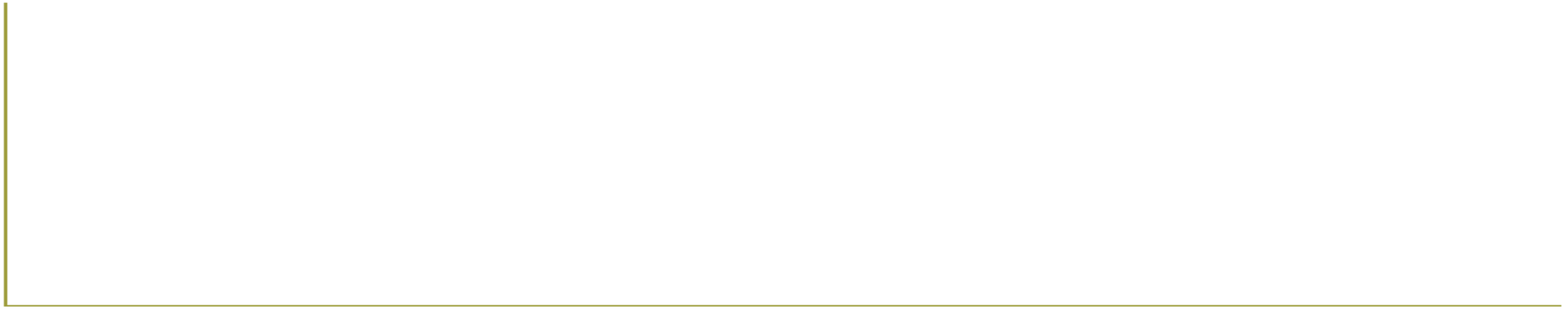
$11.00

10 Minutes

$22.00

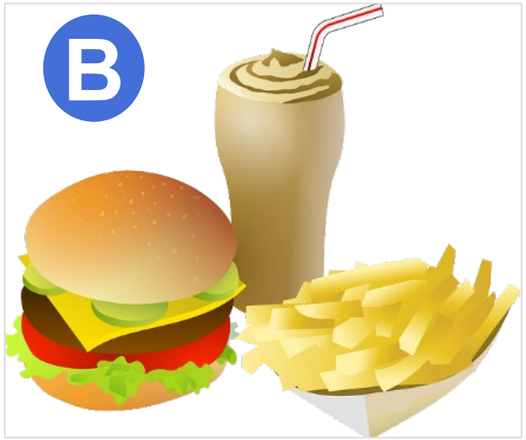
25 Minutes

Now, With Schedule Information?



Exercise: Which Lunch Would You Choose?

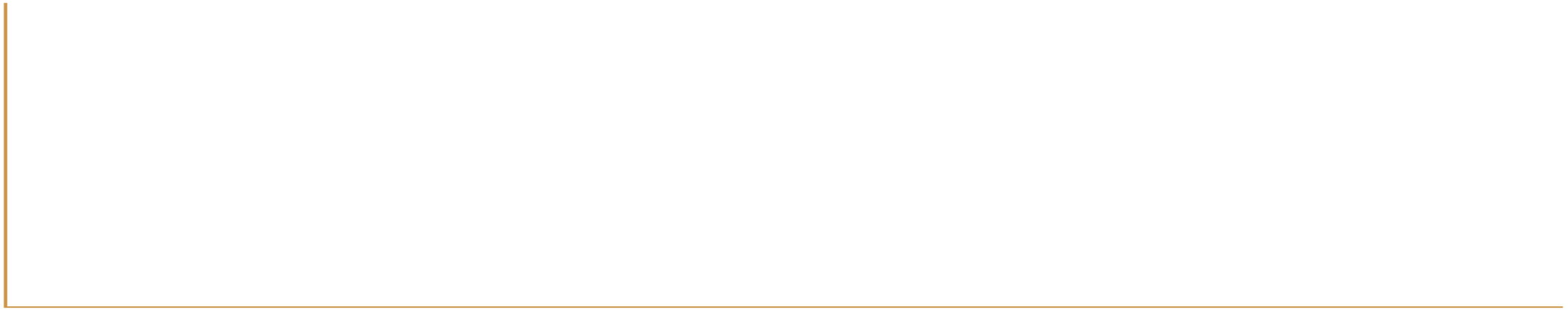
Free
Available Now
Stale



$11.00
10 Minutes
2,300 Calories

$22.00
25 Minutes
Heart Healthy

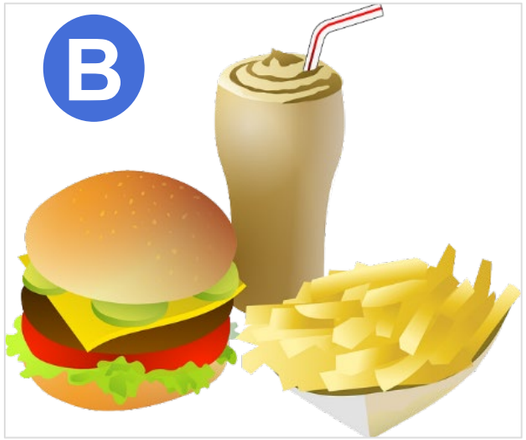
Now, With Nutritional Information?



Exercise: Which Lunch Would You Choose?

Free
Available Now
Stale

Local Start-up



$11.00
10 Minutes
2,300 Calories

Large Corporation

$22.00
25 Minutes
Heart Healthy

Sustainable Store Owned by a Friend

Now, With Relationship/Values Information?

People make the best decision they can given the information and options available at the time.

Corollary: If additional information becomes available or new options become known, the decision may change.

For a decision to stick, provide all the information they need the first time.

(And no more)

We make decisions by evaluating:

1. What am I trying to accomplish?
2. What alternatives are available? ("What are my options?")
3. Which solution is the best fit?

Pros/Cons; Costs/Benefits; Risk/Reward

- **Functional / Effective / Meet the Needs**
- **Form / Aesthetics / Image / Perception**
- **Economics**
- **Time**
- **Other Qualitative**
  - Upside / Downside / Flexibility
- **Other Value Judgements, e.g.:**
  - Is it fair / ethical / moral / sound?
  - Is it sustainable?
  - Will it be politically acceptable?
  - Other hidden agendas?

We make decisions by evaluating:
1. What am I trying to accomplish?
2. What alternatives are available?
3. Which solution is the best fit?

Pros/Cons; Costs/Benefits; Risk/Reward

- **Functional / Effective / Meet the Needs**
- **Form / Aesthetics / Image/Perception**
- **Economics**
- **Time**
- **Other Qualitative**
- - Upside / Downside / Flexibility
- **Other Value Judgements, e.g.:**
  - Is it fair / ethical / moral / sound?
  - Is it sustainable?
  - Will it be politically acceptable?
  - Other hidden agendas?

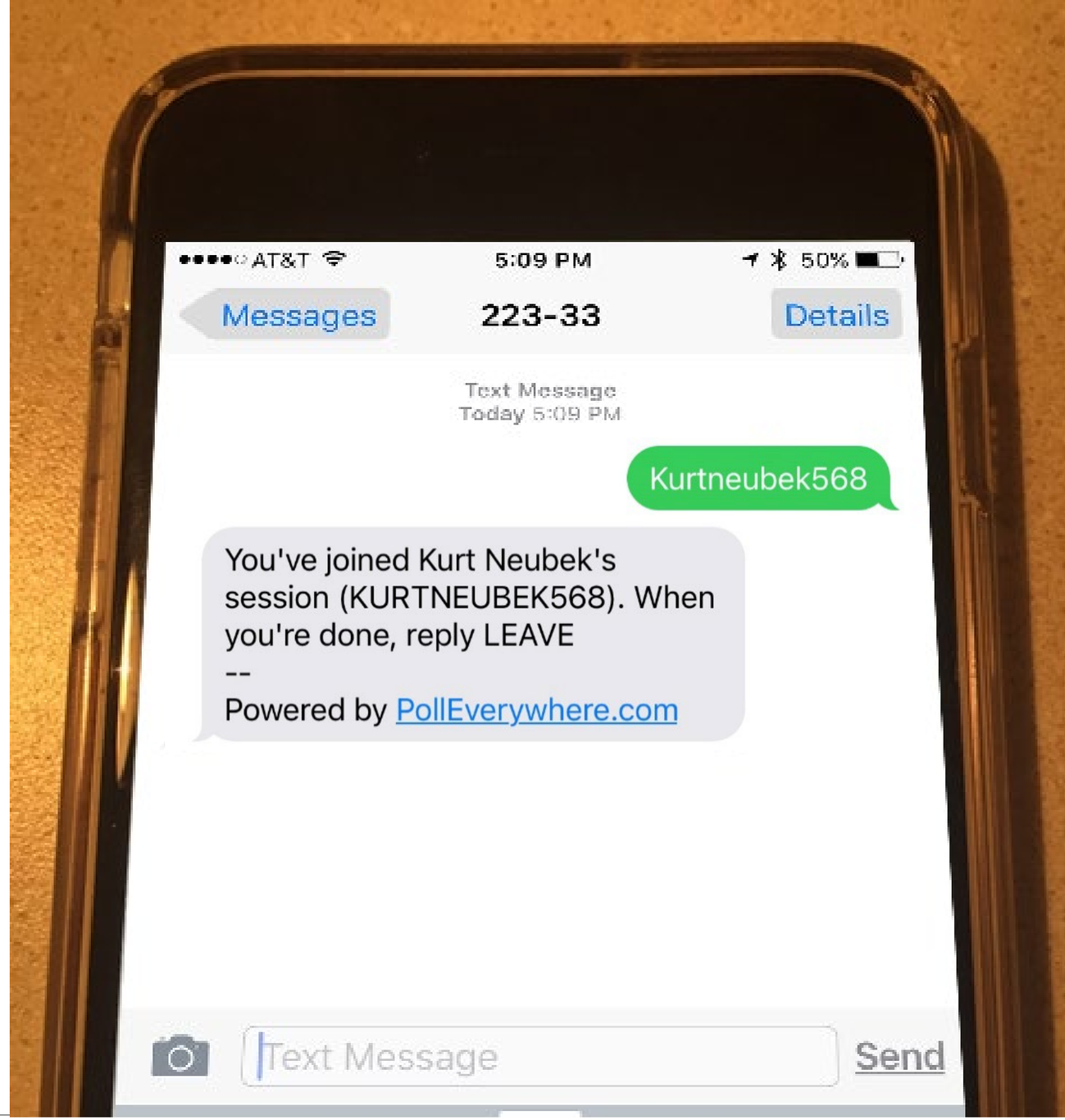
Decisions Are Fragile and Need To Be Protected.

When *Any* of These Change, the Decision Can Change

No More Polls

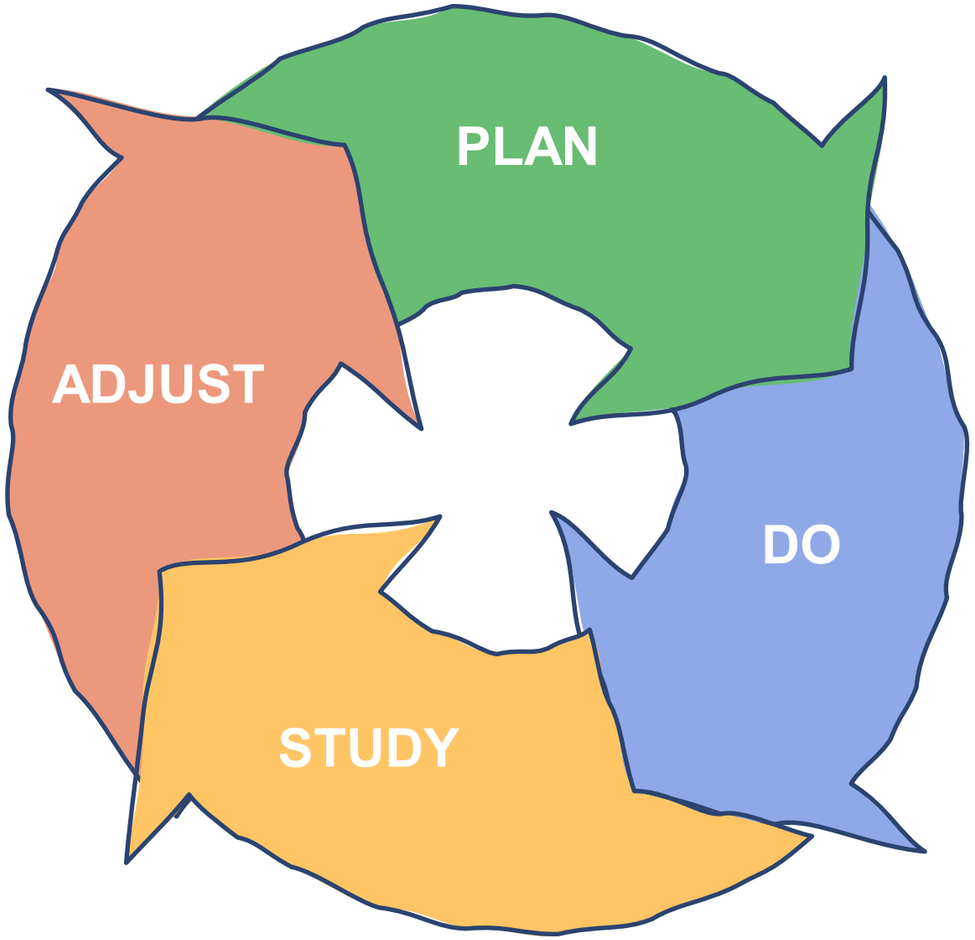
1)You can text:
LEAVE
(upper or lower case)

2)Or it will log you off in 24 hours



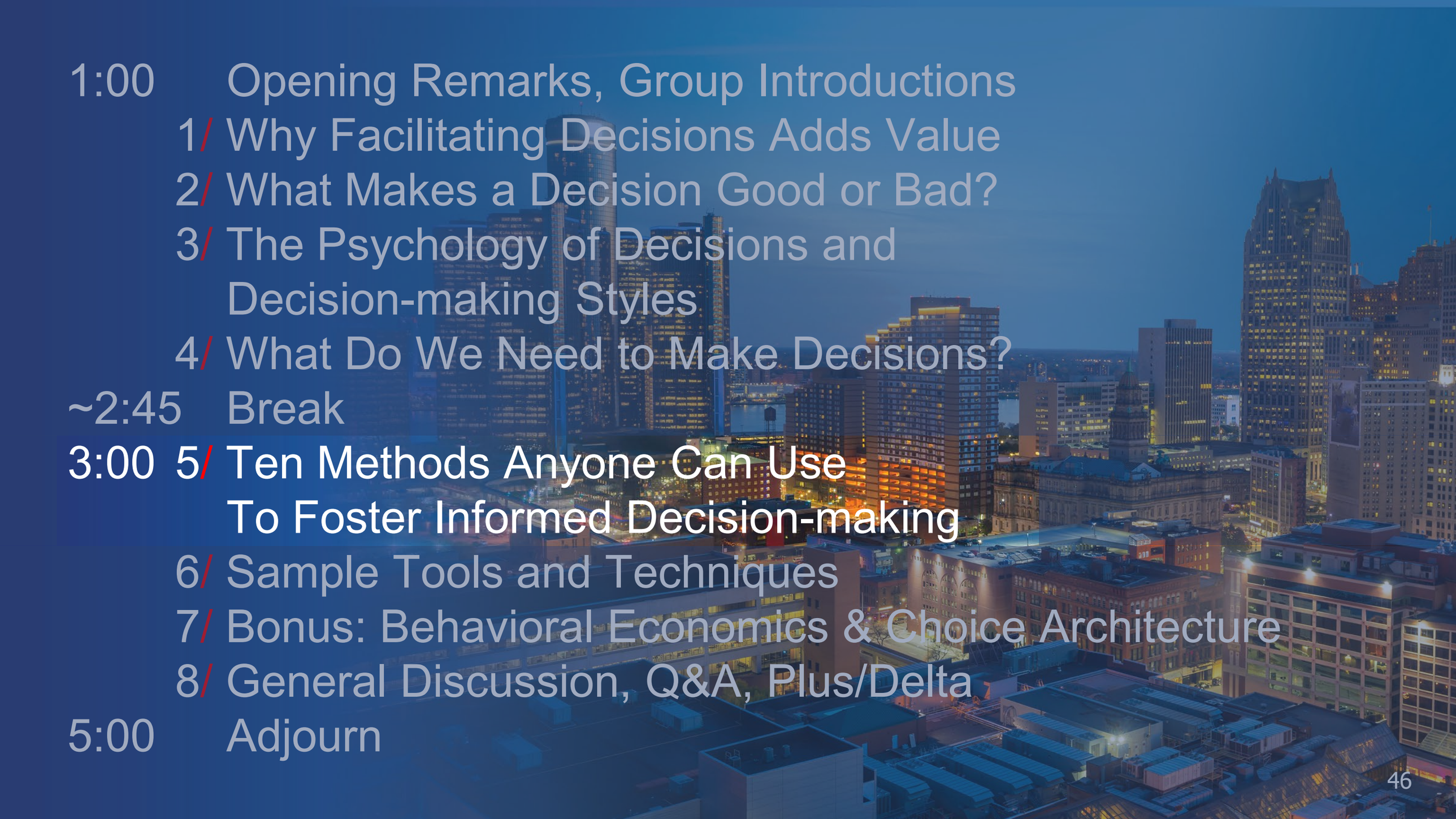
Pick a Sample Project and a Decision that Did *Not* Stick. What Types of Information Did the Decision-makers Eventually Need to Finalize the Decision?
(e.g. What Quantitative and Qualitative Info was needed or was learned later that changed the decision?)

