

The Autodesk logo is positioned vertically on the left side of the page. It features the word "Autodesk" in a white, sans-serif font, with a registered trademark symbol (®) at the top right of the letter "k". The background of the left side of the page is a grayscale image of a modern building's facade, showing geometric patterns and lines.

Autodesk®

The IDEAS logo consists of the word "IDEAS" in a bold, white, sans-serif font, centered within a solid magenta square.

IDEAS

THE INNOVATION
+ DESIGN SERIES



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**THE INNOVATION
+ DESIGN SERIES**

Autodesk Gallery at One Market
San Francisco, California
May 2, 3 + 4, 2011

The Changing Equation of Power: Design Ideas, Decisions, and Realization

**The Changing Equation of Power:
Design Ideas, Decisions, and Realization**



Innovation in project delivery and technology blurs boundaries between traditional roles in design and construction. As roles shift, a new focus is emerging on the fundamental contributions that enable buildings and infrastructure to serve society: the power of the design idea, the power of the informed project decision, and the power of the concrete realization of the project.

As we step across boundaries and displace old metaphors, will we devise new methods for ideas to be created and evaluated?

Will technology augment knowledge and improve the way we make decisions?

How will risk in the project realization be reduced or reallocated?

Ultimately, how will this power struggle between ideas, decision making, and realization transform the practice of architecture, engineering, and construction?

Autodesk's IDEAS: Innovation + Design Series examines this changing equation of forces impacting the way our environment is designed, built and managed. Through dialogue and workshops with architects, engineers, and building contractors and owners, **IDEAS** facilitates consideration of emerging opportunities for participation, and allows firms to envision how they can be positioned to shape a powerful future for the design and construction industry.



IDEAS

THE INNOVATION
+ DESIGN SERIES



IDEAS

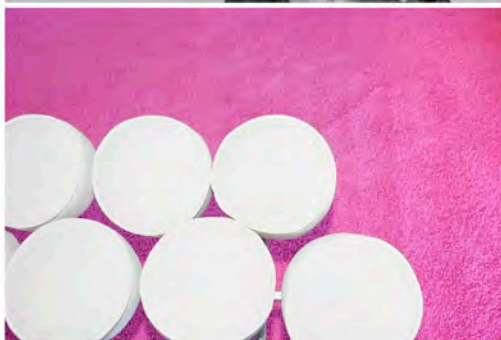
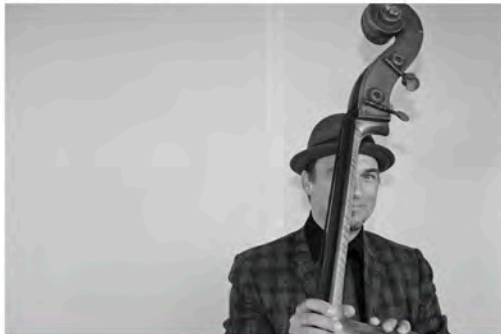
**THE INNOVATION
+ DESIGN SERIES**

Monday, May 2
Reception

IDEAS THE INNOVATION
+ DESIGN SERIES











IDEAS

THE INNOVATION
+ DESIGN SERIES



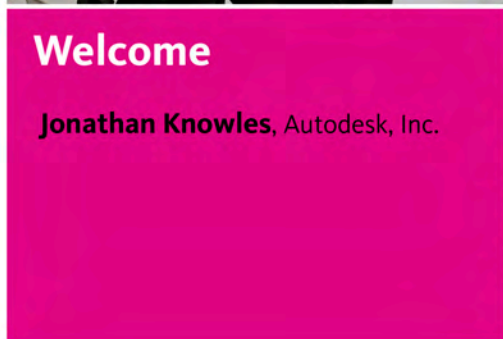
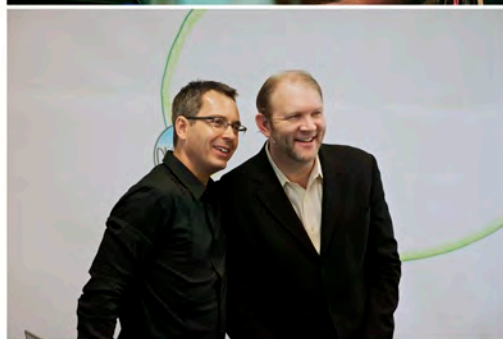
IDEAS

