Sutter Health's Lean/Integrated Project Delivery Model

P2SL Workshop

Owner Strategies for Project/Program Delivery
August 29, 2012

Dan Conwell, Director – Planning, Architecture and Design
Sutter Health Facility Planning and Development

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Who are we?

How did we get here?

What have we accomplished?

What do we need to do better?

What are the next steps?

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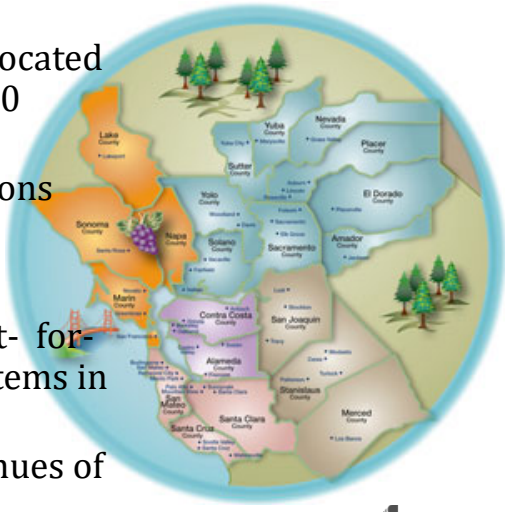
Sutter Health at a Glance

- Majority of services located in 22 CA counties, 100 communities
- Divided into five regions
- +4,900 Physicians
- +47,000 Employees
- One of the largest not- for-profit healthcare systems in the nation
- 2011 operating revenues of $9.1 billion



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Sutter Health Physical Environment

- 24 Hospitals
  - +5,100 licensed beds
- 27 Ambulatory Surgery Centers
- 9 Cancer Centers
- 5 medical foundations with dozens of clinic locations
- +$8B capital program – 2006 thru 2018
- +$3.4 B Capital put in operation since ‘06

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Sutter Health - Facility Planning and Development

- Fee for service corporate department
- Responsible for planning and delivery of all capital projects of $5M or greater
- +60 employees
- Core Groups
  - Real Estate
  - Planning
  - Regulatory Affairs
  - Project Management
  - Quality, Control and Scheduling
  - Physical Access Compliance

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How we operated - Design/Bid/Build

D/B/B presumes that:

- Design conveys exactly what the Owner intends
- The A/E acts in the Owner's best interest
- Design and construction of complex projects are best purchased as commodities on a low bid basis
- Competitive bidding is the best assurance of lowest cost to Owner
- Designs are complete, code compliant and constructible when issued for bidding
- Design evolves within the constraints of the Owner's budget

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Why we had to change!

In Sutter's D/B/B experience:

- In design, lots of effort and waste and design is still not complete
- A/E over-designs to protect against unknown contractor pool
- Construction costs are padded due to uncertainties
- Profits are buried
- Schedule overruns typical due to coordination & design problems
- Commercial motivation is "siloed"
- Adversarial relationships are the norm – disputes more frequent
- Change order activity typically very high
- Innovation only occurs for the benefit of the piece, not the whole
- A common understanding of the project happens too late
- OSHPD demands a high level of performance that is often underestimated by the designers and builders

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Who Made It Happen?

- *Innovators* who showed us that there is a better way
- *Leadership* that gave us enough rope to hang ourselves
- *Internal staff* that bought into the concept and worked tirelessly to make it happen
- *Partners* who agreed to participate in the mad science experiment
- *Affiliates* who agreed to let their projects be the guinea pigs

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Sutter Health's Lean Timeline

- 2003 – First discussions around Lean Project Delivery
- 2004 – "The Hal and Greg Show"/internal education
- 2004 – Sutter's Vendor Forum with our partners
- 2005 – First project applications/use of the IFOA
- 2006 – Target Value Design implementation
- 2006 – P2SL OSHPD Value Stream Workshops

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Sutter Health's Lean Timeline (cont'd)

- 2007 – First "fully" lean project completes
- 2008 – Transition on-going training and growth of the regional lean project delivery community to our partners
- 2008 –Choosing By Advantages training/implementation
- 2009 – Creation of internal Lean Knowledge Capture document
- 2010 – Validation Study Implementation
- 2012 – Updated Planning and Delivery Guide