Mid-Session Q&A, +/Δ



Deming Cycle for Continuous Improvement

15-minute Break



1:00 Opening Remarks, Group Introductions

1/ Why Facilitating Decisions Adds Value

2/ What Makes a Decision Good or Bad?

3/ The Psychology of Decisions and Decision-making Styles

4/ What Do We Need to Make Decisions?

~2:45 Break

3:00 5/ Ten Methods Anyone Can Use To Foster Informed Decision-making

6/ Sample Tools and Techniques

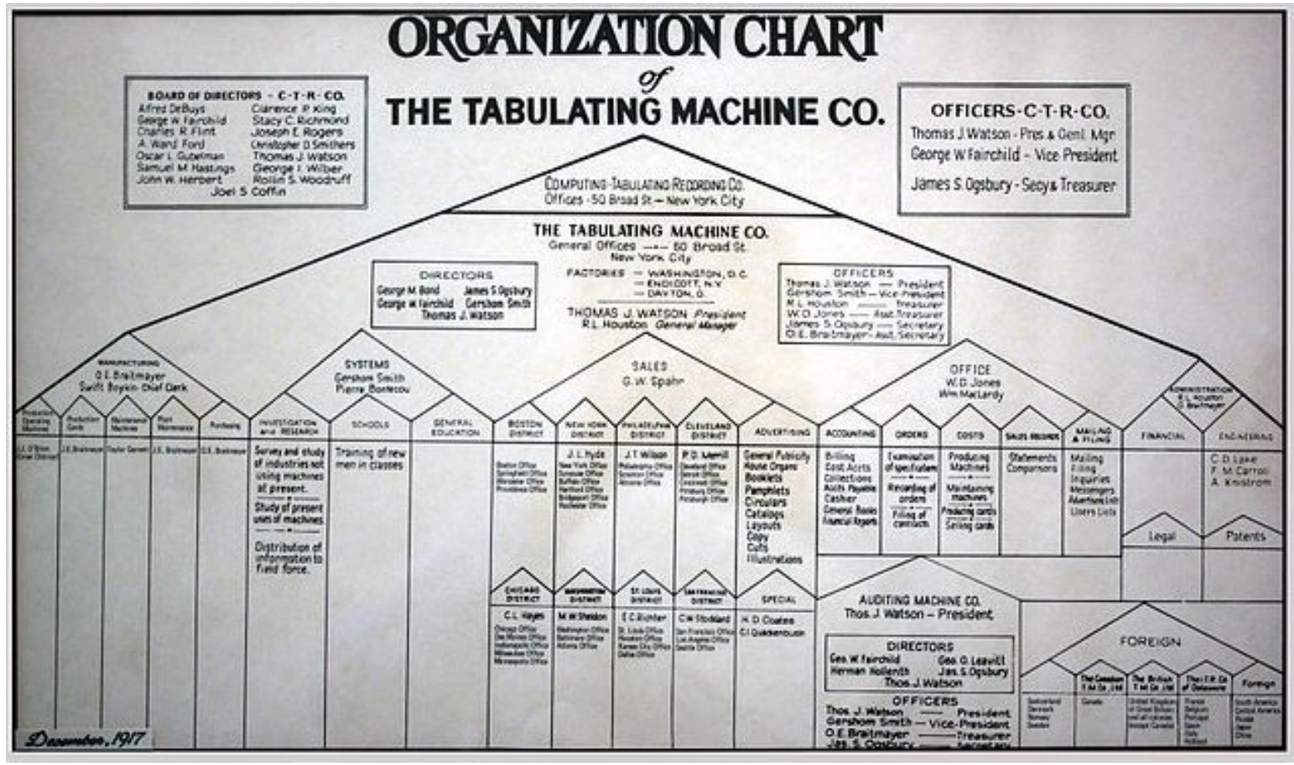
7/ Bonus: Behavioral Economics & Choice Architecture

8/ General Discussion, Q&A, Plus/Delta

5:00 Adjourn

Identify the decision-*makers*.

Ask who gets to decide, and who can override that decision?

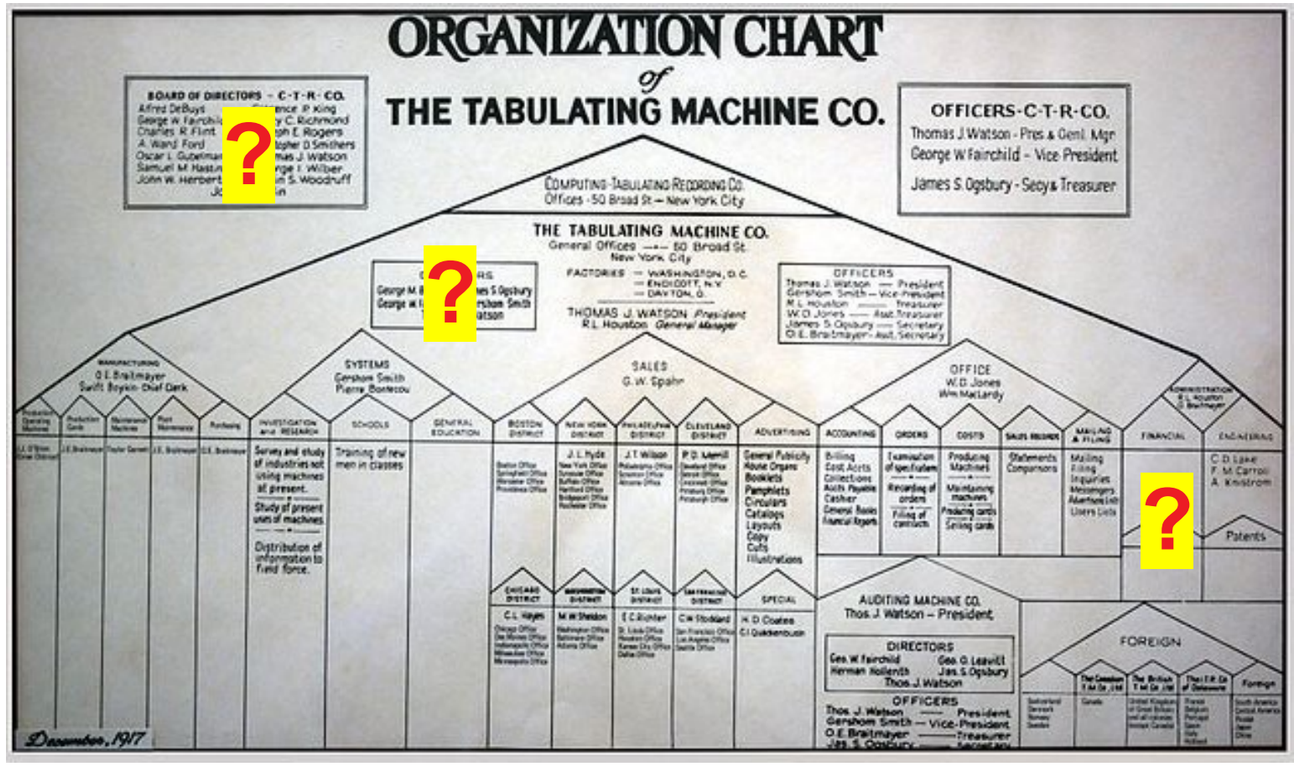


…and the decision-*breakers*.

Who else, if they weigh in late, could possibly derail or undo a decision?

Get those people involved early.

Don’t overlook spouses and outsiders.



Work with your customers to develop a Decision Protocol they can stick with.

Who gets to make which decision when?

- ❑ Overall Scope, Schedule, Budget
- ❑ Building Core
- ❑ Building Systems
- ❑ Department/User Areas
- ❑ Equipment
- ❑ Etc.

Establish Levels of Authority

For each category:

- Who gets to have input?
- Who gets/needs to review & approve?
- Who has final approval?

What are the foreseeable exceptions to those rules?

Responsibility Matrix, Swimlane Diagram

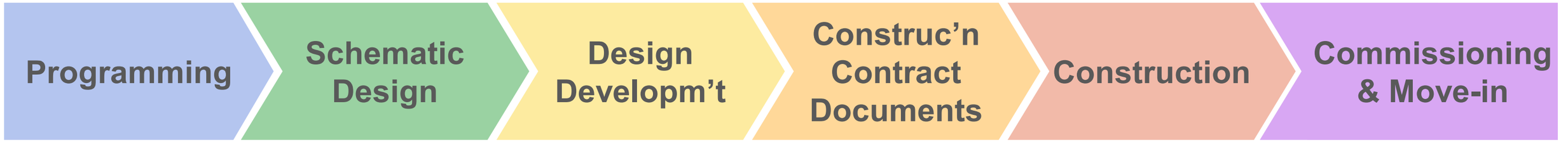
Responsible
Accountable
Support
Informed
Consulted
(or RACI)

Leads
Approves
Consulted
Tasked
Informed

	Role 1	Role 2	Role 3	Role 4
Task 1	R	A	C	I
Task 2	I	I	R	A
Task 3	C	A	R	I
Task 4	R/A	I	I	
Task 5	R	A	C	I
Task 6	C	C	R	A

Explain the process to everyone involved.

- Who gets to make which decisions
- From most people (“users”) you will gather their “input” but others get to review, edit, and even override their input later.
- Have that person in the meetings whenever possible.
- Get actual sign-off on documents. It helps convey the gravity of the meeting.



Programming:

- Scope, Schedule and Budget
- Project Goals
- Functions and Activities
- Key Quantities / Big Drivers
- Facility Standards
- Space List (quantities and sizes of each room)
- Desired Flows and Adjacencies
- Technical Requirements

Schematic Design (SD):

- Site Layout and Orientation
- Building Massing and Materials
- Overall Floor Plan Layouts
- Stacking (who goes on what floor)
- Blocking (relationships between blocks of space)
- Major Equipment Locations
- Building Systems
- Adherence to Program

Design Development (DD):

- Building Materials & Finishes
- Ceilings Plans
- Lighting Layouts
- "Zoom in" to each room:
  - casework
  - location of outlets
  - etc.
- Building Details and Specifications
- Adherence to SD

"Speak Now or Forever Hold Your Peace."

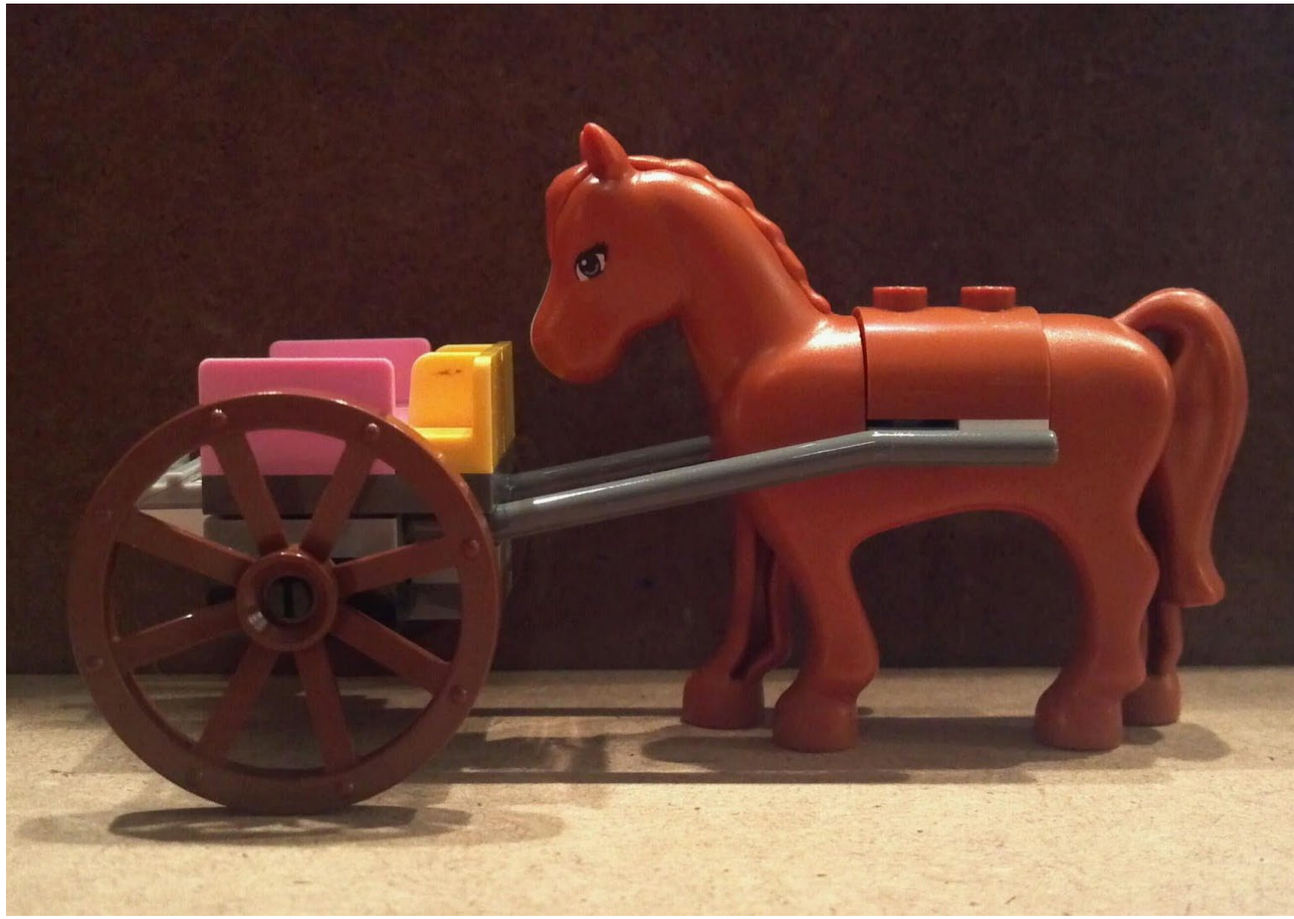
Don’t Ask For Decisions. Facilitate Them.

This requires more attention early but helps the project later.

Don’t Let the Tail Wag the Dog
Nor Put the Cart Before the Horse

There is a reason we have Strategic Planning then Master Planning then Pre-design then SD then DD then CD.

Start with the bigger decisions that later decisions rely on.



Don’t discuss details for a room if that room is not in the program and budget.

Is a Decision Necessary?

- ‘Do nothing’ is always the default option
- Laissez-faire, hope the problem goes away/solves itself

The 20 answers inside a Magic 8 Ball are:

- It is certain
- It is decidedly so
- Without a doubt
- Yes – definitely
- You may rely on it
- As I see it, yes
- Most likely
- Outlook good
- Yes
- Signs point to yes
- Reply hazy, try again
- Ask again later
- Better not tell you now
- Cannot predict now
- Concentrate and ask again
- Don't count on it
- My reply is no
- My sources say no
- Outlook not so good
- Very doubtful

To learn how things actually work—not how people believe they should work—in the language of Lean, "**Go to Gemba**," the place where the work is done.

Only ask questions you want answered.

Don’t ask a question that the person is not authorized to decide.

“How big should that duct be?”
“What kind of computer would you like?”

Corollary: Don’t ask questions they can’t know.

“What will your volume be 10 years from now?”

When asking for a decision or input on how something should function, recognize that people:

A. Can only tell you what they know.
B. Their experience may be more limited than yours
C. Many people don't know but feel pressured to give you an answer

A "leading question" can be a compassionate one.

"You cannot speak of ocean to a well frog."

--Zhuangzi
Chinese Philosopher
4th Century BCE

Q: What happens when construction is nearly complete and the decision-makers change or different users move in than those involved during design?

A: Chaos.

Management Techniques to Minimize Collateral Damage

Work with the customer to establish a policy that:

During Design:

- We Will Not Rehash or Undo What We've Already Studied and Decided. It's Too Costly.
- SD during SD; DD during DD.

During Construction:

- No changes until 6 months after move-in.

When they still insist on changes that are counter to previous decisions?

- Remind them what you established in the beginning: **Changes out of sequence cost more time and money.**
- Brainstorm lower cost alternatives they might not have considered.
- Give them a proposal to fulfill the request, noting the schedule impact. Then they can make an informed decision.

1:00 Opening Remarks, Group Introductions

1/ Why Facilitating Decisions Adds Value

2/ What Makes a Decision Good or Bad?

3/ The Psychology of Decisions and Decision-making Styles

4/ What Do We Need to Make Decisions?