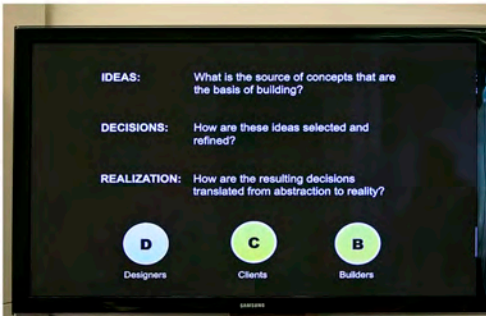
**THE INNOVATION
+ DESIGN SERIES**

Tuesday, May 3

Welcome

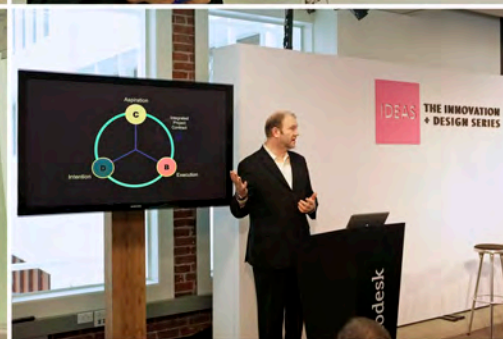
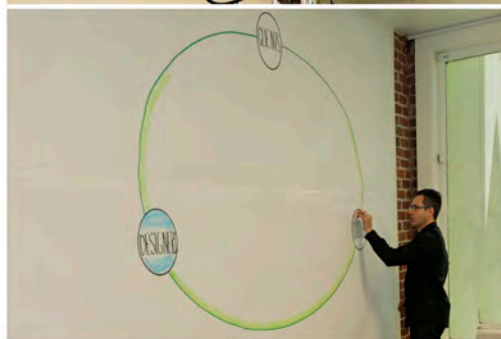
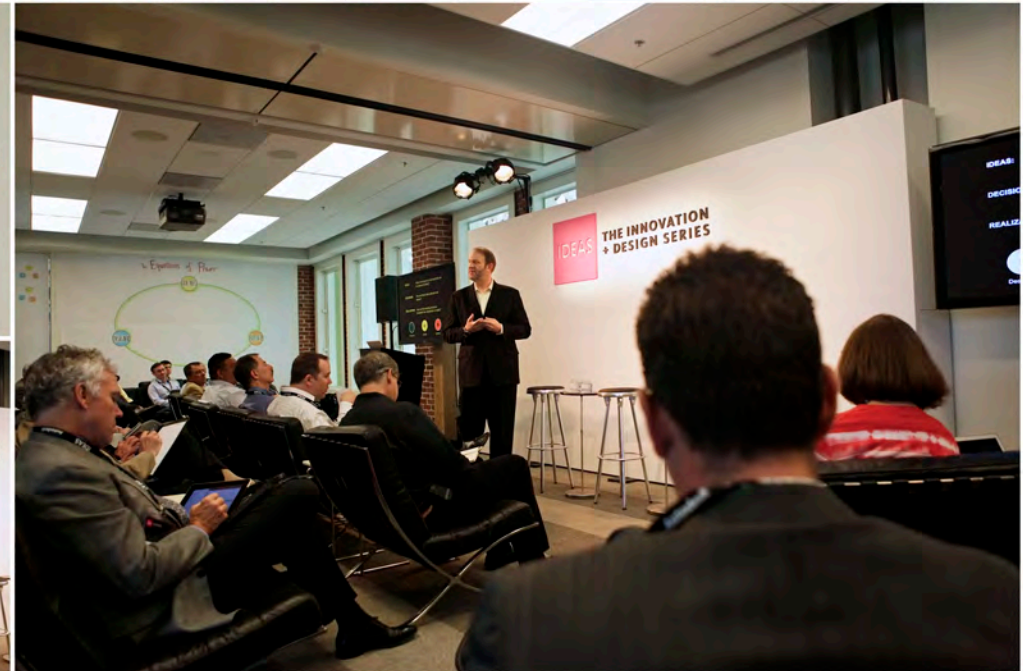
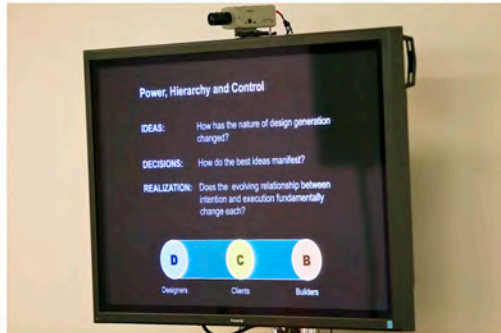
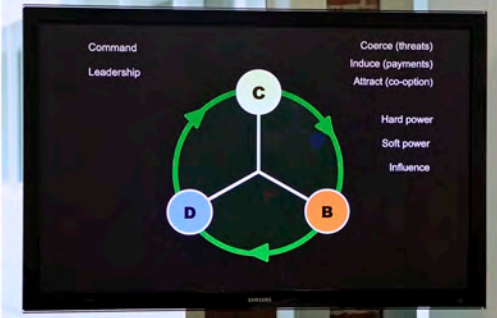
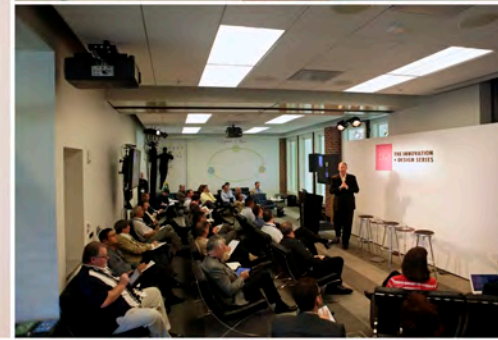
Dialogue + Workshops