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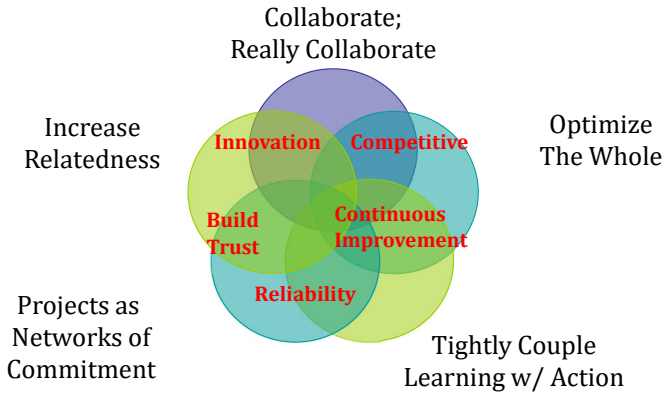
Sutter's Five Big Ideas



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Lean/ Integrated Project Delivery: Distinguishing Features

- Teams are assembled early
- Project goals are understood earlier by more
- Teams stay intact through design and construction
- All actions/decisions are consistent with the project objectives
- All costs are "open book"
- Project contingencies are established at a lower level due to less uncertainty – due to understanding and transparency
- Risks and rewards are distributed and shared more equitably
- Project planning & management is based on "network of commitments"

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Distinguishing Features (continued)

- Clear accountabilities/ responsibilities are established
- Processes are continually improved
- Powerful tools like BIM are more effectively deployed
- Overall risk profile of the project is lowered
- Relational, multi-party contract forms are used (rather than transactional) that better support integrated delivery
- Participants are typically co-located for constant interaction for the project's benefit
- Inevitable problems that arise are solved by the "collective enterprise"

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Lean Practices and Processes

Practice/Process:	Purpose:
Last Planner System	manages commitments
Validation Study	defines Project parameters
IFOA	best supports IPD
TVD	aligns scope/budget
Risk/Reward Plan	aligns behaviors
Co-location	improves collaboration
PDCA	applies learning quickly
VSM	illuminates waste
BIM	"builds" project virtually

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The Outcome

The result of our delivery approach is an Optimized Design - accurately reflecting a facility design that will function as the Owner intends, and clearly conveys to the builder a complete and accurate set of directions necessary to build it.

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Working With OSHPD

Quote from OSHPD Regional Supervisor on the Eden Medical Center Project:

"It is a little known secret that when projects are well thought out, fully coordinated and quality is maintained that we at OSHPD have little to do. Your team accomplished all of those and in doing that made our job easier! From my life as a designer I know that Phased Reviews can be a difficult process. Your team made it look easy. Congratulations to all of you for an amazing job!"

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Costs– Past Lean Projects over $10M

- 22 'lean' projects delivered since 2005
- Total approved capital: $829M
- Total capital spent: $802M
- Total savings: $27M
- No projects over budget
- Project Range: $10M to $164M (Mean=$19M)
- Savings Range: $4K to $3.6M (Mean=$850K)

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Costs– Future Lean Projects over $10M

- 5 projects expected to deliver in 2012 and 2013
- Total approved capital: $527M
- Current projected spend: $509M
- Projected savings: $18M
- No projects currently projected over budget
- Project Range: $12M to $309M (Mean=$38.5M)
- Savings Range: $48K to $14M (Mean=$1.3M)

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SMCSR - Santa Rosa Hospital

- $284M Project Budget
- 182,300 SF, 84 licensed beds + 10 Labor/Delivery/Recovery Suites
- Completion: 3Q 2014

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Performance – Santa Rosa Hospital

- PDCA for all repetitive tasks
- Pull plan all project elements
- Track commitments at all meetings
- 'Five whys' when things don't work
- Framing, sprinkler, HVAC productivity better than baseline
- Off-site fabrications requiring little if any modification in field
- The contract is working in aligning risk/reward with behaviors
- BIM catching conflicts and reducing changes
- Sutter dedicated IT resource a model for all projects

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PAMF Camino Sunnyvale Clinic

- $154M Project Budget
- 120,000 SF Ambulatory Care Center with adjacent parking structure
- Completion: 2Q 2013

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Performance – Sunnyvale Clinic

- Currently 4 months ahead of schedule
- Well under budget
- BIM clash detection, pull planning and Weekly Work Plans have provided the most value
- Still too many RFI's, even though they are mostly confirming design intent. Is the design not complete, the intent not clear or is there another factor?