~2:45 Break

3:00 5/ Ten Methods Anyone Can Use To Foster Informed Decision-making

6/ Sample Tools and Techniques

7/ Bonus: Behavioral Economics & Choice Architecture

8/ General Discussion, Q&A, Plus/Delta

5:00 Adjourn

Make the Decision Factors Visible
High Tech & High Touch
Communication and consensus-building add value

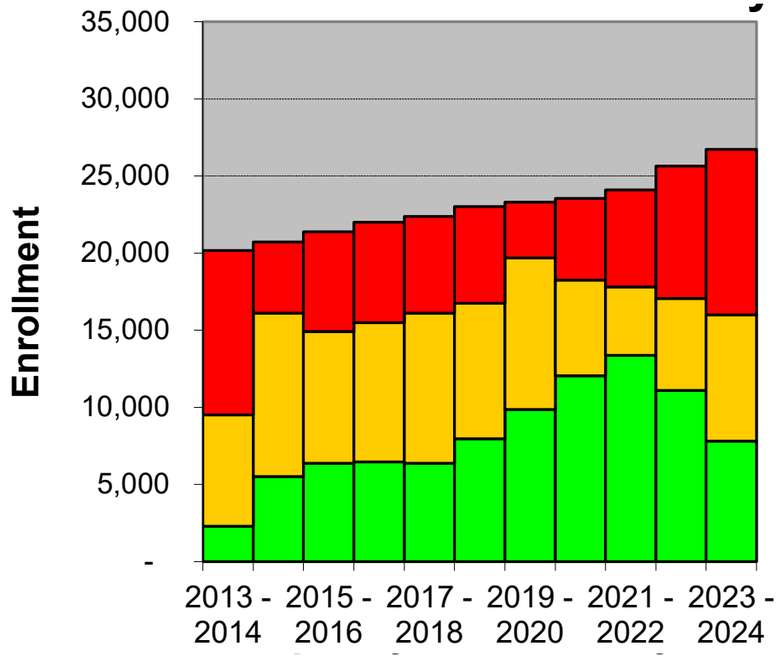
Data ≠ Information ≠ Knowledge

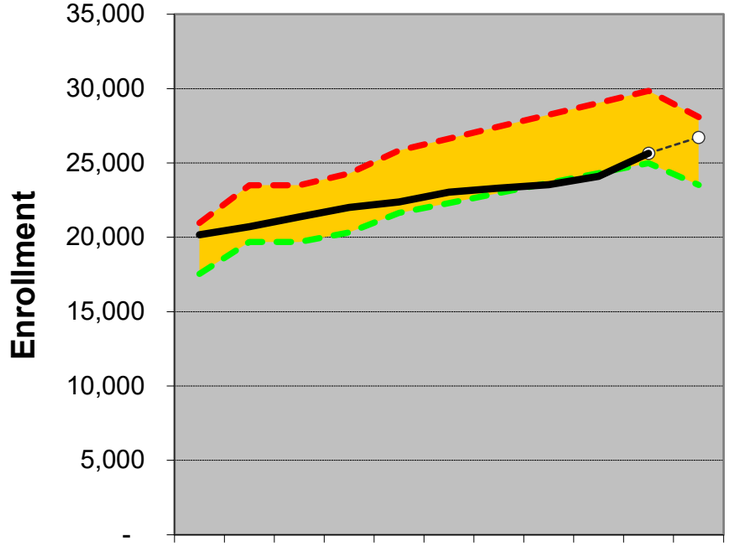
Analyze Data;
Distill it to its Essence;
Present a Cogent, Actionable Summary.

What Does the Data Tell You?
How to Make It Actionable?

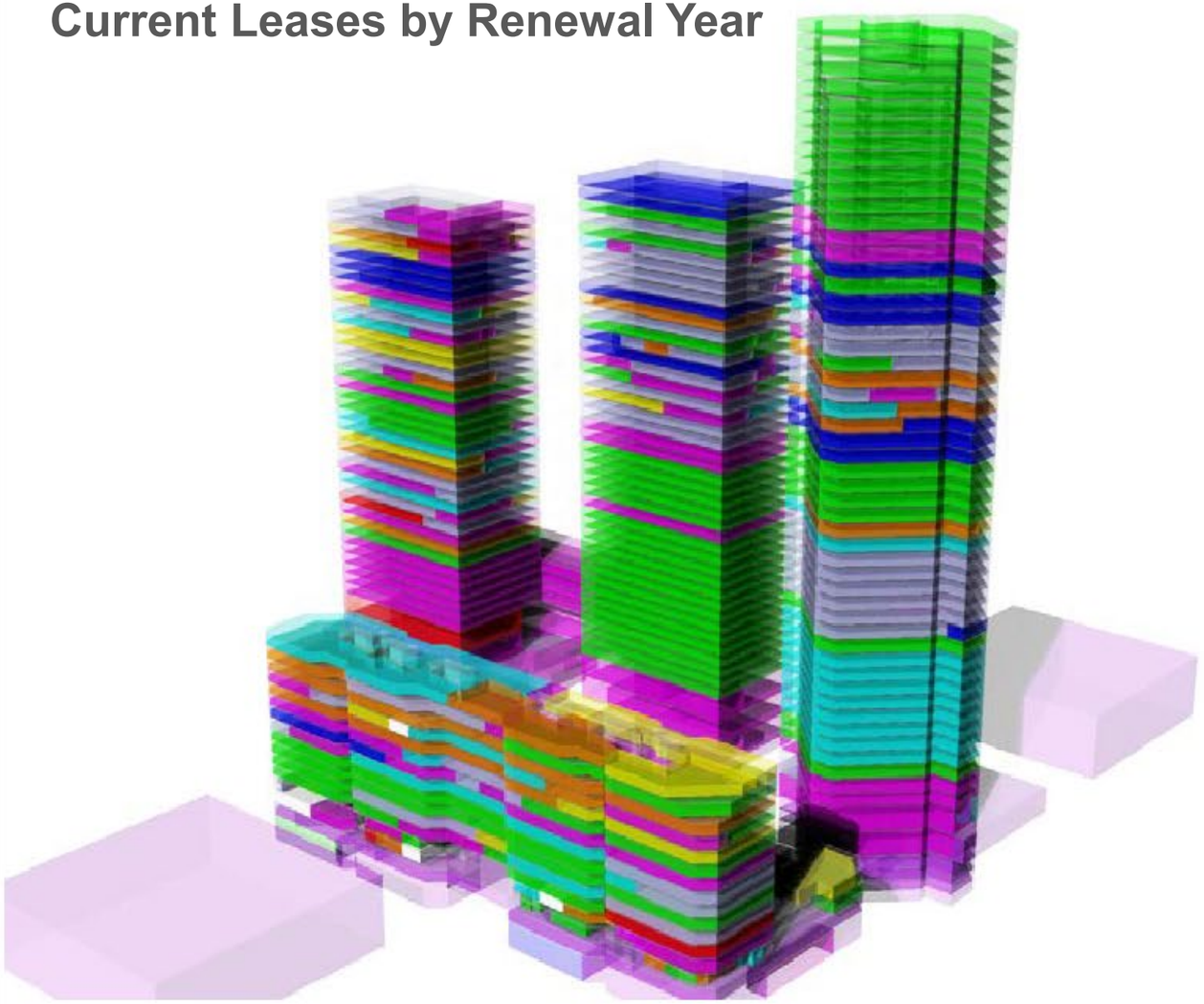
	2013 - 2014	2014 - 2015	2015 - 2016	2016 - 2017	2017 - 2018	2018 - 2019	2019 - 2020	2020 - 2021	2021 - 2022	2022 - 2023	2023 - 20	Instructional Capacity Range	
Elementary	1/4/94	1/9/95	1/3/96	1/7/97	12/1/97	1/11/99	1/10/00	12/18/00	11/26/01	11/18/02	Projected	From Template	
Arizona Fleming	N/A	541	656	744	766	786	741	809	846	793	812	650	777
Austin Parkway	1008	964	1000	982	520	529	528	555	563	633	675	743	887
Barrington Place	961	817	804	797	782	733	797	852	698	726	746	743	887
Blue Ridge	675	666	709	473	529	492	516	535	524	525	505	560	669
Brazos Bend	N/A	N/A	N/A	N/A	442	695	798	883	972	964	1008	650	777
Briargate	814	786	808	773	741	730	707	683	645	648	658	725	866
Burton	N/A	N/A	N/A	825	857	690	724	522	560	652	694	650	777
Colony Bend	819	810	792	744	714	697	652	590	532	542	510	684	817
Colony Meadows	820	864	905	903	906	843	800	763	726	714	700	743	887
Commonwealth	N/A	N/A	N/A	N/A	530	535	617	702	752	849	875	650	777
Dulles	836	537	524	530	543	534	540	510	558	707	790	527	629
Glover	N/A	655	725	728	759	787	782	732	740	745	762	743	887
Goodman	N/A	N/A	N/A	N/A	N/A	N/A	N/A	494	553	618	640	671	801
Highlands	748	720	730	755	785	828	768	731	715	687	690	689	823
Hunter's Glen	1026	648	649	652	623	672	683	676	656	704	704	689	823
Jones*	865	723	663	694	675	693	693	666	664	673	713	743	887
Jordan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	511	685	671	801
Lakeview	592	559	602	643	614	656	463	597	631	665	708	648	774
Lantern Lane	643	642	641	633	637	617	569	547	537	563	563	725	866
Lexington Creek	N/A	553	649	794	862	927	935	888	931	905	911	743	887
Meadows	453	473	485	497	502	501	485	452	438	442	460	743	887
Mission Bend	904	816	812	800	764	695	668	686	670	660	660	725	866
Mission Glen	897	705	784	847	914	952	763	816	876	747	771	689	823
Mission West	800	729	732	757	771	834	859	908	911	829	879	743	887
Oyster Creek	N/A	N/A	N/A	N/A	N/A	N/A	692	775	820	841	850	671	801
Palmer	1002	1008	1023	795	855	803	799	807	803	816	836	689	823
Pecan Grove	843	849	855	859	843	836	752	749	768	841	871	689	823
Quail Valley*	782	740	705	697	668	702	656	639	648	695	735	725	866
Ridgegate	877	939	980	911	880	904	909	876	843	890	890	725	866
Ridgemont	857	888	914	782	797	807	799	750	741	788	824	797	952
Rita Drabek	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	456	852	952	671	801
Settler's Way	765	732	748	773	733	685	673	630	613	557	587	689	823
Sienna Crossing	N/A	N/A	N/A	N/A	N/A	467	610	519	633	793	985	671	801
Sugar Mill	754	726	720	669	645	649	662	600	533	510	521	689	823
Townewest	818	843	785	761	710	697	680	672	622	614	614	684	817
Walker Station	611	787	981	1189	1016	1053	979	935	917	957	947	743	887
TOTALS	20170	20720	21381	22007	22383	23029	23299	23549	24095	25656	26731	**24990**	**29845**

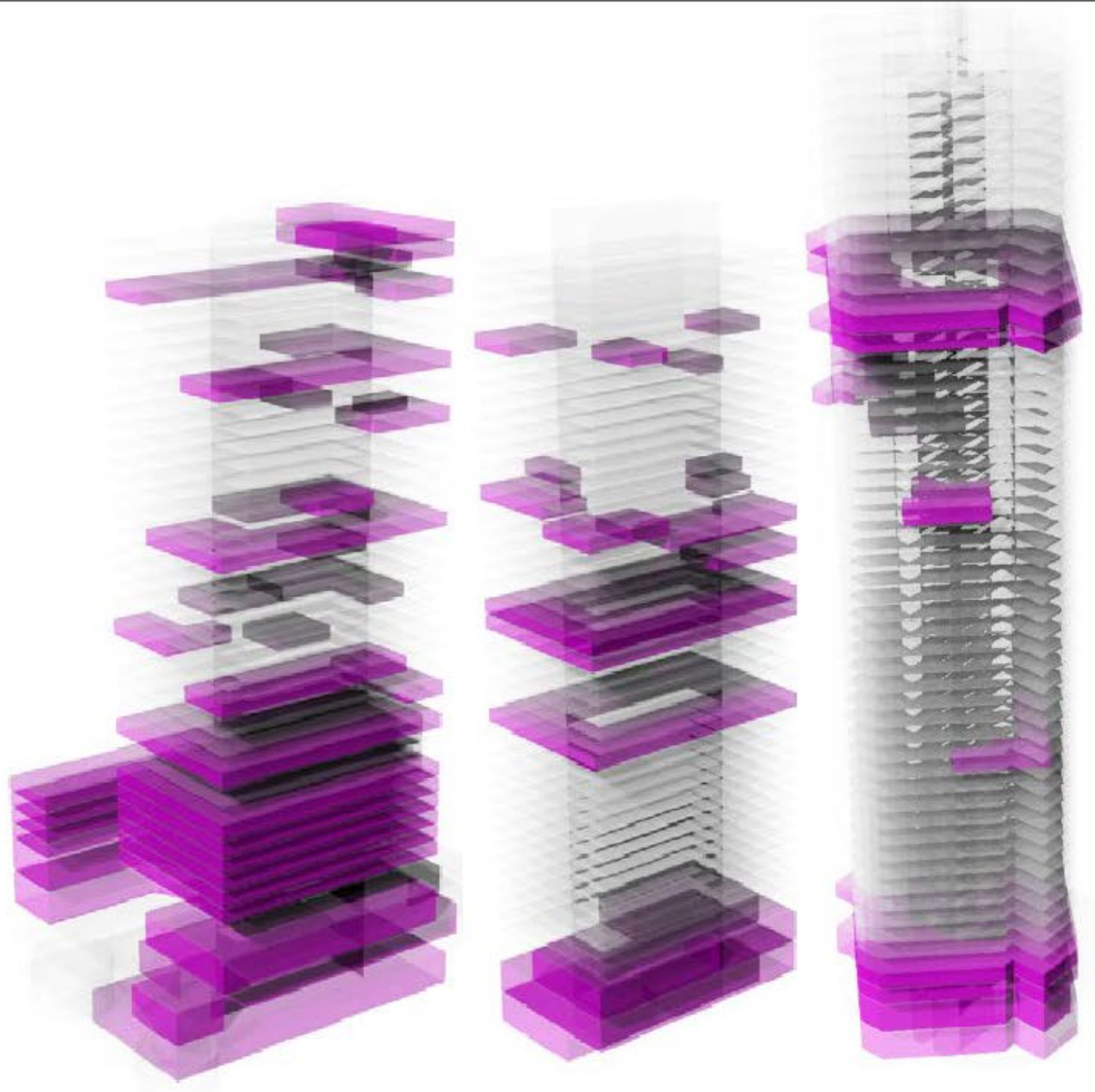
	2013 - 2014	2014 - 2015	2015 - 2016	2016 - 2017	2017 - 2018	2018 - 2019	2019 - 2020	2020 - 2021	2021 - 2022	2022 - 2023	2023 - 20	Instructional Capacity Range	
Elementary	1/4/94	1/9/95	1/3/96	1/7/97	12/1/97	1/11/99	1/10/00	12/18/00	11/26/01	11/18/02	Projected	From Template	
Arizona Fleming	N/A	541	656	744	766	**786**	741	**809**	**846**	**793**	**812**	650	777
Austin Parkway	**1008**	**964**	**1000**	**982**	520	529	528	555	563	633	675	743	887
Barrington Place	**961**	817	804	797	782	733	797	852	698	726	746	743	887
Blue Ridge	**675**	666	**709**	473	529	492	516	535	524	525	505	560	669
Brazos Bend	N/A	N/A	N/A	N/A	442	695	**798**	**883**	**972**	**964**	**1008**	650	777
Briargate	814	786	808	773	741	730	707	683	645	648	658	725	866
Burton	N/A	N/A	N/A	**825**	**857**	690	724	522	560	652	694	650	777
Colony Bend	**819**	810	792	744	714	697	652	590	532	542	510	684	817
Colony Meadows	820	864	**905**	**903**	**906**	843	800	763	726	714	700	743	887
Commonwealth	N/A	N/A	N/A	N/A	530	535	617	702	752	**849**	**875**	650	777
Dulles	**836**	537	524	530	543	534	540	510	558	**707**	**790**	527	629
Glover	N/A	655	725	728	759	787	782	732	740	745	762	743	887
Goodman	N/A	N/A	N/A	N/A	N/A	N/A	N/A	494	553	618	640	671	801
Highlands	748	720	730	755	785	**828**	768	731	715	687	690	689	823
Hunter's Glen	**1026**	648	649	652	623	672	683	676	656	704	704	689	823
Jones*	865	723	663	694	675	693	693	666	664	673	713	743	887
Jordan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	511	685	671	801
Lakeview	592	559	602	643	614	656	463	597	631	665	708	648	774
Lantern Lane	643	642	641	633	637	617	569	547	537	563	563	725	866
Lexington Creek	N/A	553	649	794	862	**927**	**935**	**888**	**931**	**905**	**911**	743	887
Meadows	453	473	485	497	502	501	485	452	438	442	460	743	887
Mission Bend	**904**	816	812	800	764	695	668	686	670	660	660	725	866
Mission Glen	**897**	705	784	**847**	**914**	**952**	763	816	**876**	747	771	689	823
Mission West	800	729	732	757	771	834	859	**908**	**911**	829	879	743	887
Oyster Creek	N/A	N/A	N/A	N/A	N/A	N/A	692	775	**820**	**841**	**850**	671	801
Palmer	**1002**	**1008**	**1023**	795	**855**	803	799	807	803	816	**836**	689	823
Pecan Grove	**843**	**849**	**855**	**859**	**843**	**836**	752	749	768	**841**	**871**	689	823
Quail Valley*	782	740	705	697	668	702	656	639	648	695	735	725	866
Ridgegate	**877**	**939**	**980**	**911**	**880**	**904**	**909**	**876**	843	**890**	**890**	725	866
Ridgemont	857	888	914	782	797	807	799	750	741	788	824	797	952
Rita Drabek	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	456	**852**	**952**	671	801
Settler's Way	765	732	748	773	733	685	673	630	613	557	587	689	823
Sienna Crossing	N/A	N/A	N/A	N/A	N/A	467	610	519	633	793	**985**	671	801
Sugar Mill	754	726	720	669	645	649	662	600	533	510	521	689	823
Townewest	**818**	**843**	785	761	710	697	680	672	622	614	614	684	817
Walker Station	611	787	**981**	**1189**	**1016**	**1053**	**979**	**935**	**917**	**957**	**947**	743	887
TOTALS	20170	20720	21381	22007	22383	23029	23299	23549	24095	25656	26731	**24990**	**29845**