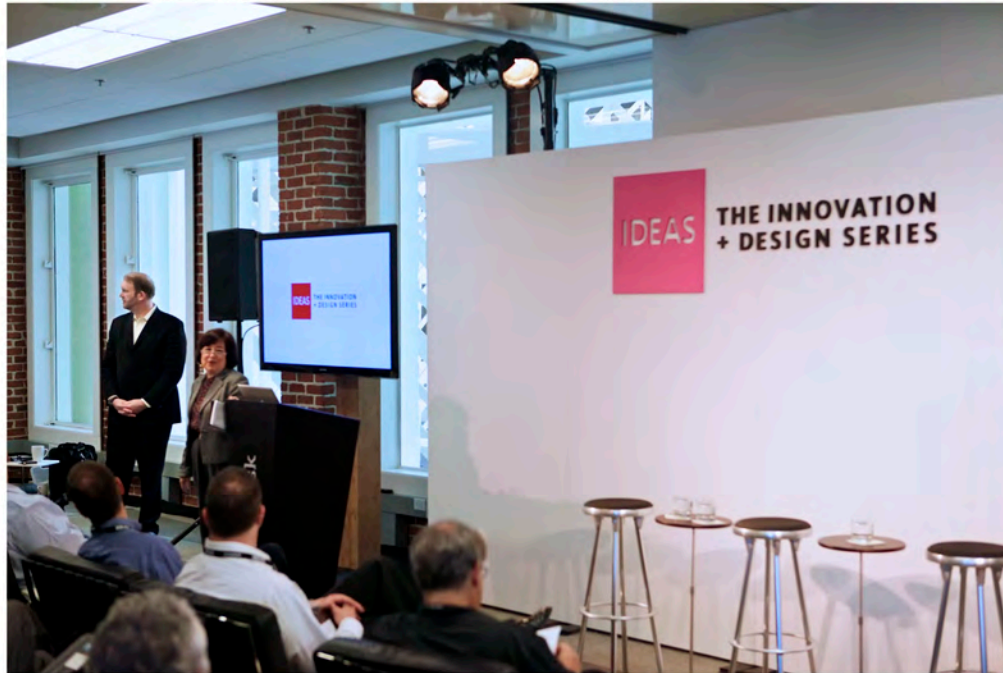




Remarks -The Notion of Power and Industry Structure, with a Focus on the Building Industry

Phil Bernstein, Autodesk, Inc.





Activity -The Case of the Library

Erin Rae Hoffer, Autodesk, Inc.



JONATHAN KNOWLES

WELCOME! NO SALES + MARKETING.
YOU ARE HAND-PICKED TO
EXPLORE TOPICS WE DON'T HAVE THE ANSWERS TO
THIS IS ALL ABOUT THE
CONVERSATIONS.



RELATIONSHIPS
POWER
STRUCTURE

IDEAS

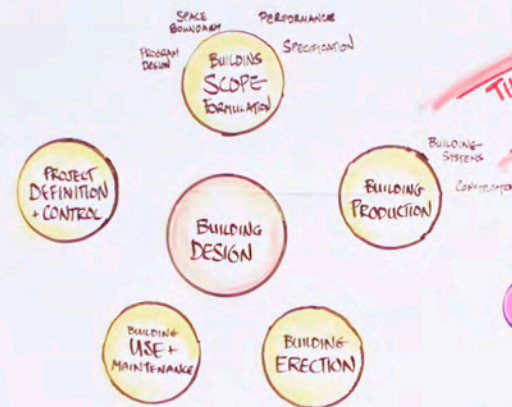
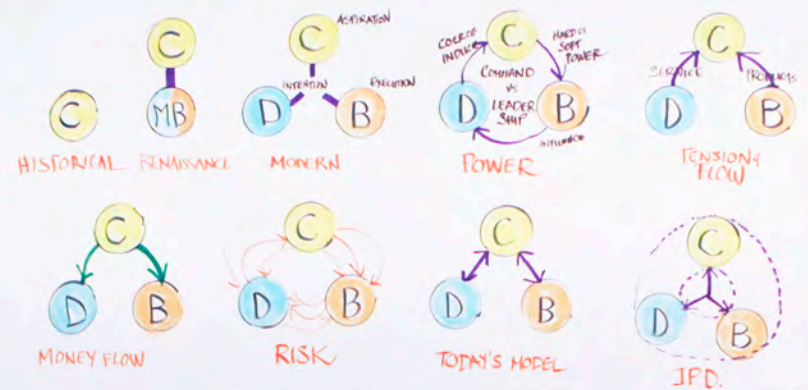
WHERE DO THEY
COME FROM?

