Designing & Building for Value and Flexibility in a Technology-Enabled World

Presented by:

Rebecca Hathaway, RN, MSN, EDAC
President, Bridgestar Consulting

&

Kristin Hill, AIA
President, InsideOut Consulting, Inc.

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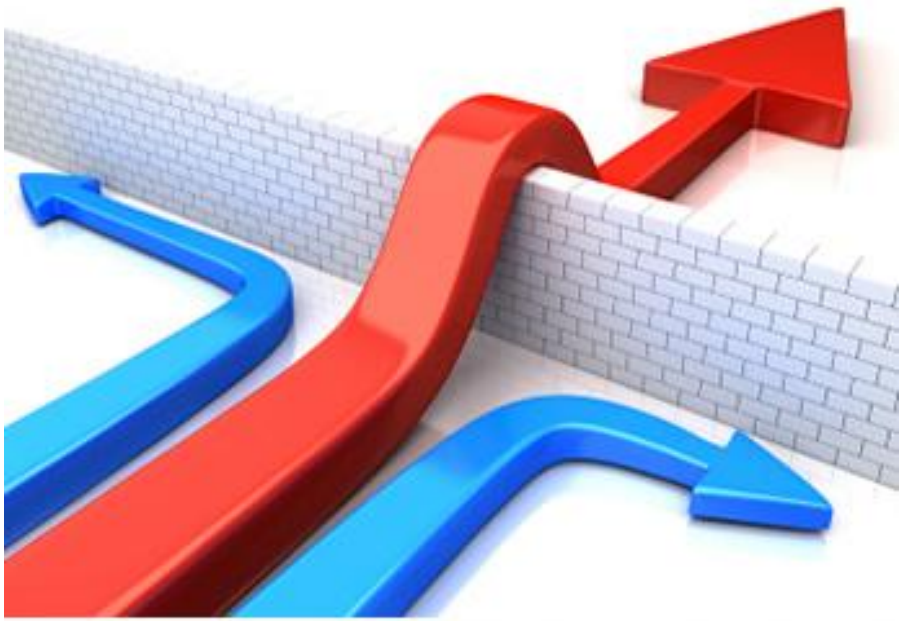
Technology Challenges Creating Value

- Design
- Field Operations
- Operational Applications



Value

Understand VALUE from the Owner's Perspective

Take Only Those Actions Which Deliver VALUE (and which eliminate waste)

Co create *Conditions of Satisfaction* with Project Team and Owner

Everyday ask yourself—What value did I bring?

Create Value for The Customer

- Create a Culture of Continuous Learning
- Develop Technical and Leadership Skill Sets of Their Team
- Leverage Diversity of Team Strengths, Skills and Abilities
- Distribute Leadership
- Utilize the Conditions of Satisfaction in Value Based Decisions
- Listening, Inquiry, Collaboration Versus Silo-ed Approach
- Challenge Team Members for the Good of The Project—Charettes and “Grand Rounds”
- Shared Problem Solving vs. Discipline Specific
- Ignite Passion, Inventiveness, Ongoing Improvement

Fluid Technology
Operational Applications

- Ever evolving while project is developing
- Understand decision points/effects
- Condition of Satisfaction of the Team
- Across the board challenge all industries