Current Leases by Renewal Year

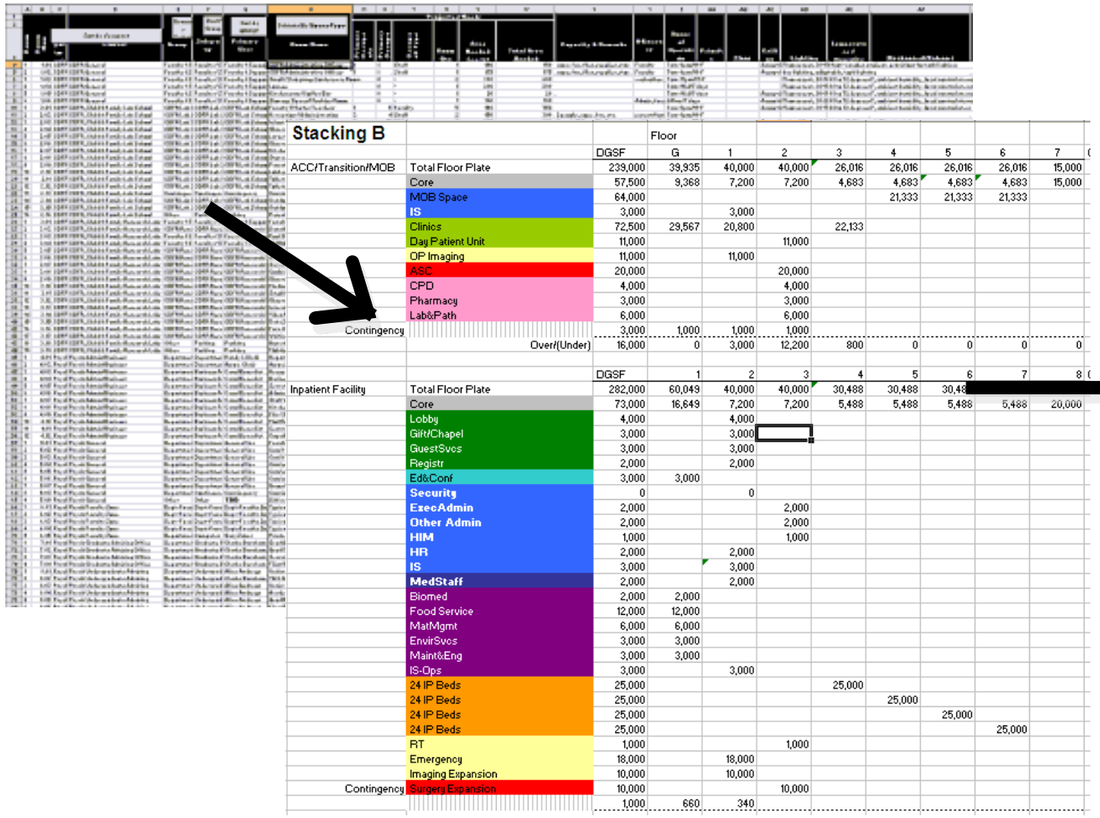




VACANT 2013 2014 2015 2016 2017 2018 2019+

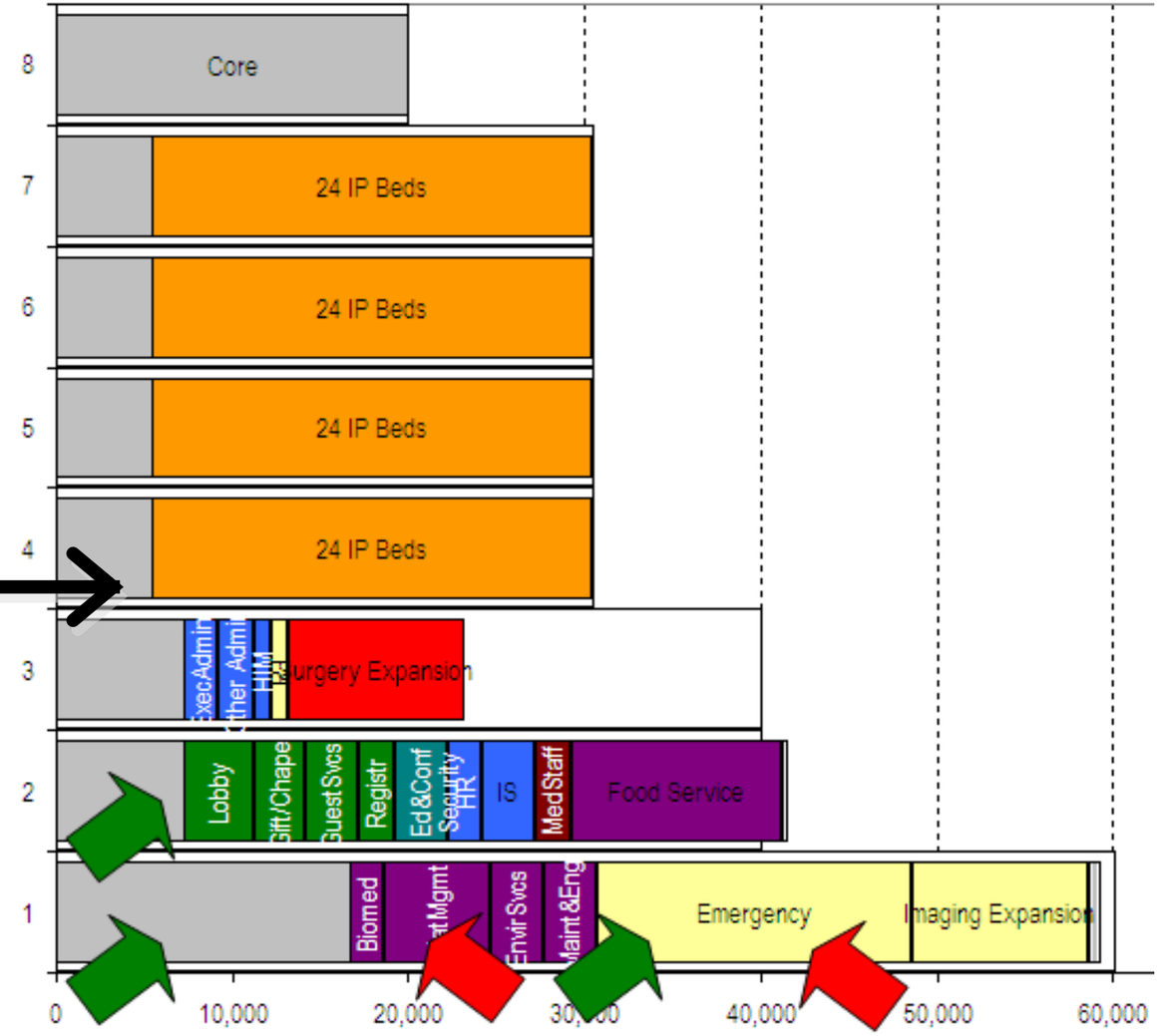
Real Time Option Analysis

Blocks linked to space list, always to scale. Live what-ifs.



Stacking B

		Floor								
		DGSF	G	1	2	3	4	5	6	7
ACC/Transition/MOB	Total Floor Plate	239,000	39,935	40,000	40,000	26,016	26,016	26,016	26,016	15,000
	Core	57,500	9,368	7,200	7,200	4,683	4,683	4,683	4,683	15,000
	MOB Space	64,000					21,333	21,333	21,333	
	IS	3,000		3,000						
	Clinics	72,500	29,567	20,800		22,133				
	Day Patient Unit	11,000			11,000					
	OP Imaging	11,000		11,000						
	ASC	20,000			20,000					
	CPD	4,000			4,000					
	Pharmacy	3,000			3,000					
	Lab&Path	6,000			6,000					
Contingency		3,000	1,000	1,000	1,000					
	Over/(Under)	16,000	0	3,000	12,200	800	0	0	0	0
		DGSF	1	2	3	4	5	6	7	8
Inpatient Facility	Total Floor Plate	282,000	60,049	40,000	40,000	30,488	30,488	30,488		
	Core	73,000	16,649	7,200	7,200	5,488	5,488	5,488	5,488	20,000
	Lobby	4,000		4,000						
	Gift/Chapel	3,000		3,000						
	GuestSvcs	3,000		3,000						
	Registr	2,000		2,000						
	Ed&Conf	3,000	3,000							
	Security	0		0						
	ExecAdmin	2,000			2,000					
	Other Admin	2,000			2,000					
	HIM	1,000			1,000					
	HR	2,000		2,000						
	IS	3,000		3,000						
	MedStaff	2,000		2,000						
	Biomed	2,000	2,000							
	Food Service	12,000	12,000							
	MatMgmt	6,000	6,000							
	EnvirSvcs	3,000	3,000							
	Maint&Eng	3,000	3,000							
	IS-Ops	3,000		3,000						
	24 IP Beds	25,000				25,000				
	24 IP Beds	25,000					25,000			
	24 IP Beds	25,000						25,000		
	24 IP Beds	25,000							25,000	
	RT	1,000			1,000					
	Emergency	18,000		18,000						
	Imaging Expansion	10,000		10,000						
Contingency	Surgery Expansion	10,000			10,000					
		1,000	660	340						

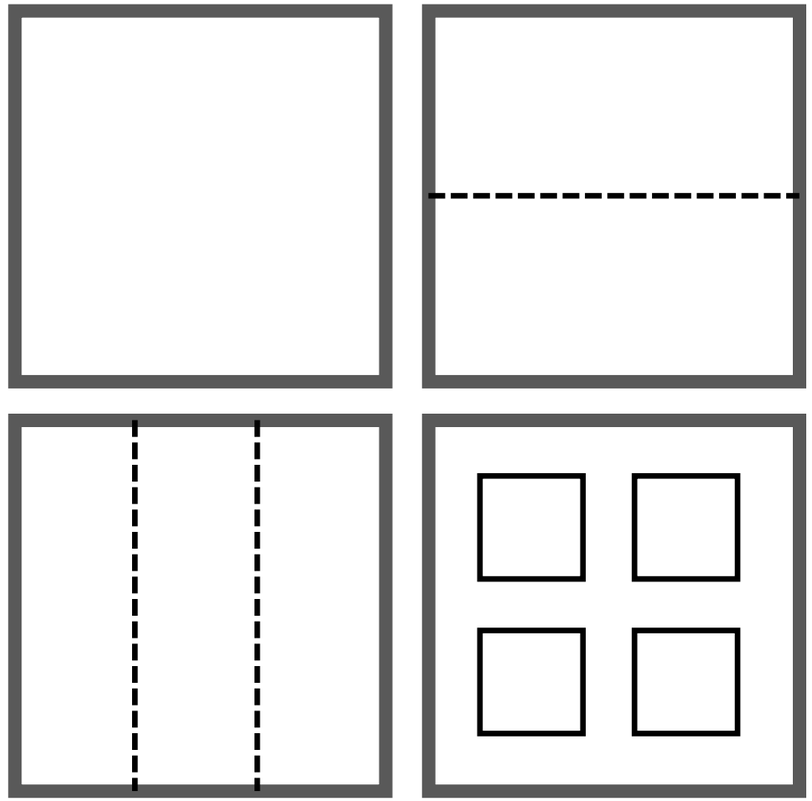


To help get decisions that stick, when programming and developing solutions:

Plan in **flexibility** by **accommodating multiple or changing decisions**

- Scenario Planning may help
- Modular Spaces
- Etc.

That way, even if the decision changes, the design won't have to.