DECISIONS

HOW ARE IDEAS
SELECTED

REALIZATION

HOW DO IDEAS
GET MANIFEST?



THREE FUNDAMENTAL QUESTIONS:

1 IDEAS

HOW HAS THE NATURE
OF DESIGN CHANGED

2 DECISIONS

HOW DO THE BEST IDEAS
RISE TO THE TOP?

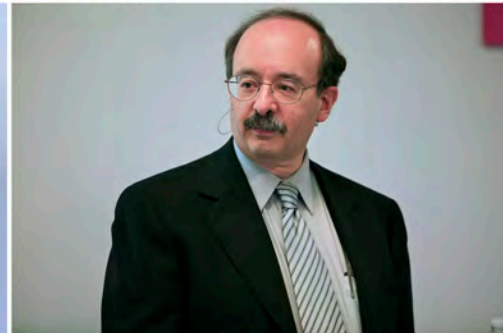
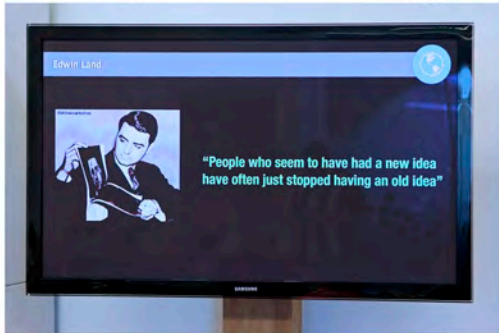
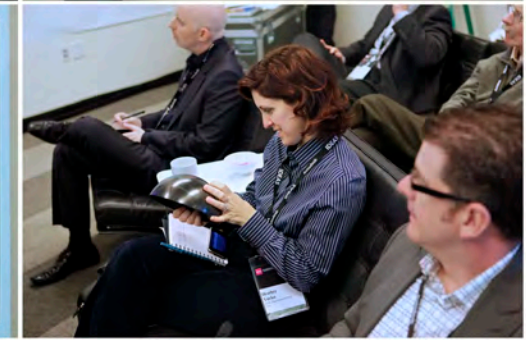
3 REALIZATION

DOES THE EVOLVING
RELATIONSHIP BETWEEN
INTENTION + EXECUTION
FUNDAMENTALLY CHANGE EACH

PROBABILITY OF AN IDEA ACTED
ON THROUGH WILL IN THE FACE
OF ADVERSITY?

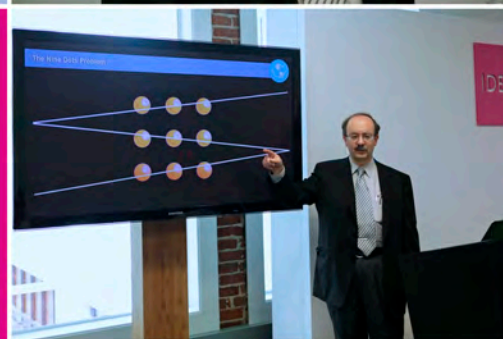
CORRESPONDS TO ACT IN CONCERT,
BEHAVES IN A GROUP.



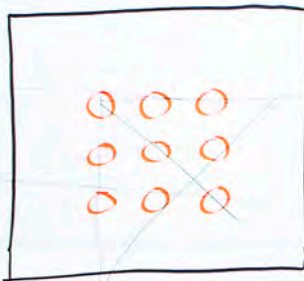


Keynote

Amory Lovins
Rocky Mountain Institute







"ASKING THE RIGHT QUESTION IS WHAT IT'S ALL ABOUT."