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Eden Medical Center Replacement Hospital

- $309M Project Budget
- 130 licensed beds, 223,000 SF
- Completion: 3Q 2012

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Performance – Eden Medical Center

- Ahead of schedule and under budget
- No compromise to space program or sustainability goals
- Construction rework 15-80% less than trade baselines
- Productivity 5-20% greater than trade baselines
- Mechanical/Plumbing installed exactly to the model 99% of the time
- Electrical installed exactly to the model 71% of the time
- Framing installed exactly to the model 79% of the time
- Fewer RFI's, Change Orders and failed inspections than Sutter 'legacy' projects
- 'Tool time' significantly higher than industry standards

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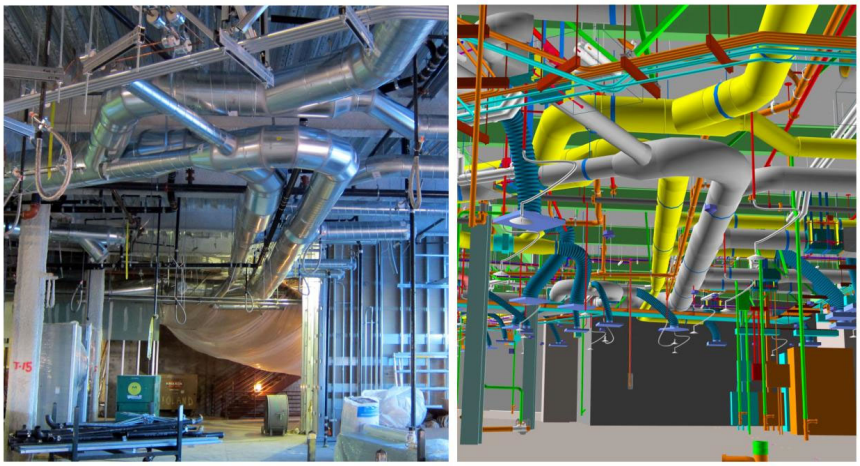
Eden Medical Center – adherence to the model



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What is Sutter doing well?

- Evolving the process – getting more granular, engaging deeper into organizations to the front line staff
- Delivering what we are committing to deliver
- Contracts getting better and easier to execute
- Meeting and improving on schedules
- Increasing productivity/consistency/reliability
- Focusing on fixing problems
- Aligning behaviors and fostering innovation
- Avoiding changes/conflicts through BIM
- Enabling off-site fabrication

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What do we think our designers are doing well?

- Acquiring permits
- Capturing the needs of the end users
- Collaborating with the trade partners

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What do we think our builders are doing well?

- Managing the WWP during construction
- Faster estimating of potential changes
- Engaging in problem solving
- Better certainty and constructability earlier
- Collaborating with the other parties

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The Bottom Line

- We are holding to budgets and schedules, and improving on them in many cases
- We are more reliable and productive
- We are providing more value with less compromise to the owner's goals

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What does Sutter need to improve on?

- Select partners with more IPD experience
- Identify and reduce waste in the preconstruction process
- Better internal lean and IFOA training
- Manage FPD like we manage our projects
- More utilization of Takt time
- More consistency and information sharing across projects
- More standardized design, systems, materials, equipment
- Continue to evolve contract language and terms
- Reducing the management/audit costs of EMP contracts

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What do our designers need to improve on?

- More engagement
- Take more responsibility for construction costs and the impact of design
- Take more responsibility for professional fee management
- Embrace the lean/IPD project delivery system
- Better tracking/forecasting of costs and responding with design or delivery strategies to reduce impacts
- Finish the design before hand off
- Better compliance with ADA/Title 24 Accessibility

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What do our builders need to improve on?

- Engagement of Trade Partners as early as possible
- Help manage design with pull planning and WWP
- Better forecasting of construction budgets in concert with FPD's project cost forecasting
- Driving understanding of risk/reward and behaviors to the front line staff building the projects so those individuals have a stake in managing costs
- Better certainty early – more engagement in constructability

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Moving Forward

- Continue to push for improvement/remove waste
- More standard work and consistent approaches across projects
- Establish a Lean Champion within Sutter FPD
- Continue to refine and add to the suite of IPD contracts
- Better internal training and knowledge transfer

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Moving Forward

- Develop more standardized design, room templates, modules, etc
- Centralized file sharing hardware?
- Take lean upstream:
  - Design the design process
  - Lean out the strategic planning process
  - Push for more rapid integration of lean healthcare operations into the care delivery process

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