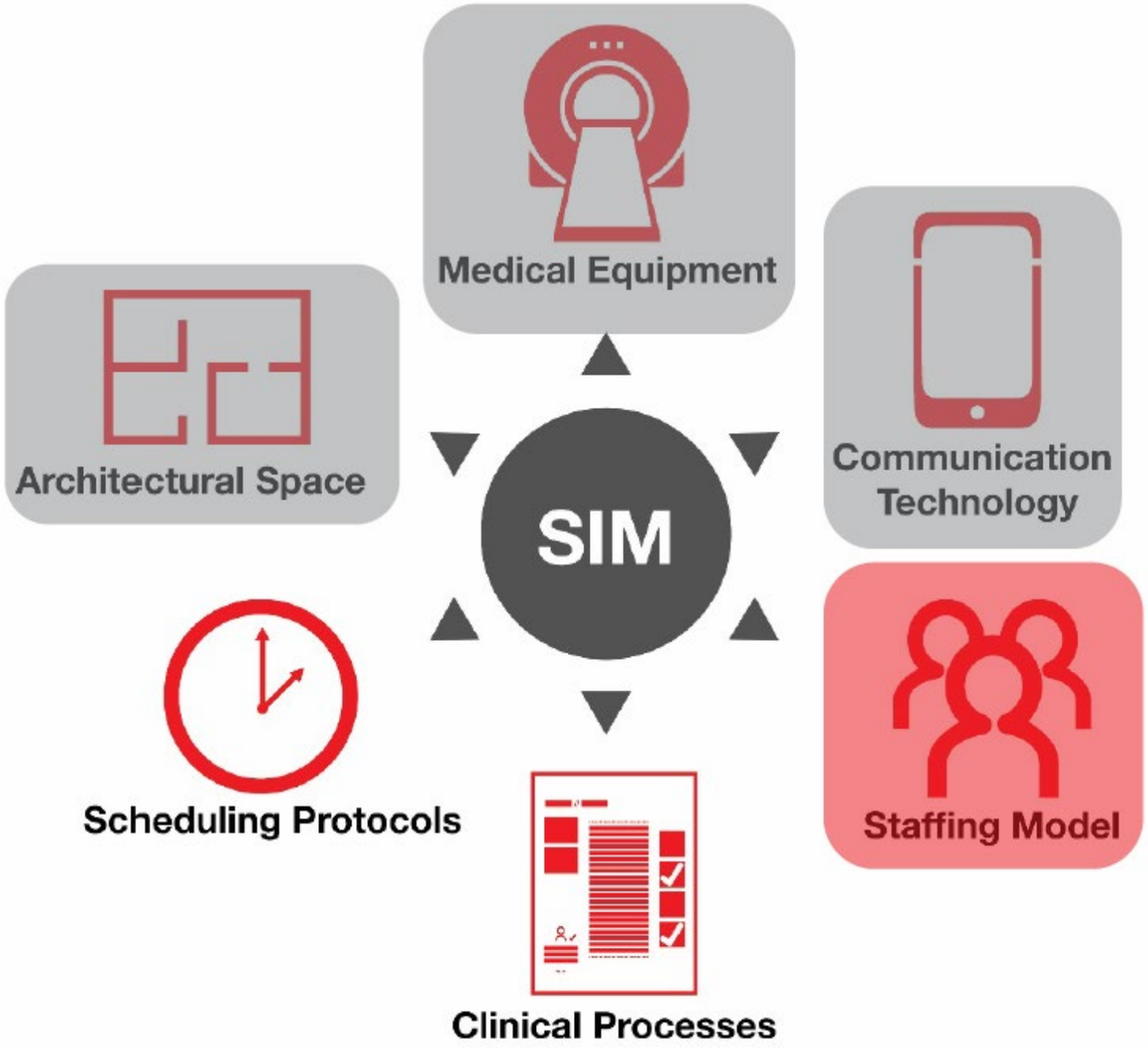


Predictive Analytics / Simulation Modeling

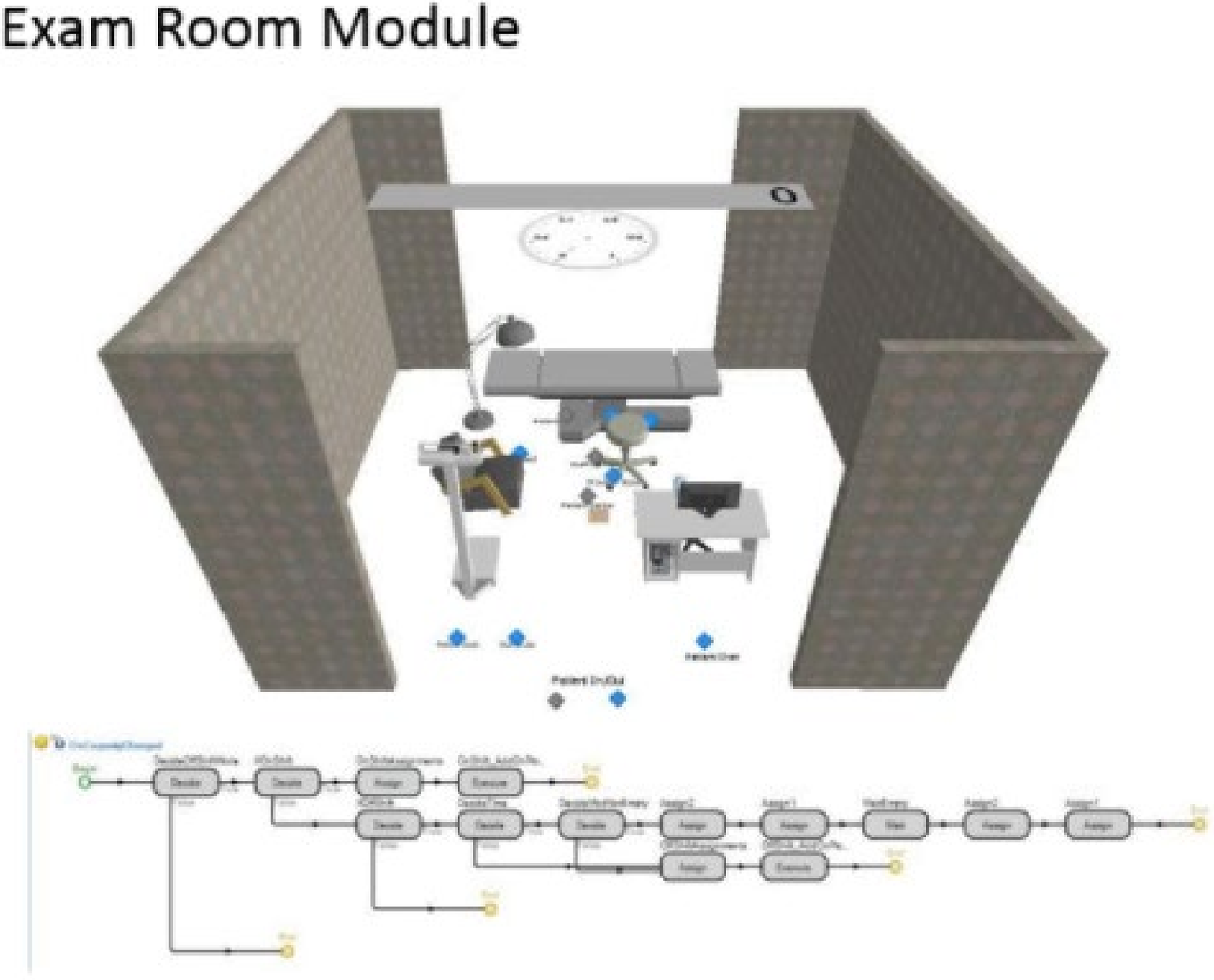
Allows the design team to weigh the benefits of **first cost** capital investments …

with the benefits of **operational cost** reduction strategies …

to find an **optimal balance** between the two.

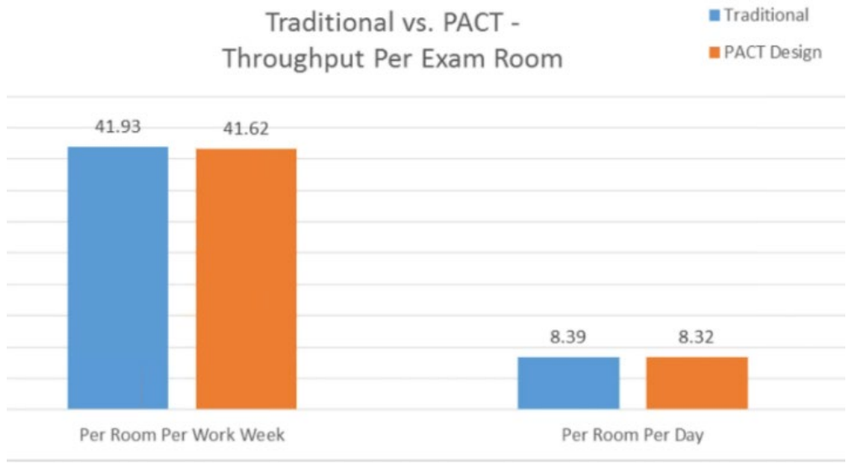


Elements Have Custom Process Logic and Decisions Built In

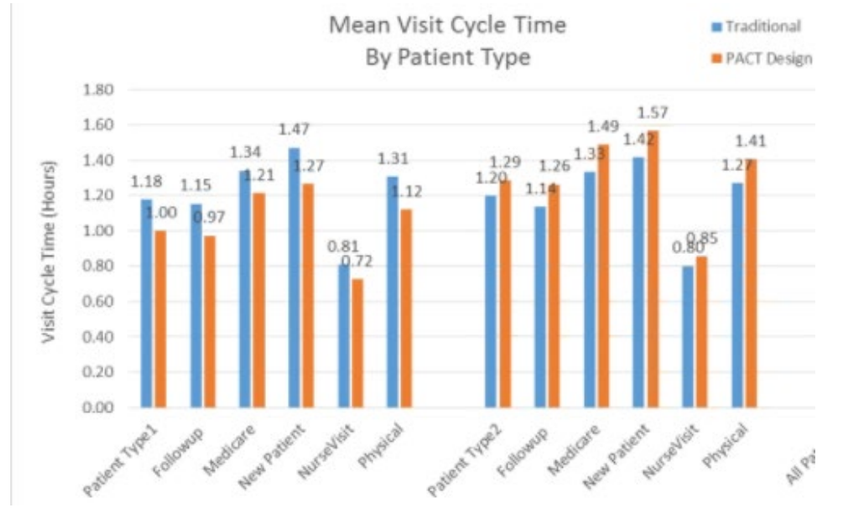


Discrete Event Simulation Models Highlight Bottlenecks and Foster Improvements in Process and Plan

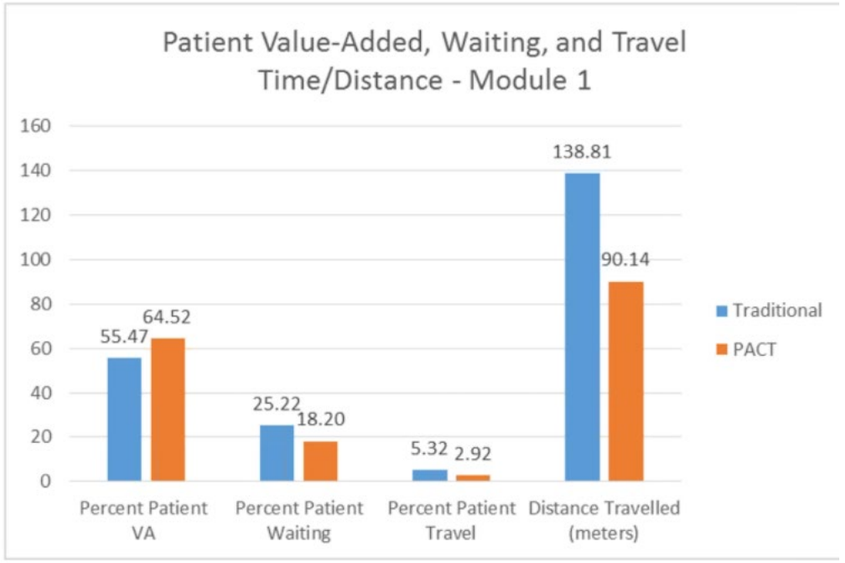
Range of Data to Inform Operations and Design Decisions



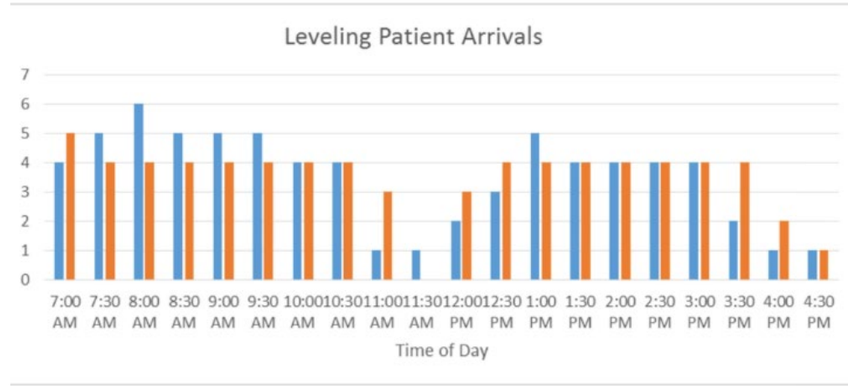
Throughput Per Exam Room



Cycle Time by Patient Type



Value-Added Time, Travel Distance



Leveling Patient Arrivals

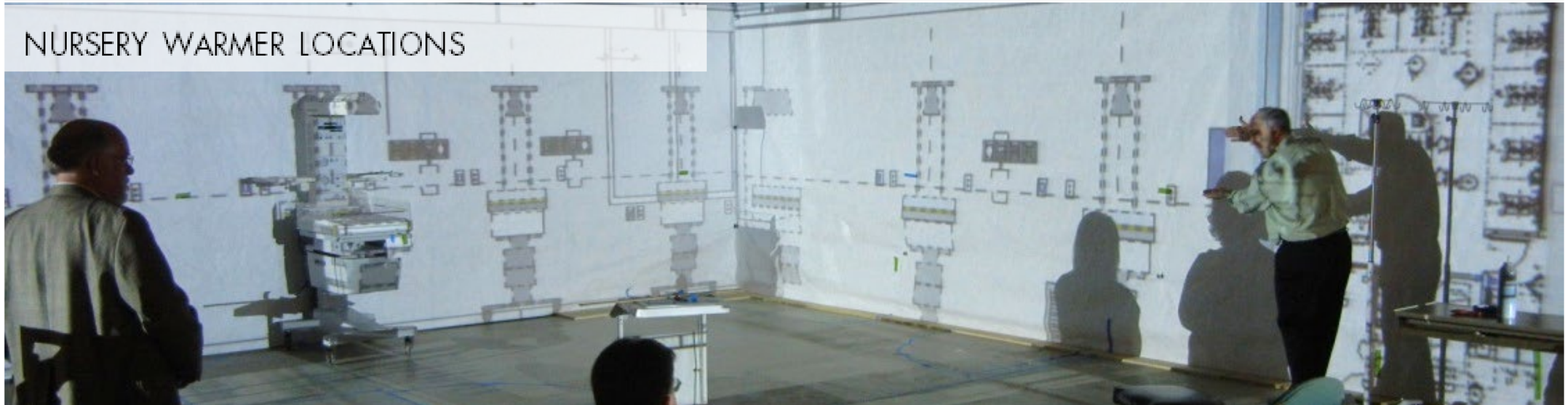
Admit it. Most customers don’t understand drawings.

For a layperson, how well do 2D drawings communicate a 3D or 4D concept?

2D Mock-ups for 2D Decisions

ACTUAL LDRP BED AND INFANT WARMER

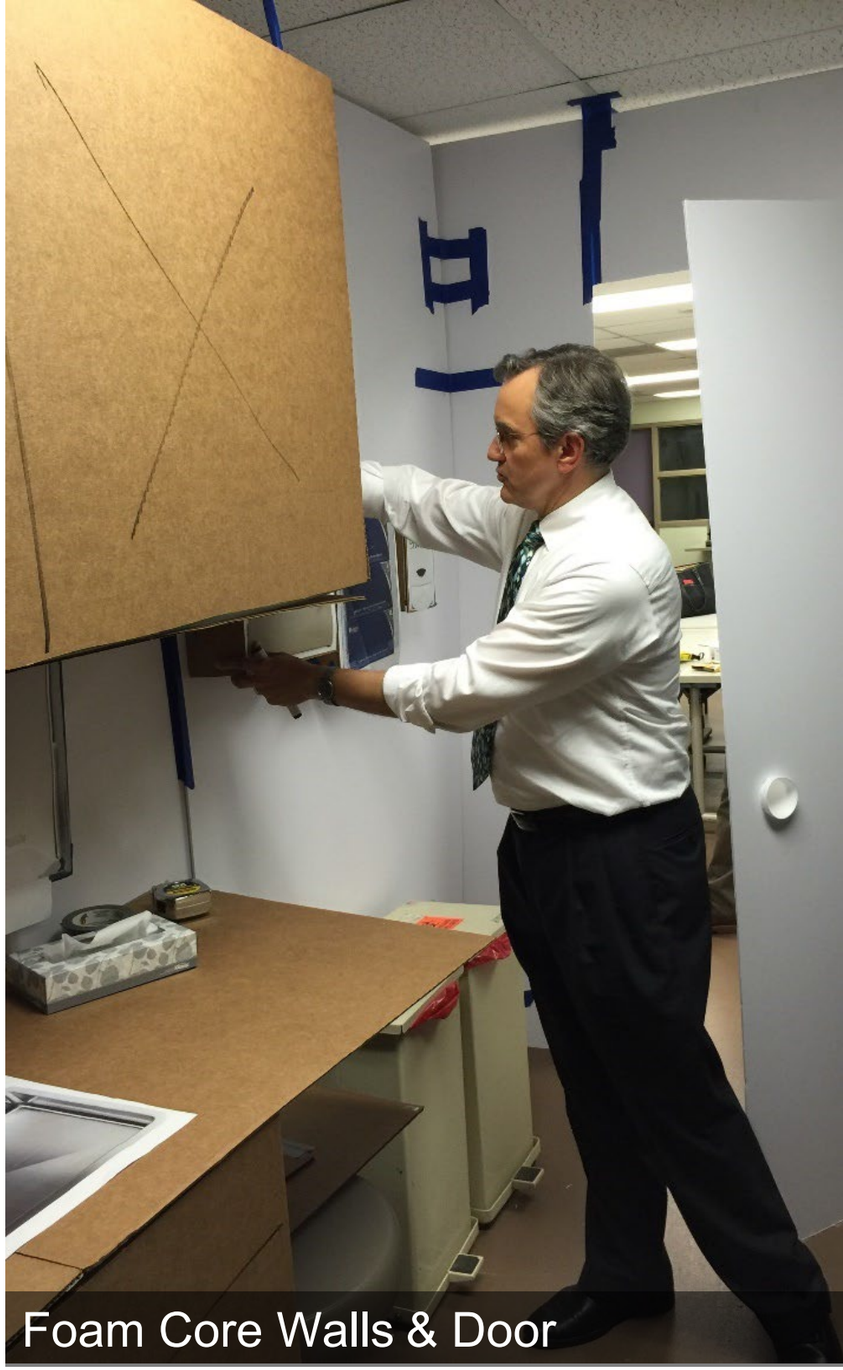
NURSERY WARMER LOCATIONS



3D Mock-ups for 3D Decisions


Cardboard Furniture, Easily Revised

Photos of Accessories, Easily Moved


Foam Core Walls & Door

Physical Simulation for 4D Questions

Virtual Reality – allows design to be experienced

The promise of BIM is more analysis during design, leading to better-informed design decisions.