GETTING the U.S. OFF OF OIL + GAS AND ON RENEWABLE ENERGY BY 2050



REINVENTING FIRE

REMOVE FOSSIL FUELS
LOWER COST
HIGHER BUSINESS PROFIT

WHOLE SYSTEMS THINKING

REINVENTING FIRE

TECHNOLOGY + POLICY + DESIGN + STRATEGY

OIL

OIL

COSTS: SPEC MILITARY

VEHICLE FITNESS



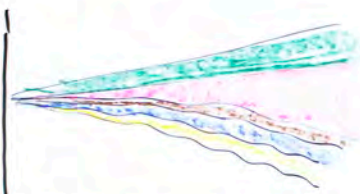
MAKE AUTOS LIGHTER + SLIPPERIER
SUPER EFFICIENT CHEAPER



MATERIALS

ENERGY

MANUFACTURING



INSTITUTIONAL ACUPUNCTURE

BEING DREAMLINER
FORD LIGHT VEHICLES

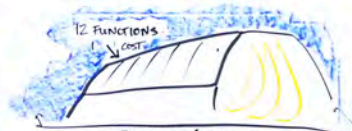
WORLD OIL PEAK: BECOMING UNCOMPETING

ELECTRICITY



MOST IS WASTED

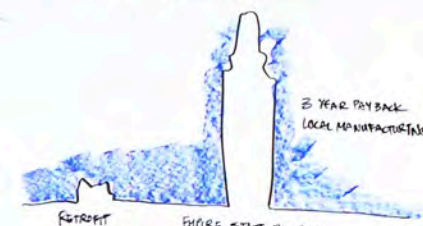
INTEGRATED DESIGN



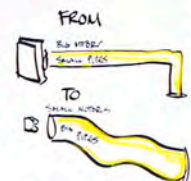
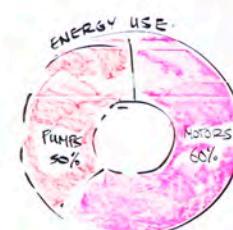
12 FUNCTIONS

1 COST

BANANAS IN COLORADO
COMBINE ELEMENTS AND GREATER THAN SUM OF PARTS



3 YEAR PAYBACK
LOCAL MANUFACTURING

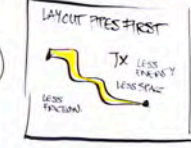
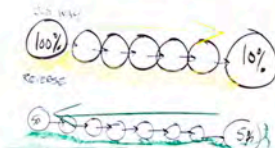


FROM

TO

ENTIRE PLANTING SYSTEM

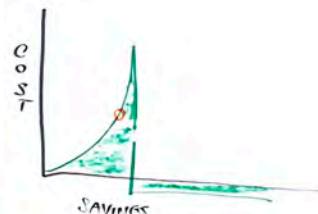
$P \propto S^2$



LAYOUT PIPES FIRST

TX LESS TRAVEL BENEFIT

MORE BENEFITS YOU LOSE
BETTER DESIGN YOU GET

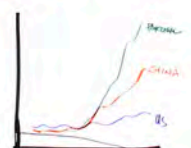


REMOVE MENTAL SILOS
START DOWNSTREAM

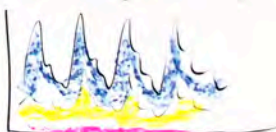


10X

WASTE IS A TERRIBLE THING TO WASTE



INTEGRATED DESIGN (START FROM THE RIGHT)



- 1 BUSINESS
- 2 CLEAN COAL
- 3 CENTRALIZED RENEWABLES
- 4 DISTRIBUTED RENEWABLES

GETTING the U.S.
OFF OF OIL + GAS AND
ON RENEWABLE ENERGY by
2050

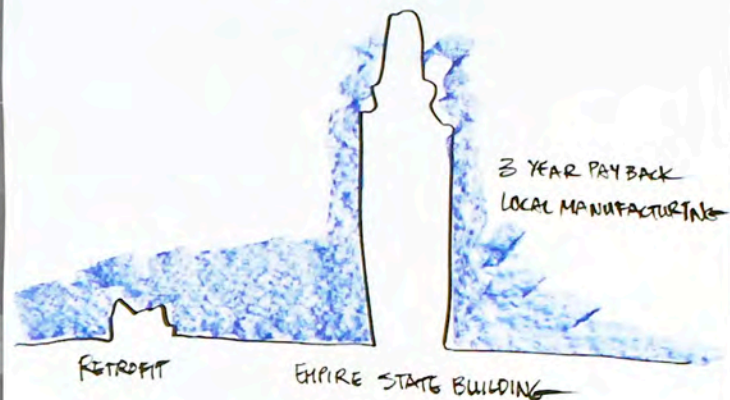
REINVENTING
FIRE

REMOVE FOSSIL FUELS
LOWER COST
HIGHER BUSINESS PROFIT

REMOVE MENTAL SILOS
START DOWNSTREAM



WHOLE
SYSTEMS
THINKING

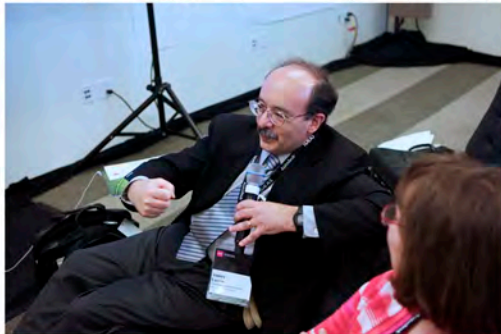




Phil Bernstein, Autodesk, Inc.