Design Process
Tearing Down Silos…

Collaboration

Not so collaborative ☹

Collaborative ☺

Collaborative
Risk Management

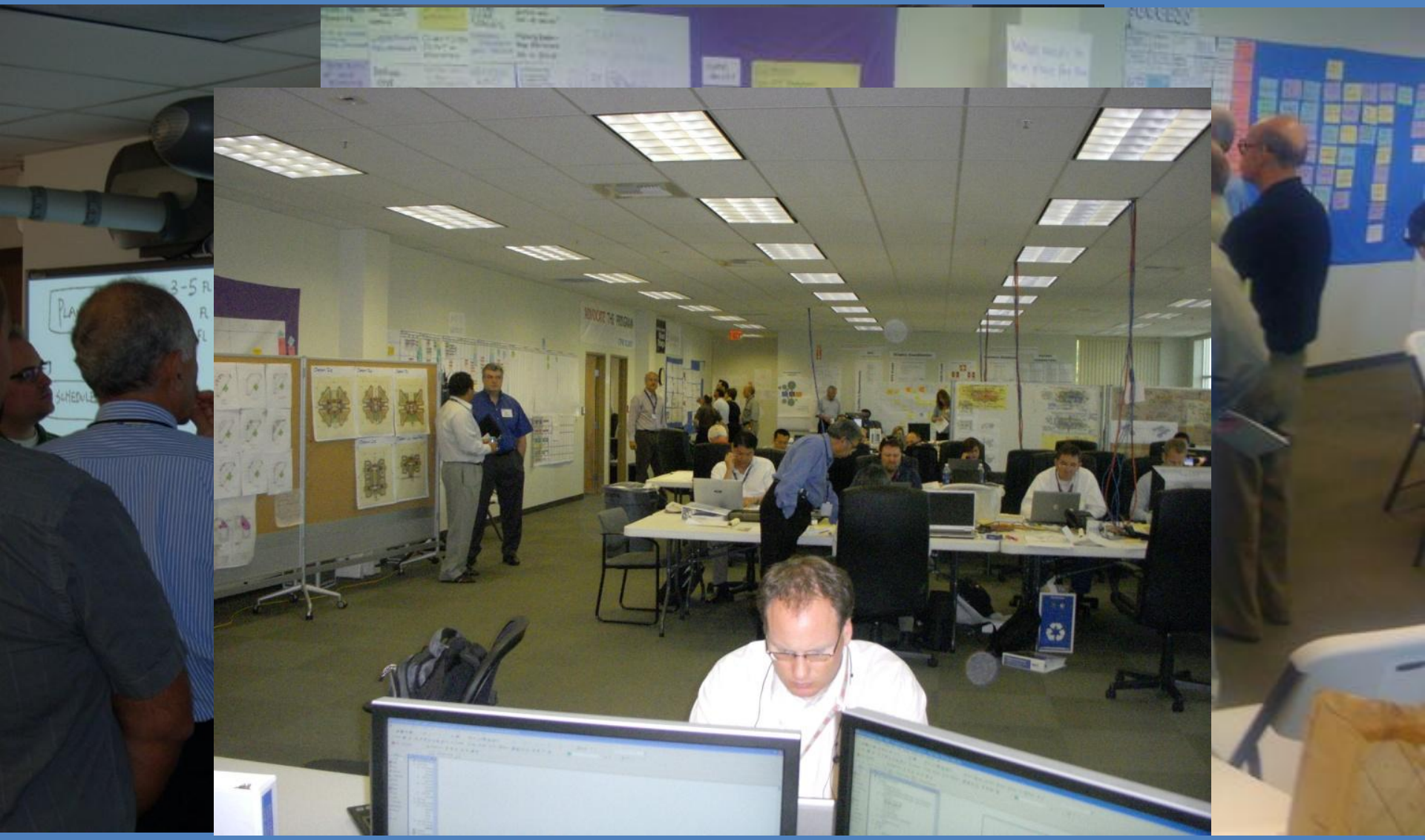
Identify

Mitigate

Track

Share

Collaboration in Action

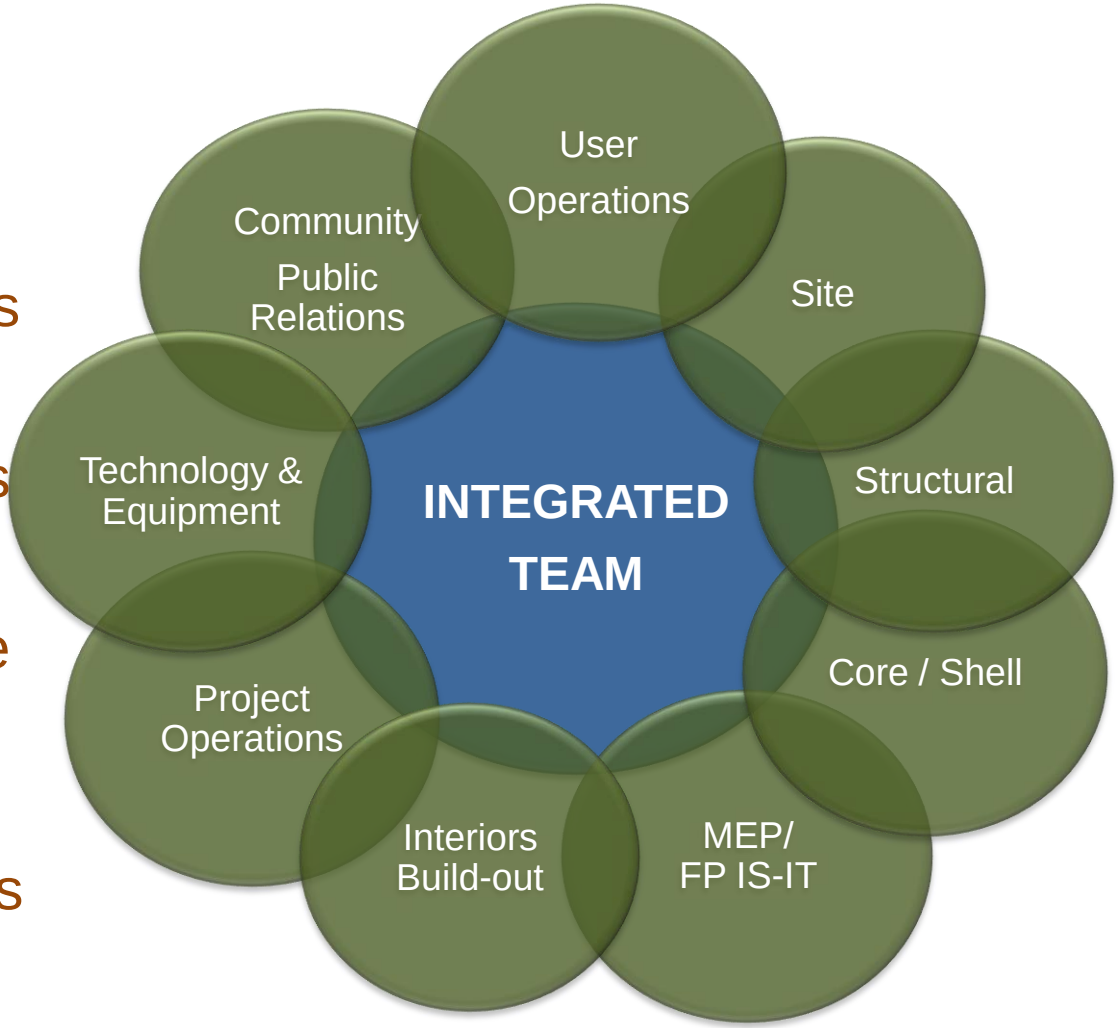


Probing Questions

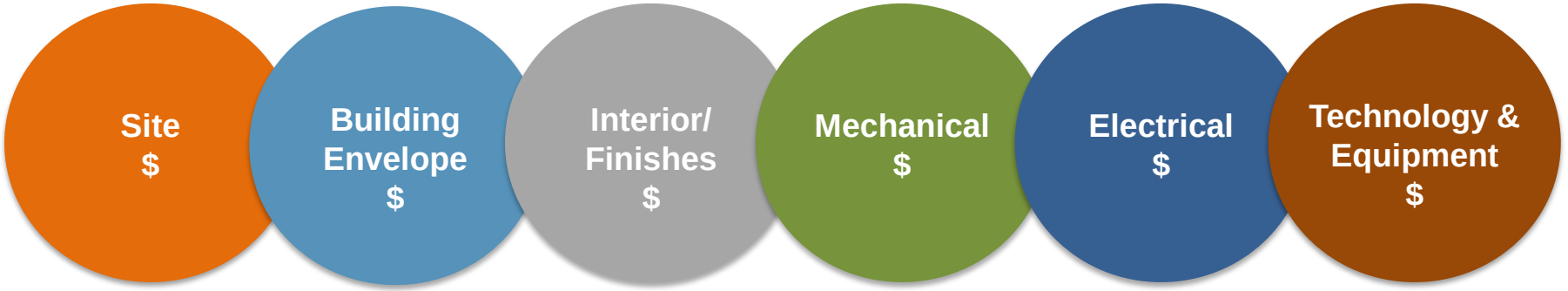
- WHY?
- WHY?
- WHY?
- WHY?
- WHY?
- What did we learn today?
- What should we continue?
- What can we do differently?

Organization Cluster Formation

- Shared knowledge of design and construction issues
- Better informed drawings earlier
- More accurate estimates earlier
- More stakeholders in the design
- Understanding of the value of design decisions



Component-Based Design



Leader:
Civil Engineer

Team:
Project Designer
Project Architects
Mechanical Engineer
Electrical Engineer
Construction Mgr.

Leader:
Project Designer

Team:
Project Architect
Structural Engineer
Mechanical Engineer
Construction Mgr.

Leader:
Project Designer

Team:
Project Architect
Architects
Medical Planners
Interior Designers
Mechanical Engineer
Electrical Engineer
Construction Mgr.

Leader:
Senior Engineer

Team:
Mechanical Engineer
Electrical Engineer
Project Architect
Structural Engineer
Services Tech. Group
Construction Mgr.