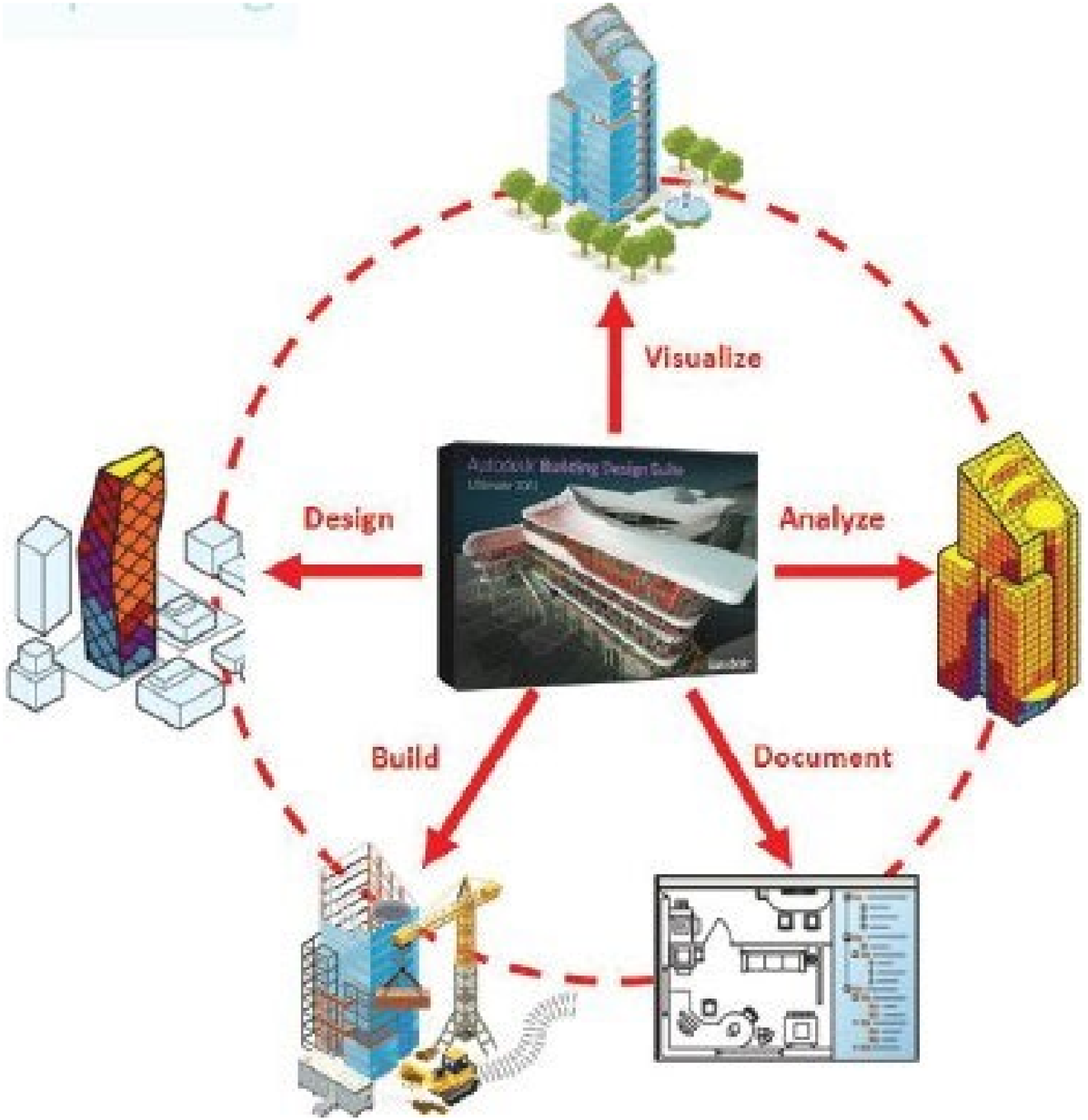
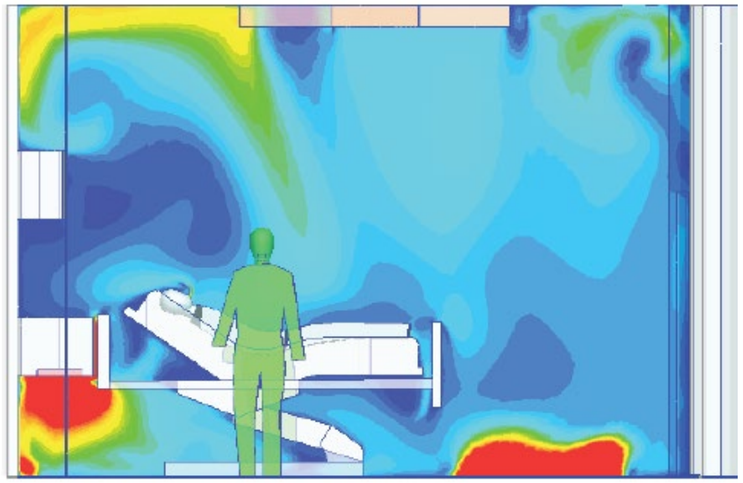
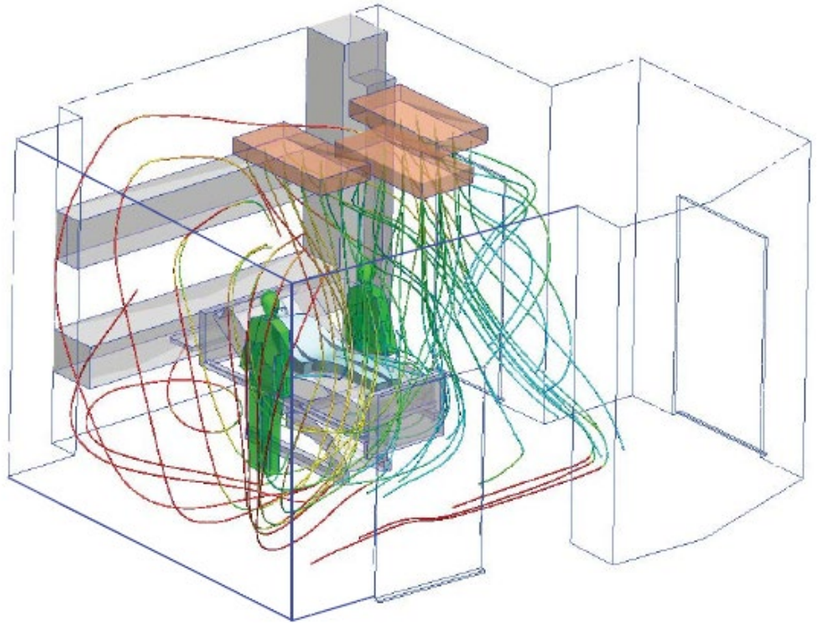
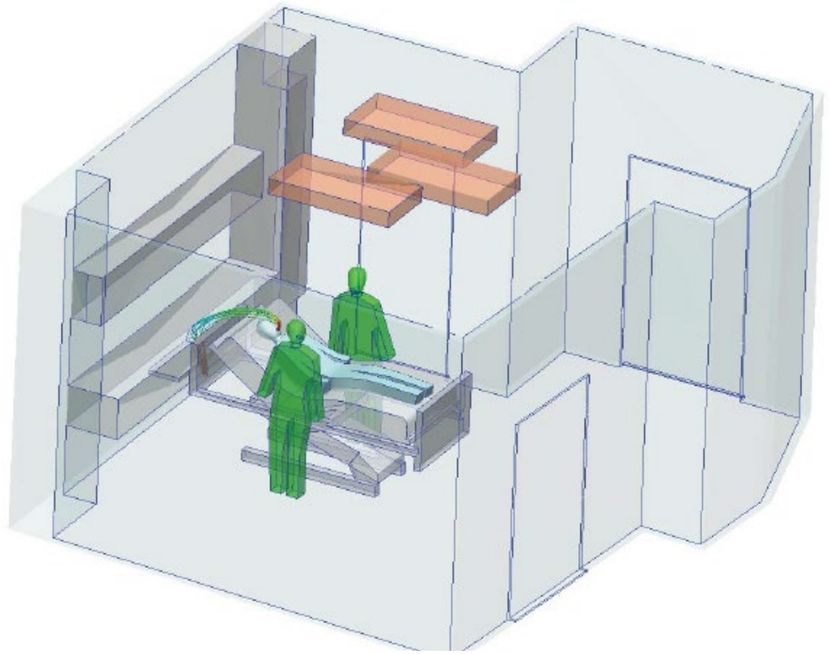


Image: www.varisys.com

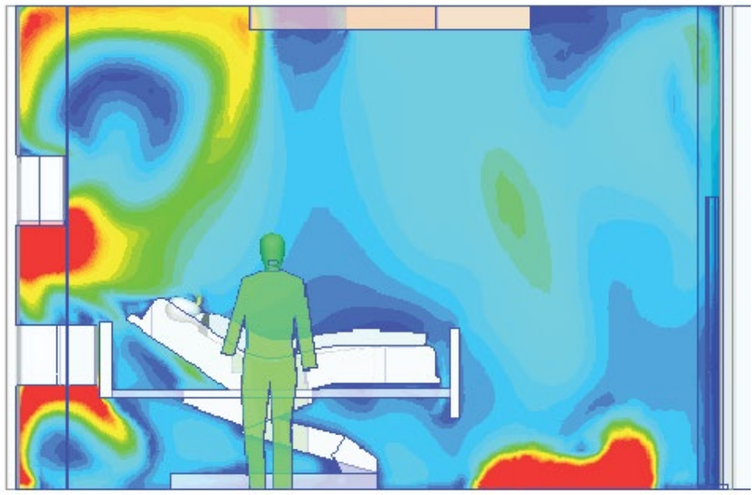
Base Case

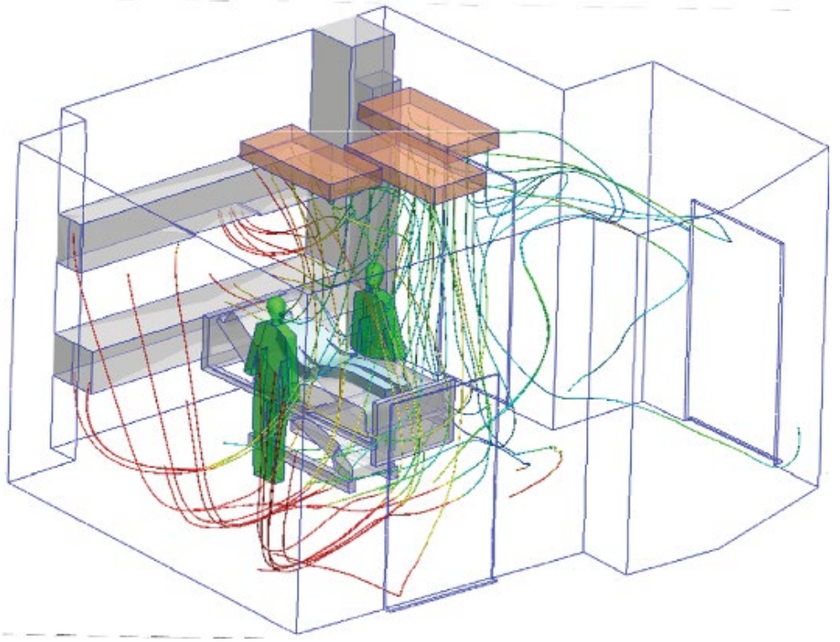


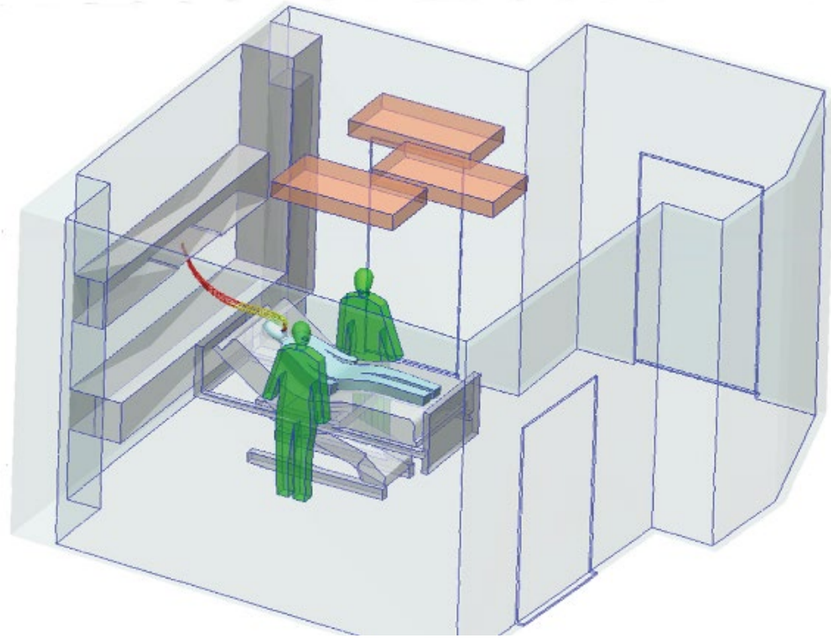




Alternative Case 2
(higher-positioned exhaust)





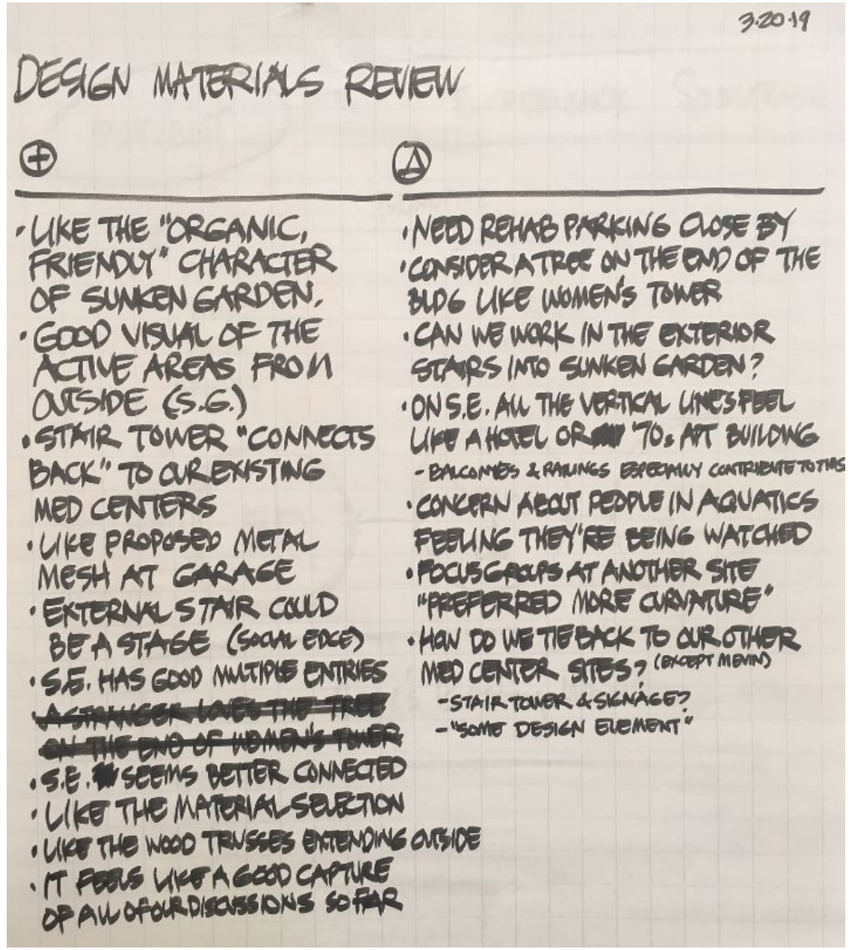


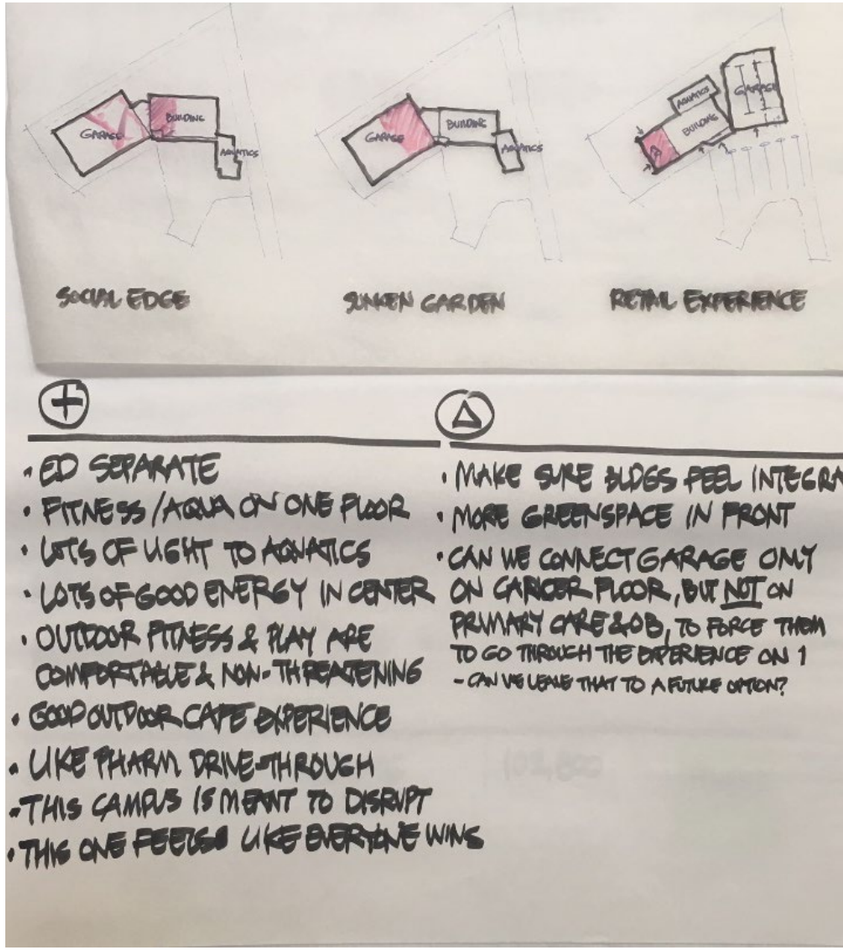
Computational Fluid Dynamics Studies

Commissioned by SSR

Pluses/Deltas

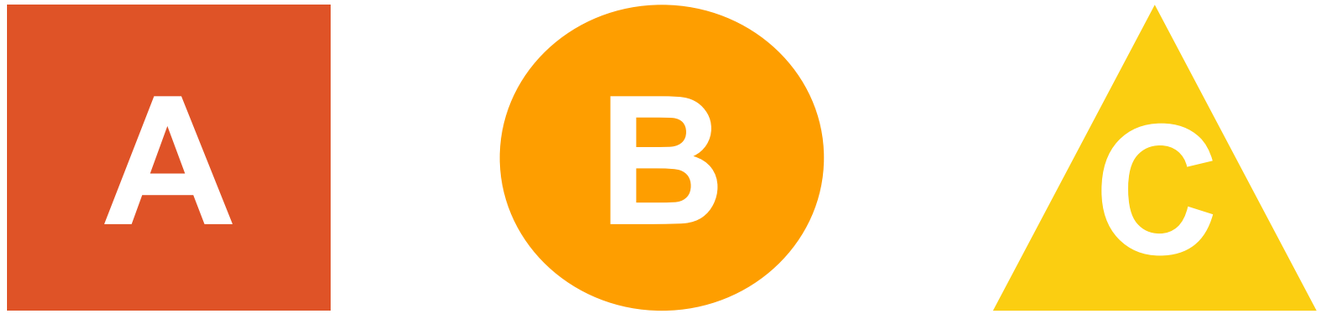
- Valuable for Evaluating Design Alternatives (Options A, B, C)
- Conclude Meetings with +/Δ (Continuous Improvement)