Chris Luebke, Arup

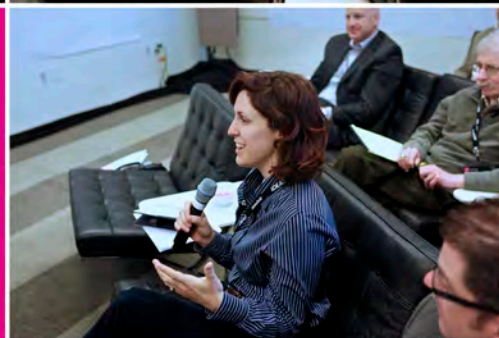
Christopher Sharples, SHoP Architects



The Power of the Idea

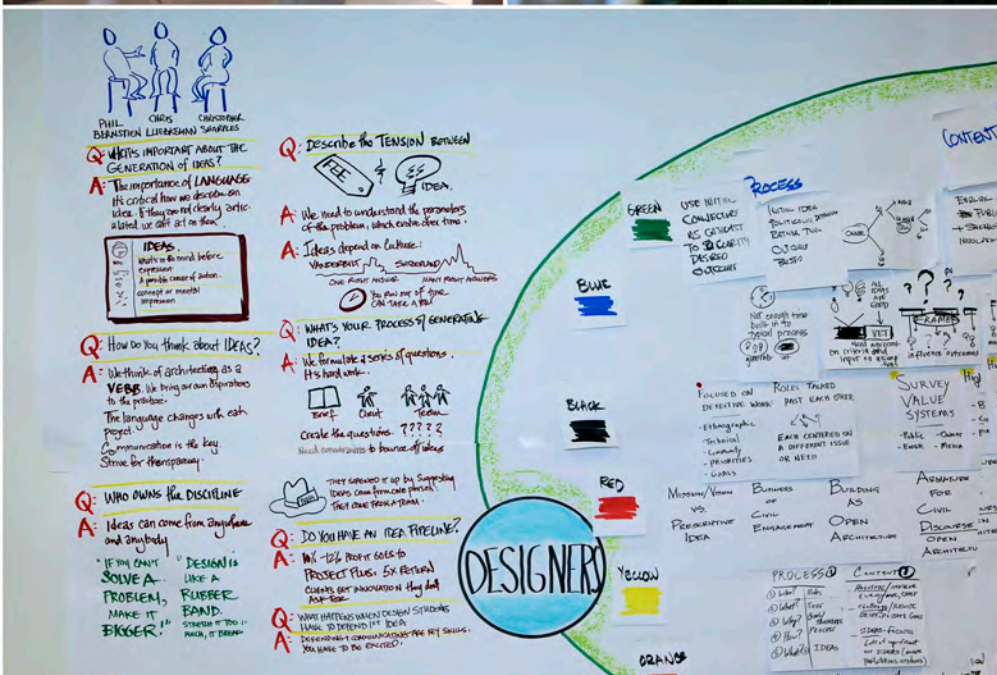
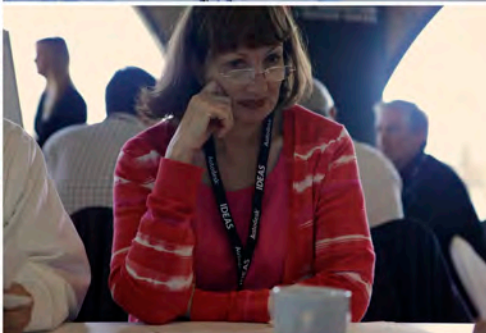
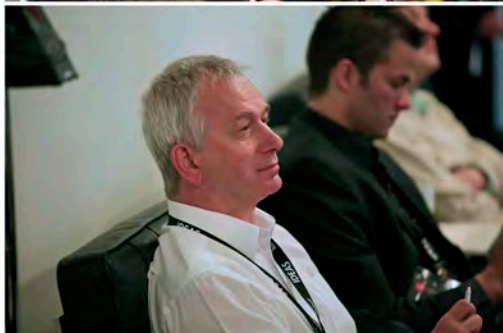
Provocateurs' Dialog

Case-Based Discussion



Design: The Power of Idea

- Where do ideas come from? How does power accrue to those who create ideas?
- How have the sources of ideas and their meanings evolved in a time of global information access?
- How does and individual idea evolve to a concept understood by a group?
- How are ideas valued and evaluated?
- What are the human skills and technologies that influence the creation, communication, and understanding of design ideas?
- Technology foci: Model Creation, Visualization, Collaboration, Mobility





Bob Middlebrooks, Autodesk, Inc.