Leader:
Senior Engineer

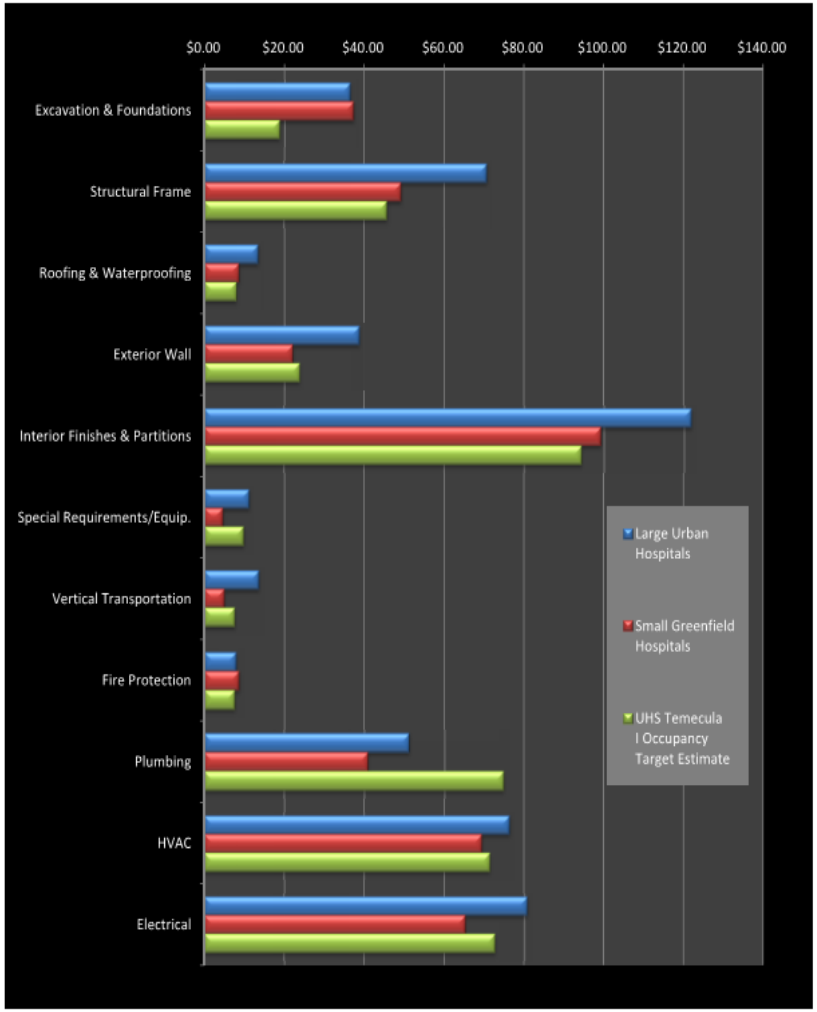
Team:
Electrical Engineer
Mechanical Engineer
Project Architect
Project Designer
Interior Designer
Services Tech. Group
Construction Mgr.

Leader:
Senior Engineer

Team:
Electrical Engineer
Mechanical Engineer
Project Architect
Interior Designer
Services Tech. Group
Special Equip Group
Construction Mgr.