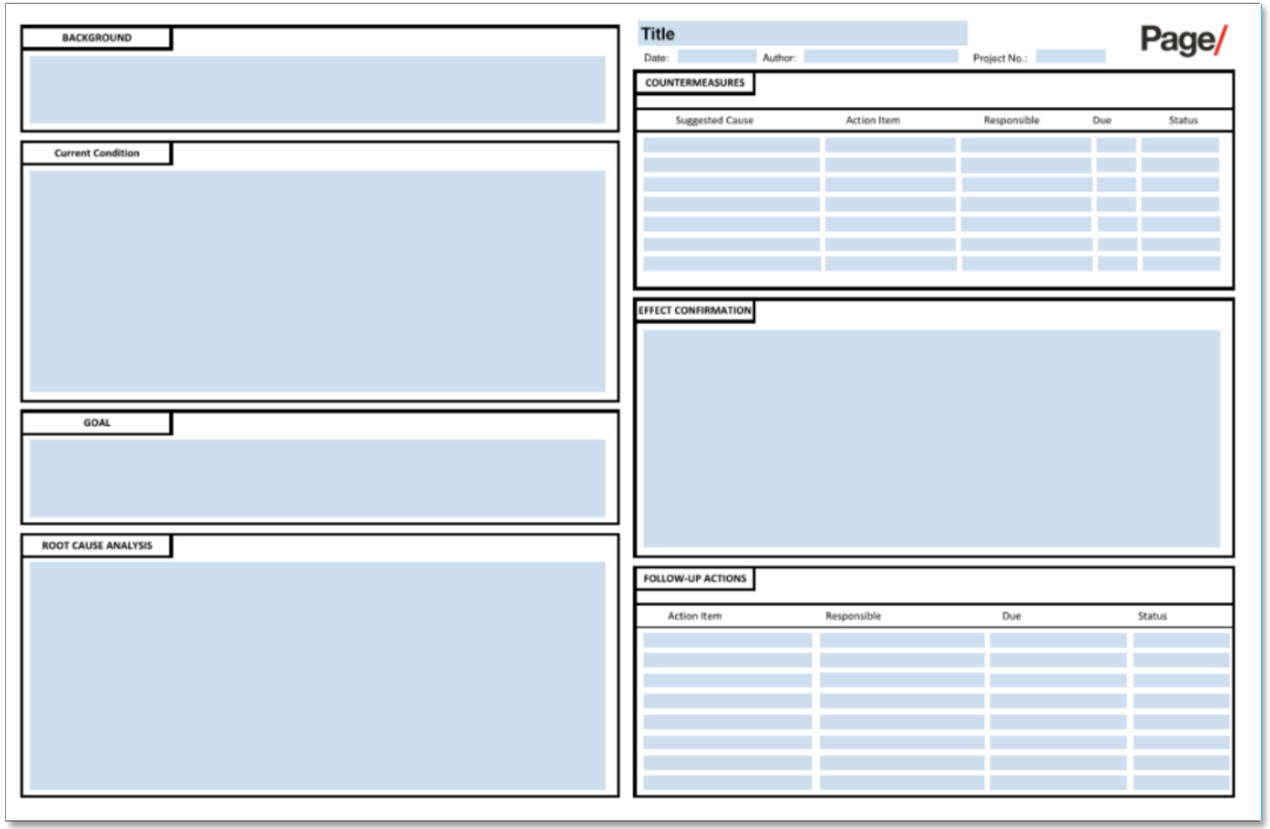
In Search of the Hybrid

While evaluating design alternatives—when the number of possibilities is not finite—identifying **Pluses and Deltas** for each option will help the design team develop the “best of all worlds” option



A3 – Record of Decisions

- A3 originally referred to the paper size (approx. 11x17)
- The purpose is to summarize a thorough analysis succinctly
- An A3 should capture the scientific method
- Information generally includes:
  - Background
  - Current Condition
  - Goal / Target Condition
  - Root Cause Analysis
  - Countermeasures Studied
  - Results / Effects / Recommendations
  - Follow-up / Action Items



Be sure to include all factors important to decision-makers

- ✓ **Conditions of Satisfaction / Critical Success Factors**
- ✓ **Scope / Schedule / Budget**
- ✓ **Long Term Operating Costs or Life Cycle Costs**
- ✓ **Other Qualitative Aspects (environmental, political, etc.)**

Decision Matrices

"Eisenhower Matrix" /
Stephen Covey, *Seven Habits*

	URGENT	NOT URGENT
IMPORTANT	Quadrant I *urgent and important* **DO**	Quadrant II *not urgent but important* **PLAN**
NOT IMPORTANT	Quadrant III *urgent but not important* **DELEGATE**	Quadrant IV *not urgent and not important* **ELIMINATE**

"Ben Franklin"
Pros & Cons,
Strike equally weighted opposing items

Name: _____ Date: _____

Title:

Weighted Matrix

Decision: Site Selection

Factors	Weight	Option 1 Score	Option 1 Weighted	Option 2 Score	Option 2 Weighted
Pass/Fail Factors					
Available in Time	Binary	Pass		Pass	
Weighted Factors					
Site Visibility	20%	8	1.6	9	1.8
Site Accessibility	20%	5	1	8	1.6
Availability of Utilities	20%	8	1.6	8	1.6
Purchase Cost	20%	5	1	8	1.6
Site Devel't Costs	20%	7	1.4	3	0.6
	100%		6.6		7.2

Less-than-Helpful Decision Support

Intentionally or unintentionally misleading

- May include criteria unimportant to the decision-makers
- May use generalizations, not data
- Unweighted factors imply equal weighting
- Double-count or over-weight some criteria
- The weight of cost will vary with each option

Site Plan Options

Options	A	B	C	D	E	F
Vehicular Circulation						
Traffic Congestion						
Drop-off Experience						
Passenger Comfort						
Wayfinding						
Easier to Draw						
Impact on Schedule						
Construction Costs						

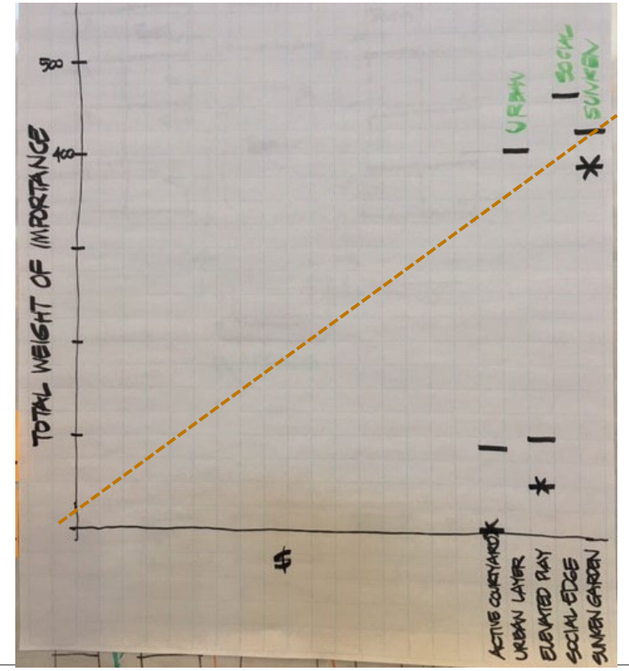
Garage Structure Options

	Concrete	Steel
Clear celing height		
Thickness of structure		
Weight of structure		
Foundation depth		
Schedule Impact		
Construction Cost		
Operating Costs		
Life Cycle Costs		

Choosing By Advantages

A method to evaluate options by weighing the “importance of advantages” against the costs

	A. Social Edge		B. Sunken Garden		C. Urban Layer		D. Elevated Play		E. Active Courtyard	
Creates a Destination; a "Third Place"										
Prefer a welcoming image	most welcoming	90		85		75	least welcoming			50
Iconic, Inspirational, Instagrammable, Distinctive										
Prefer visible, iconic, memorable building	most iconic	70		65		60		50	least iconic	
Visually Fits w/Landscape, Community, Cone										
Prefer authentic fit to brand evolution	best fit	80		65		70		50	least fit	
Intitulitive Site Layout, Instantly Understandable										
Prefer easy-to-understand site circulation; retail feel	most intuitive	80		60		65	least understandable			40
Long Term Flexibility										
Prefer design that accommodates alternative uses easily		40		50	most flexible	50	least flexible		least flexible	
Factor										
Prefer...										



Risk Informed Decision Making

Sequence the work to make "No-Regret Decisions"

Provide net benefits regardless of future outcomes

Generalized 5x5 Risk Matrix

Likelihood or Probability			Severity, Impact or Consequence				
			1	2	3	4	5
			Insignificant/ Negligible	Minor	Moderate	Significant / Major	Severe / Catastrophic
	5	Almost Certain	Low Med	Medium	Med Hi	High	High
	4	Likely / Frequent	Low	Low Med	Medium	Med Hi	High
	3	Possible / Occasional	Low	Low Med	Medium	Med Hi	Med Hi
	2	Unlikely / Remote	Low	Low Med	Low Med	Medium	Med Hi
	1	Rare	Low	Low	Low Med	Medium	Medium

LCI's Risk & Opportunity Register

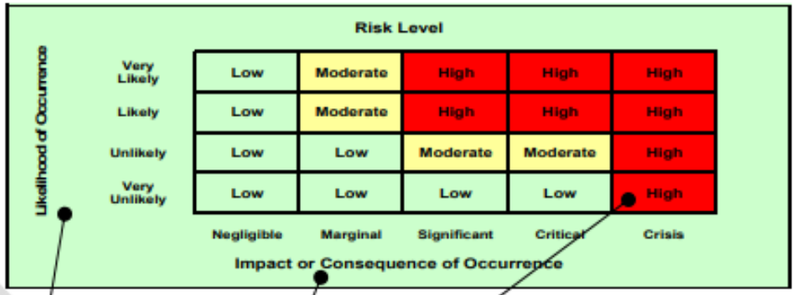
Figure 1: General format example of a summed list for a Risk and Opportunity Register

Description	Condition of Satisfaction	Probability (%)*	Cost ($)**	%x$	Champion	Sunset Date
Price of primary widget has quadrupled due to closing of 95% of widget mines	Cost Constraint of "less of $500MM"	80%	$100MM	$80MM	Dr. Worm	July 4th, 2076

Source: https://leanconstruction.org/lean-topics/risk-and-opportunity-register/

Figure 2. Risk-Priority Matrix

Sample Risk Register for Project Delivery Team (PDT)



Project Name & Alternative for Study

Alternative Name and Scope: Briefly clarify the alternative under study and provide a narrative of the major construction features.

Risk No.	PDT-developed Risk/Opportunity Event (logic by feature, contract, responsibility)	PDT Event Concerns (include all to archive)	PDT Discussions (support the likelihood and impact)	Responsibility/POC	Project Cost			Project Schedule		
					Likelihood*	Impact*	Risk Level*	Likelihood*	Impact*	Risk Level*
Contract Risks (Internal Risk Items are those that are generated, caused, or controlled within the PDT's sphere of influence.)										
	PROJECT & PROGRAM MGMT									
PPM-1	Project Personnel Resources	Gov't personnel resources for project management and execution may be insufficient during peak periods of PED and Procurement. Personnel turnover and reassignments have been relatively.	The project has high visibility and a reasonable execution schedule. A majority of the effort is supported by A-E activities as well as design/build (D/B) acquisition strategy. Personnel resource levels are less of an impact with the exception of initial studies and coordination with outside stakeholders.	Project Manager Acquisition Professional	Likely	Negligible	Low	Likely	Marginal	Moderate
PPM-2	Project Experience with Civil Design/Build	Experience of USACE personnel with civil D/B construction activities is relatively limited.	Local contractor staff, A-E and the winning bidder likely have the necessary experience. Lessons learned from similar large projects are improving knowledge base.	-	Likely	Negligible	Low	Likely	Negligible	Low
PPM-3	Unanticipated Requirements and Reviews	More internal and external input and review are anticipated because of the high profile nature of the project.	The initial project plan is highly scrutinized by stakeholders who prefer different alternatives. Added coordination, study and possibly further funding needs are likely.	Project Manager	Very Likely	Marginal	Moderate	Very Likely	Marginal	Moderate
PPM-4	External Agency Resource Availability	Numerous non-federal agencies with project interest may lack resources to address issues in a timely manner.	Non-federal agencies likely have competing priorities unrelated to the project. Their priorities may differ from USACE priorities.	Project Manager	Very Likely	Negligible	Low	Very Likely	Marginal	Moderate

Source: https://www.nww.usace.mil/Portals/28/docs/costengineering/CSRA/CSRA_Guidance.pdf

If someone can't make a difficult decision…

Flip a coin.

Then see how if feels.

Many decisions are made with your heart and justified with facts.

10 Methods

1. **Identify the Decision-*makers***
   …and the Decision-*breakers*
2. **Establish Decision Protocol**
   Who gets to make which decisions?
3. **Responsibility Matrix Helps Codify**
4. **Explain the Process to Participants**
   and the gravity of timely decisions
5. **Identify & Share Decisions By Phase**
   "Speak Now or Forever Hold Your Peace"
6. **Facilitate Decisions**
   Provide the Information Needed to Decide
7. **Does This Decision Need to be Made?**
8. **Go to Gemba** (where the value is created)
9. **Only Ask Questions You Want Answered**
10. **Help Your Customers Answer Difficult Questions**

Bonus: Establish Policy of Firm Decisions

10 Tools & Techniques

1. **Make Decision Factors Visible**
   High Tech & High Touch
2. **Analyze Data / Distill / Present**
3. **Make Information Understandable and Actionable**
4. **Facilitate Real Time Option Analysis**
5. **Simulation Modeling**
   can inform decisions about complex systems
6. **Customers Don't Understand Drawings**
   Mock-ups Help
7. **BIM Model Analysis, e.g., CFD**
8. **Plus/Delta, A3, Decision Matrix, CBA**
9. **Risk Informed Decision Making**
10. **Choice Architecture**

Bonus: For Really Tough Decisions, Flip A Coin

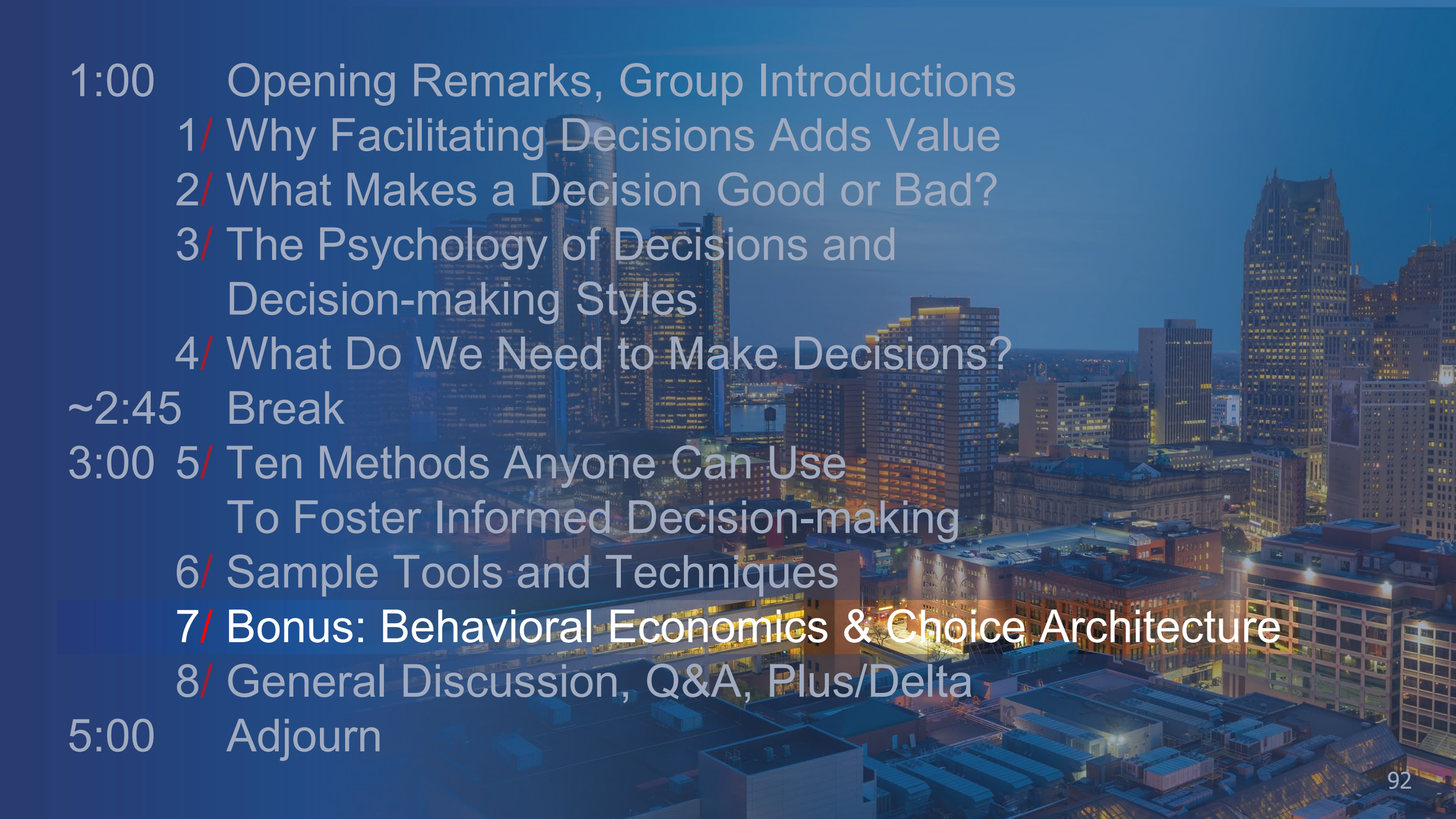
Share Examples Where Either:

- You used some of these techniques successfully
- Projects went awry and some combination of these would have been helpful

10 Tools & Techniques

1. **Make Decision Factors Visible**
   High Tech & High Touch
2. **Analyze Data / Distill / Present**
3. **Make Information Understandable and Actionable**
4. **Facilitate Real Time Option Analysis**
5. **Simulation Modeling**
   can inform decisions about complex systems
6. **Customers Don't Understand Drawings**
   Mock-ups Help
7. **BIM Model Analysis, e.g., CFD**
8. **Plus/Delta, A3, Decision Matrix, CBA**
9. **Risk Informed Decision Making**
10. **Choice Architecture**

Bonus: For Really Tough Decisions, Flip A Coin



1:00 Opening Remarks, Group Introductions

1/ Why Facilitating Decisions Adds Value

2/ What Makes a Decision Good or Bad?