Renee Tietjen, Dept. of Veterans Affairs

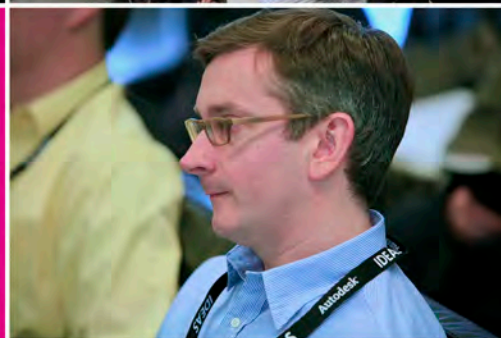
Howard Ashcraft, Hanson Bridgett LLP



The Power of the Decision

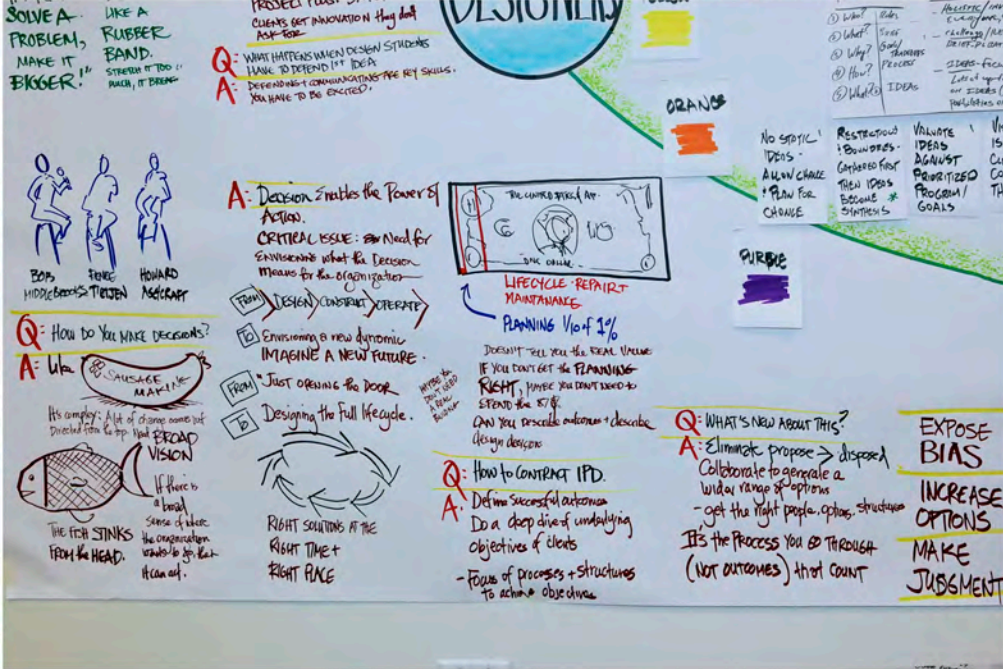
Provocateurs' Dialog

Case-Based Discussion



Design: The Power of Decision

- Who makes design decisions? How does power accrue to those who make design decisions?
- How can decision making be characterized and measured?
- What values, assessment techniques, and information are used as the basis of design decisions?
- Does technology change the frameworks and values that influence decisions?
- Where and how is information provided and accessed to make well-informed decisions? How are those decisions valued and evaluated?
- What are the human skills and technologies that influence design making throughout the lifecycle of the built environment?
- Technology foci: Analysis, Data Management, Collaboration

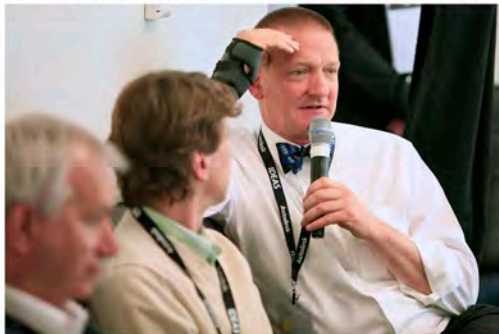




Mark Strassman, Autodesk, Inc.

Jason Bredbury, Skanska

Dan Russell, Sundt Construction



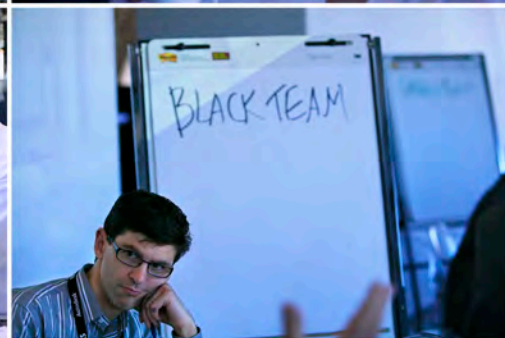
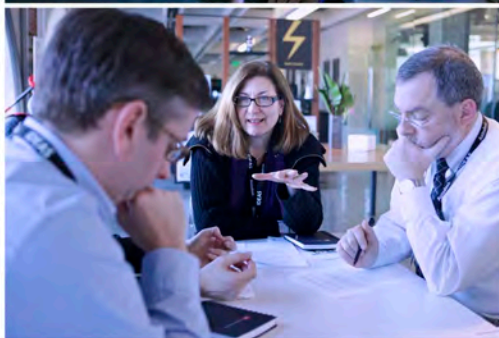
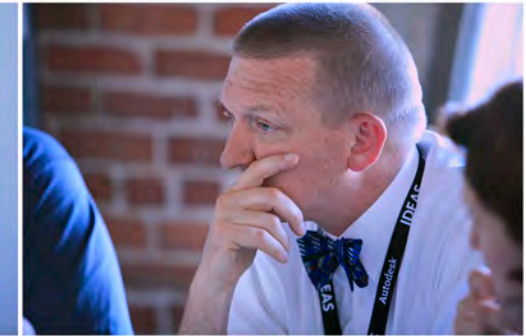
The Power of Realization