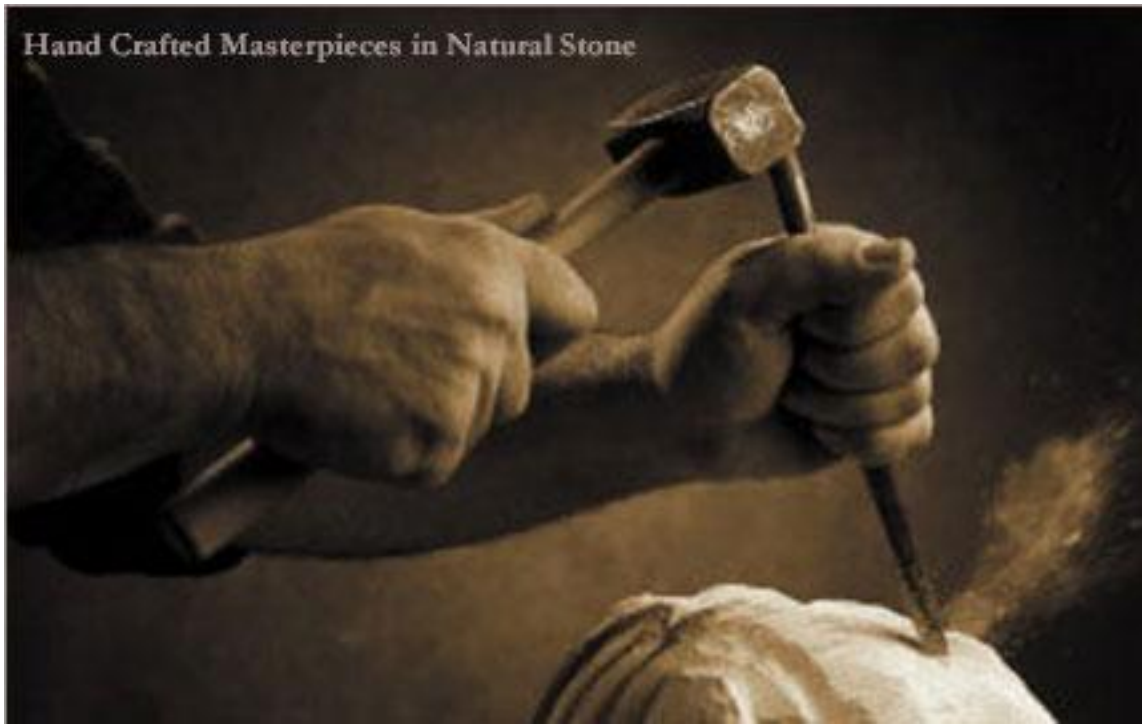
Target-Value Design

- Budget established initially
- Clear schedule of values
- Use cost databases and benchmark projects to initiate
- Establish owner's expectations well ahead of the completion of the design
- On-going cost modeling
- This limits the need for cost cutting in later stages of development



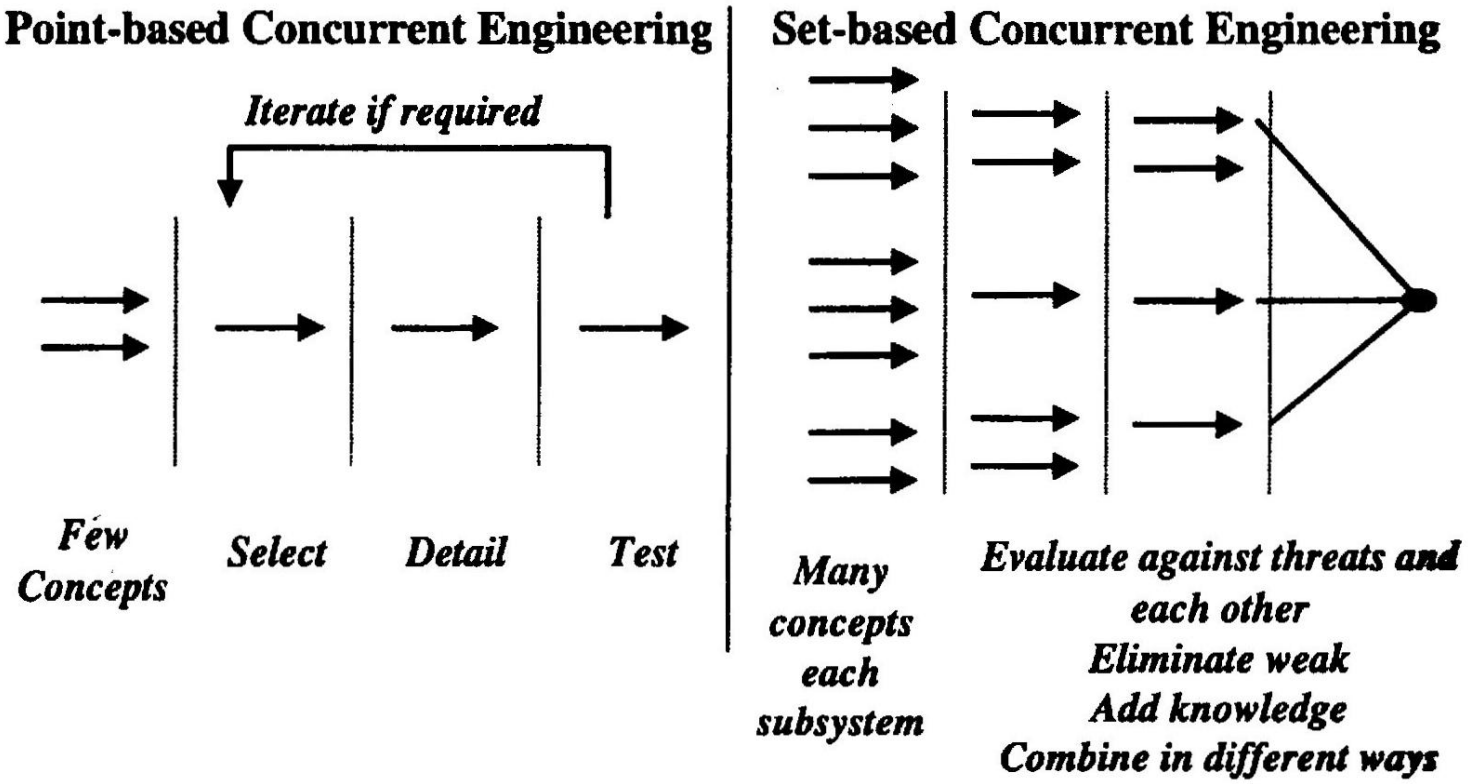
Small Batch Approach to Design

- Design does not happen in a linear process
- Design should not be iterative
- Design Emerges