3/ The Psychology of Decisions and Decision-making Styles

4/ What Do We Need to Make Decisions?

~2:45 Break

3:00 5/ Ten Methods Anyone Can Use To Foster Informed Decision-making

6/ Sample Tools and Techniques

7/ Bonus: Behavioral Economics & Choice Architecture

8/ General Discussion, Q&A, Plus/Delta

5:00 Adjourn

Are you being tricked by intuition? A Quick Quiz

Q1: A bat and a ball cost $1.10 in total. The bat costs $1.00 more than the ball. How much does the ball cost?

A: $.05

Q2: If it takes five machines five minutes to make five widgets, how many minutes would it take 100 machines to make 100 widgets?

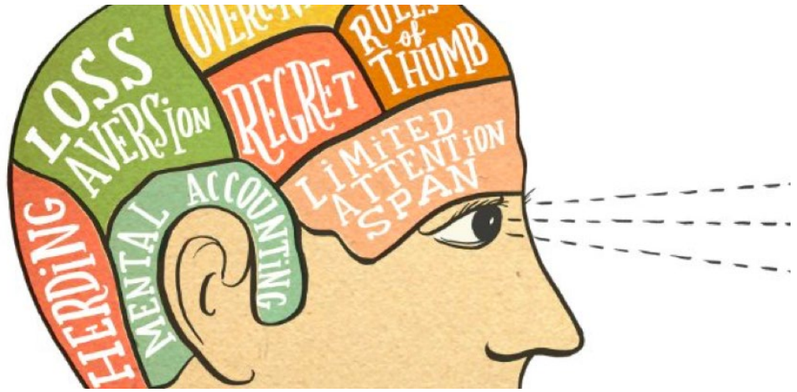
A: 5

Q3: In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how many days would it take for the patch to cover half the lake?

A: 47

Source: https://hbr.org/2015/05/leaders-as-decision-architects

Behavioral Economics



Behavioral Economics studies the effects of psychological, cognitive, emotional, cultural and social factors in decision-making, and how they deviate from classical economic theory.

- **Bounded Rationality** - When making decisions, rationality is limited by the tractability of the problem, cognitive limitations and the time available. "Humans take shortcuts that may lead to suboptimal decision-making"
- **Availability Heuristic** - People often rely on easily recalled information, rather than actual data.
- **Bounded Self-Interest** - People don't always optimize for themselves; they can also be charitable.
- **Bounded Willpower** - People often choose short-term benefit over incremental progress toward a long-term goal.
- **Loss Aversion** – Many find it more painful to lose $100 than the benefit of finding $100.
- **Non-linear Probability Weighting** – People overweight small probabilities and underweight large probabilities.

Sources: https://news.uchicago.edu/explainer/what-is-behavioral-economics and wikipedia

Heuristics and Cognitive Effects

- **Mental Accounting** - We are more willing to drive across town to save $10 on a $20 item than save $10 on a $100 item.
- **Anchoring** – Mental reference point.
- **Herd Behavior** – Tendency to mimic others.
- **Framing Effects** – How choices are framed influences decisions.

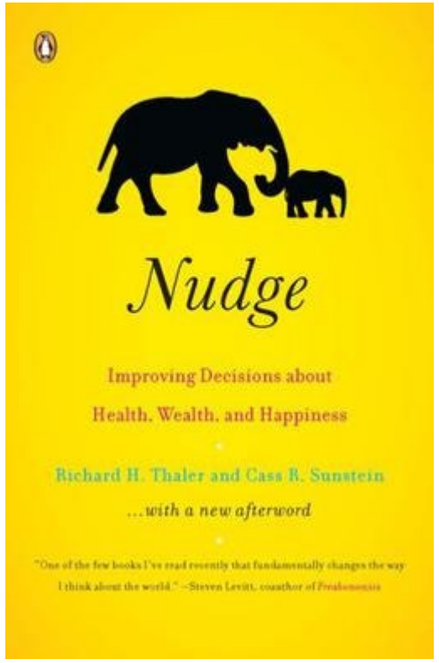
Fallacies

- **Narrative Fallacy** – When people use narratives to connect random events, which can lead to false cause-effect conclusions.
- **Sunk-Cost Fallacy** – Many people will continue to invest in a losing project simply because they are already heavily invested—even if it means risking more losses.

Biases

- **Present Bias** – Tendency to want rewards sooner (e.g. smoking, snacking)
- **Recency Bias** – When a person places greater weight on a particular outcome simply because it just occurred.
- **Confirmation Bias** – The tendency to positively favor information that is consistent with one's beliefs.
- **Familiarity Bias** – Tendency to return to what people know and are comfortable with.
- **Status Quo Bias** – The tendency to keep things the way they are.
- **Endowment Effect** – People value things more highly if they own them. They require more to give up an object they own than they would be willing to pay to acquire it.

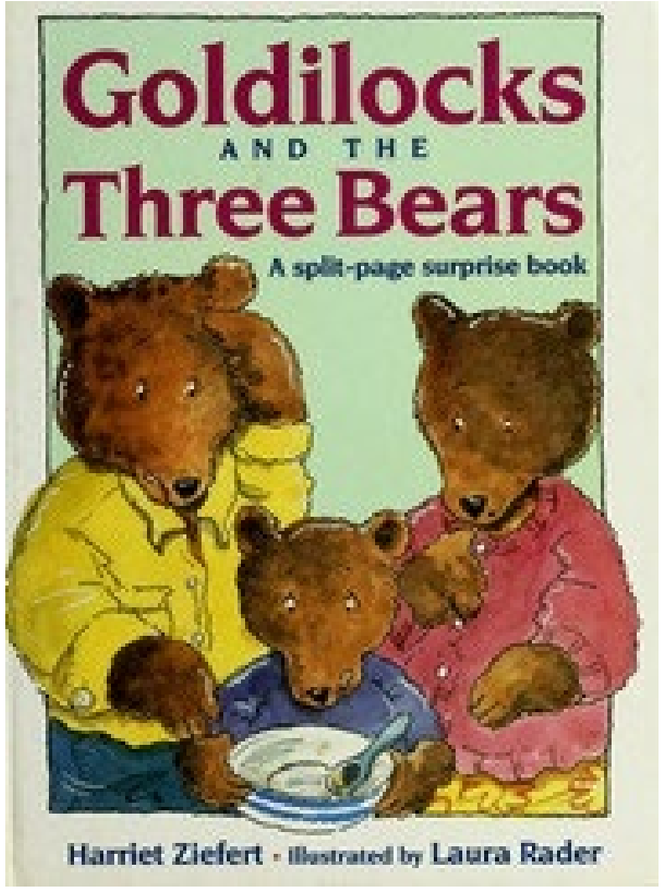
Nudge Theory & Choice Architecture



The way you present choices can influence what people end up choosing.

- **Nudge** – Indirect suggestions influence choices—without forbidding them to do things or heavily incentivizing. People usually choose the more convenient option. Healthy snacks.
- **Defaults** – The option selected if the user does nothing. 401(k)s
- **Reduce Choice Overload** – Too many choices can be overwhelming and hinder decision-making. Study with jam tasting: 6 flavors → 30% purchased; 24 flavors → 3% bought.
- **Choice Over Time** – People are better able to overcome short-term biases when the options draw attention to future outcomes.
- **Partitioning Options and Attributes** – How data is aggregated and categorized can influence decisions.
- **Avoiding Attribute Overload** – Limiting attributes may help reduce cognitive effort, but some skipped might be important.
- **Translating Attributes** – Improve evaluability and comparability of attributes. Graphs, labels, icons, etc.

Goldilocks Principle



People seeking the *just right* solution tend to choose the middle option in a set of three.

- **Good / Better / Best** product options
- **Anchoring** – The first and last stimuli are used to compare the other stimuli
  - Guess Mahatma Ghandi age at his death.
- **Anchoring and Adjusting** – People tend adjust away from the anchor (insufficiently if the anchor is spurious)
- **Extremeness Aversion** – Estimators are less likely to choose an amount close to the max allowable anchor

“There are two main causes of poor decision making: insufficient motivation and cognitive biases.”

Common Biases That Affect Business Decisions

Many cognitive biases impair our ability to objectively evaluate information, form sound judgments, and make effective decisions. These biases can be particularly problematic in business contexts.

ACTION-ORIENTED BIASES

Excessive optimism We are overly optimistic about the outcome of planned actions. We overestimate the likelihood of positive events and underestimate that of negative ones.

Overconfidence We overestimate our skill level relative to others’ and consequently our ability to affect future outcomes. We take credit for past positive outcomes without acknowledging the role of chance.

BIASES RELATED TO PERCEIVING AND JUDGING ALTERNATIVES

Confirmation bias We place extra value on evidence consistent with a favored belief and not enough on evidence that contradicts it. We fail to search impartially for evidence.

Anchoring and insufficient adjustment We root our decisions in an initial value and fail to sufficiently adjust our thinking away from that value.

Groupthink We strive for consensus at the cost of a realistic appraisal of alternative courses of action.

Egocentrism We focus too narrowly on our own perspective to the point that we can’t imagine how others will be affected by a policy or strategy. We assume that everyone has access to the same information we do.

BIASES RELATED TO THE FRAMING OF ALTERNATIVES

Loss aversion We feel losses more acutely than gains of the same amount, which makes us more risk-averse than a rational calculation would recommend.

Sunk-cost fallacy We pay attention to historical costs that are not recoverable when considering future courses of action.

Escalation of commitment We invest additional resources in an apparently losing proposition because of the effort, money, and time already invested.

Controllability bias We believe we can control outcomes more than is actually the case, causing us to misjudge the riskiness of a course of action.

STABILITY BIASES

Status quo bias We prefer the status quo in the absence of pressure to change it.

Present bias We value immediate rewards very highly and undervalue long-term gains.

SOURCE JOHN BESHEARS AND FRANCESCA GINO
FROM “LEADERS AS DECISION ARCHITECTS,” MAY 2015

Capstone Exercise

Each Person
Pick a Real Project and an Important Decision.

Outline:
- Categories of information that will be needed
- Analyses to be done
- How would you facilitate the decision?
(Which methods and tools would help?)

1:00 Opening Remarks, Group Introductions

1/ Why Facilitating Decisions Adds Value

2/ What Makes a Decision Good or Bad?

3/ The Psychology of Decisions and Decision-making Styles

4/ What Do We Need to Make Decisions?

~2:45 Break

3:00 5/ Ten Methods Anyone Can Use To Foster Informed Decision-making

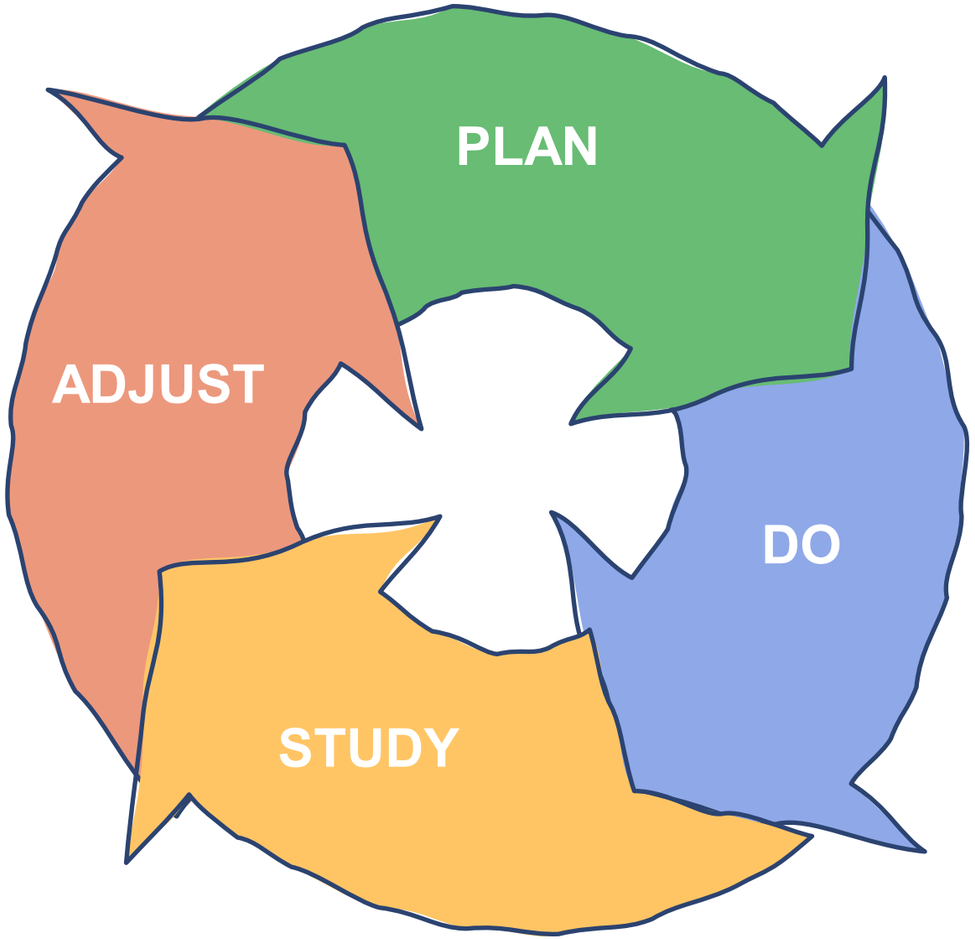
6/ Sample Tools and Techniques

7/ Bonus: Behavioral Economics & Choice Architecture

8/ General Discussion, Q&A, Plus/Delta

5:00 Adjourn

Closing Q&A, +/∆



Deming Cycle for Continuous Improvement

1:00 Opening Remarks, Group Introductions

1/ Why Facilitating Decisions Adds Value

2/ What Makes a Decision Good or Bad?

3/ The Psychology of Decisions and Decision-making Styles

4/ What Do We Need to Make Decisions?

~2:45 Break

3:00 5/ Ten Methods Anyone Can Use To Foster Informed Decision-making

6/ Sample Tools and Techniques

7/ Bonus: Behavioral Economics & Choice Architecture

8/ General Discussion, Q&A, Plus/Delta

5:00 Adjourn

25TH ANNUAL

25TH LCI CONGRESS
OCTOBER 24-27, 2023

Thank you for attending Getting Decisions That Stick in Design & Construction

Kurt Neubek, FAIA, CFM, CSSBB – Principal, Page
kneubek@pagethink.com
Sarah Moser, RA, EDAC - Training Coach Strategist, Page
smoser@pagethink.com

25 YEARS OF LEARNING: SUPERCHARGE YOUR LEAN JOURNEY IN THE MOTOR CITY
October 24, 2023