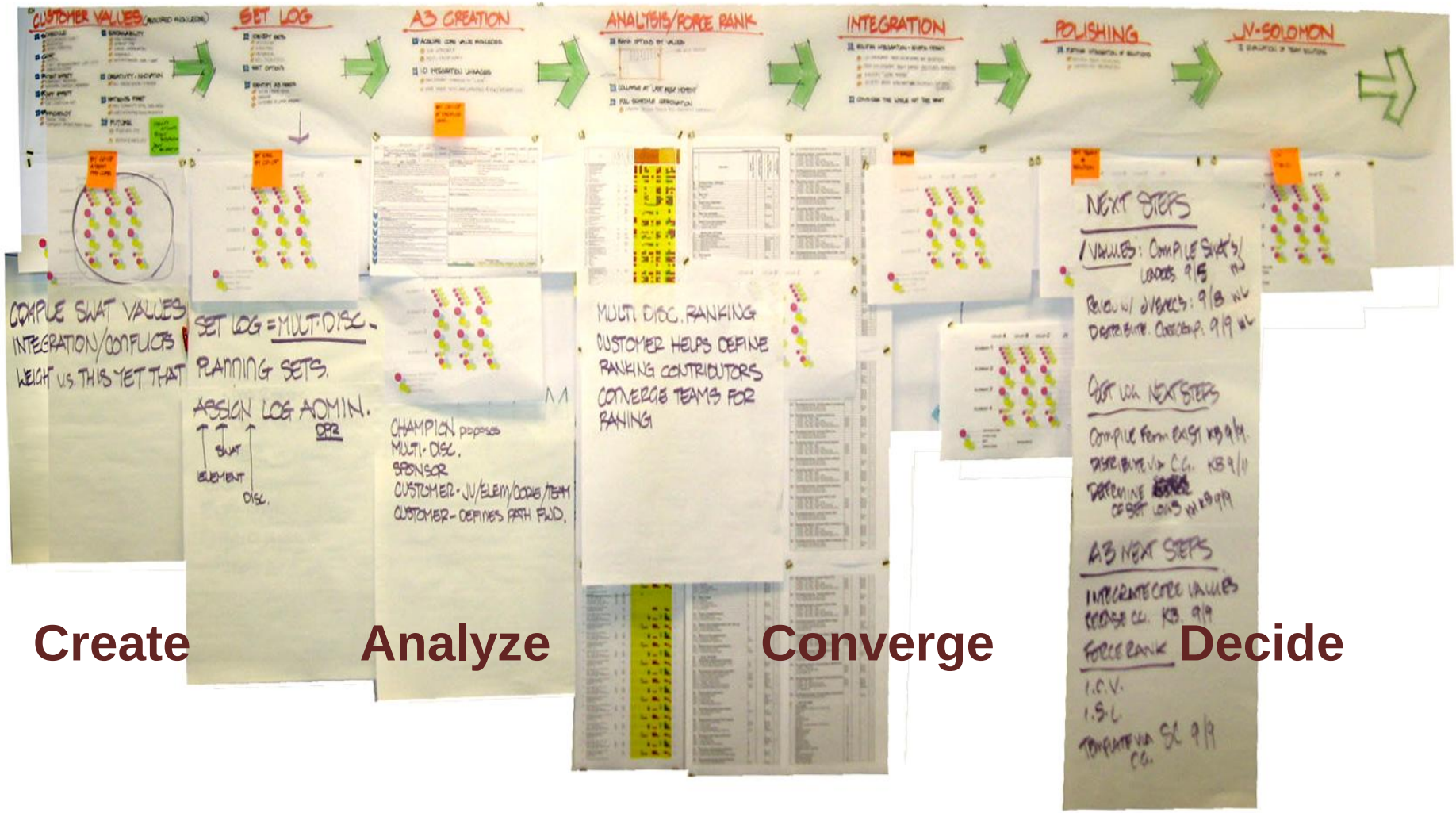
Set-Based Design
Last Responsible Moment

A simple, repetitive development cycle that achieves high innovation in products and manufacturing systems without risk through redundancy, robustness, and knowledge capture.



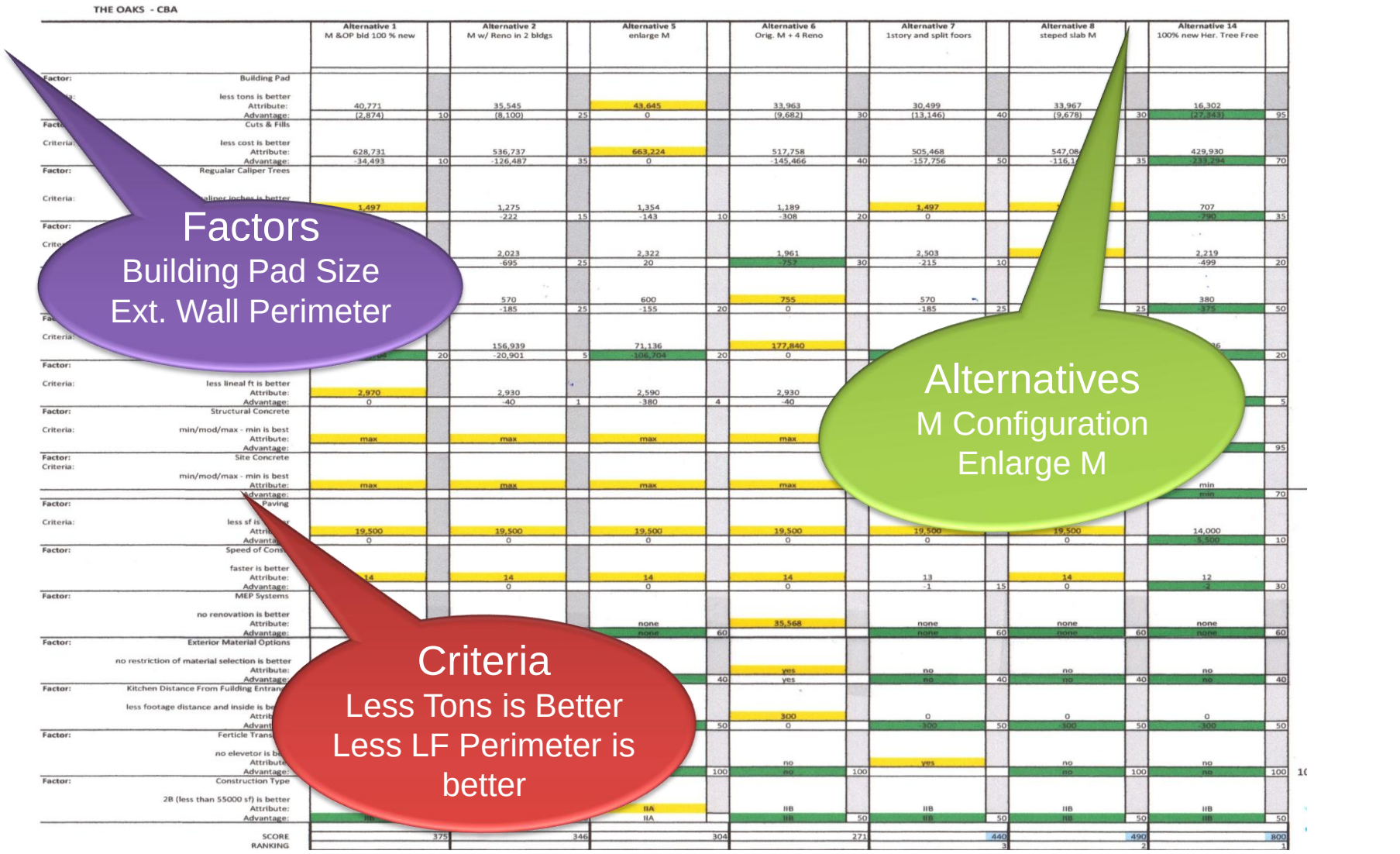
From “Product Development for the Lean Enterprise” by Michael Kennedy

Set-Based Solutions
from CPR Program



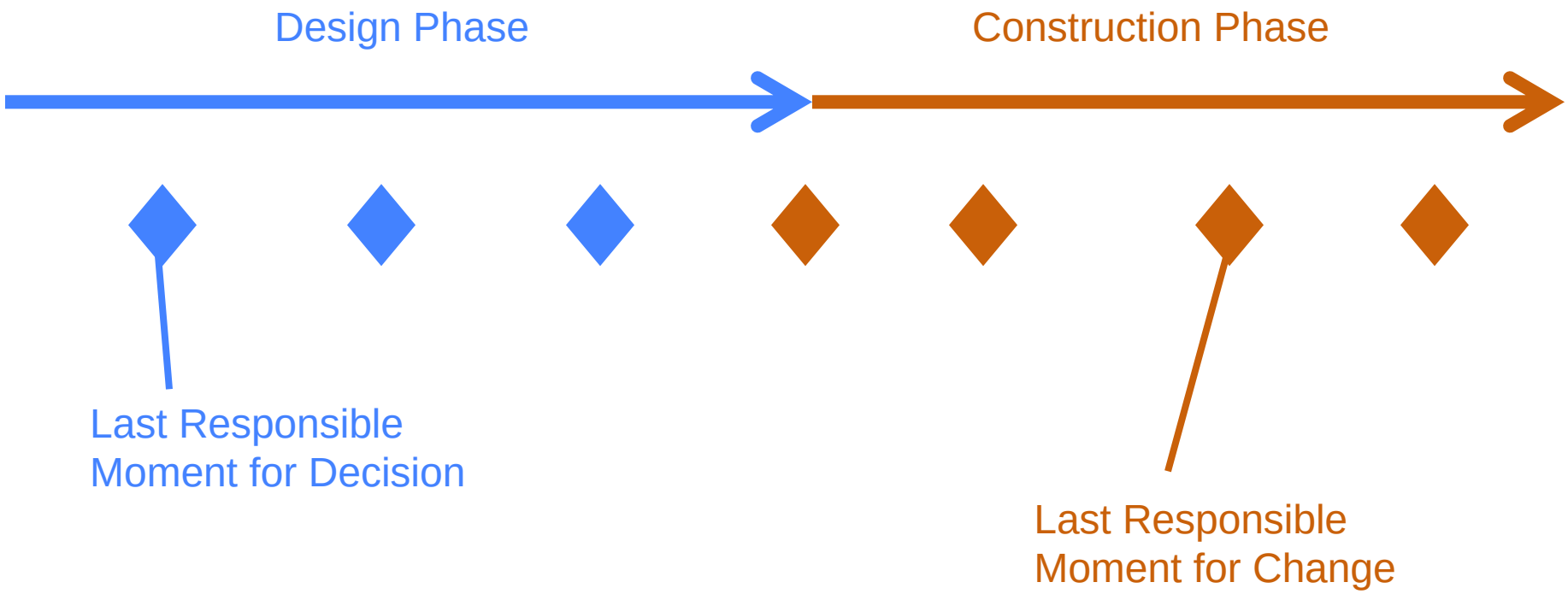
Create **Analyze** **Converge** **Decide**

Choosing by Advantages



Pull-Planning Design

Last Responsible Moment Pull-Planning



Technology Enablers

- Design
- Field Operations
- Operational Applications

Design

- Simulation Modeling
- BIM/Revit
- Leverage Technology in the Big Room
  - Smart Boards, Wireless Internet Connectivity, Blue Beam

Field Operations

- Onsite kiosks—Computers and Printers
- Laser Scanning—3D Printing
- Robotics
- iPads and Wearable Devices
- Software for Pull Planning
- Real-Time Productivity Monitoring

Technology
Operational Applications Healthcare

- Consumer-Based Interfaces at Home
- System-wide Data Centers
- Robotics
- Connectivity Between OR Suites, Diagnostic Modalities, EHR, Provider Communication Devices
- Wearable Monitoring Devices

Technology Infrastructure Lessons Learned

- The future will not be “Hospital Centric” the Healthcare System is a “kit of parts” that must function in unison
- Inventory Legacy Systems
- Infrastructure Needs to Support Interfaces both Local and Proprietary
- IT/IS Needs to be Part of the Project Team, as well as the Owner/End User of the Application

Internal Evolution
Lessons Learned

- Technical skills are a given, ability to collaborate and integrate is a must
- No longer a “captain of the ship” approach; embracing diversity and leveraging each team member’s skills and abilities…Distributed Leadership
- Innovation for the good of the whole
- TRUST and Respect are key
- Transparency and candid conversations develop—they are not natural and need to be encouraged
- Process in place to vote someone of the island
- Owner involvement is a critical success factor

More Lessons Learned

- Choose by Advantages not Relationship
- Onboard all Partners
- Be Transparent with the Budgets and Monitoring of Productivity
- Decisions Need to be Based on **Value** not Cost (“this and that”)
- Never Underestimate Field Staff and End Users
- Expect/Require Cultural Change

Shared Lessons Learned …Questions?

Thank you!

rebecca@bridgestarconsulting.com
760-822-1080

kristin@insideoutconsult.com
617-633-7273