Provocateurs' Dialog

Case-Based Discussion

Design: The Power of Realization

- Who is responsible for design realization? How does power accrue to those who realize design?
- How is risk allocation shifting between different contributors to realization as a result of technology?
- How does technology affect the means by which design realization is communicated, determined, understood, and executed? How are outcomes affected?
- How is design realization valued and evaluated?
- Does the evolution of technology affect risk in design realization?
- What are the human skills and technologies that influence risk and design realization?
- Technology foci: Fabrication, Mobility



BUILDERS

MARK STRASSMAN
JASON BREDBURY
DAN RUSSEL

Q: WHAT'S THE IMPACT OF TECHNOLOGY IN DECISION-MAKING & EXECUTION?
A: It's not about the technology. Tech is not the issue. The issue is HOW TEAMS INTERACT.
- Need to get rid of legacy
- Need to figure out how to get the 20 year experienced Super Inheritor to adopt the new tools
SOCIAL CHANGE is the priority

Q: HOW HAVE YOU AFFECTED CHANGE?
A: It's painful. PD is uncertain. There's not enough education. What value is adding?
- Designers are now taking on designer fees
- role of estimators
A: Learn by education: understand the risks of early

Q: HOW DO YOU DEFINE ROLES?
A: Get as many people involved as possible involved. Clarify goals

Q: ROLE & POWER?
A: Don't know.

Q: HOW TO INCREASE PRODUCTIVITY?
A: Create truly collaborative teams. + 1/2 technical sharing in real-time
- get people involved early.

Q: How to get Predictability IMPROVED?
A: Invest time to PLAN what you'll do

Q: How far should DESIGNER'S GO or REUSE?
A: Only as far as builders need to create next step. Everything else is a waste of time

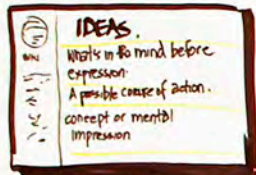
Q: WHAT ABOUT LEAN DESIGN?
A: Learn from other industries and get people in process earlier.
UNTRAIN people to do what they have done before
REMOVE FEAR that people are responsible for their early ideas.



PHIL BERNSTEIN CHRIS LIEBKEMAN CHRISTOPHER SHARPLES

Q: WHAT'S IMPORTANT ABOUT THE GENERATION OF IDEAS?

A: The importance of **LANGUAGE**. It's critical how we describe an idea. If they do not clearly articulate what we can't act on them.



Q: How do you think about IDEAS?

A: We think of architecting as a **VEBS**. We bring our own aspirations to the practice. The language changes with each project. Communication is the key. Strive for transparency.

Q: WHO OWNS THE DISCIPLINE

A: Ideas can come from anywhere and anybody.

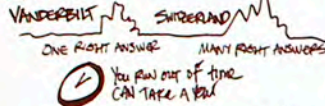
"IF YOU CAN'T SOLVE A PROBLEM, MAKE IT BIGGER." DESIGN IS LIKE A RUBBER BAND. STRETCH IT TOO MUCH, IT BREAKS.

Q: Describe the TENSION BETWEEN



A: We need to understand the parameters of the problem, which evolve over time.

A: Ideas depend on culture:

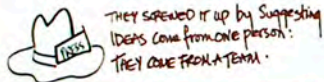


Q: WHAT'S YOUR PROCESS OF GENERATING IDEAS?

A: We formulate a series of questions. It's hard work.



Create the questions. ?????. Need constraints to bounce off ideas.

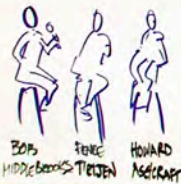


Q: DO YOU HAVE AN IDEA PIPELINE?

A: 10% - 12% PROFIT GOES TO PROJECT PLUS. 5X RETURN. CLIENTS GET INNOVATION THEY DON'T ASK FOR.

Q: WHAT HAPPENS WHEN DESIGN STUDENTS HAVE TO DEFEND 1ST IDEA?

A: DEFENDING + COMMUNICATING ARE KEY SKILLS. YOU HAVE TO BE EXCITED.

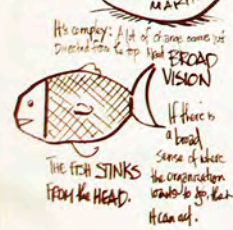


BOB HODGKINS TERRY TROTTEN HOWARD MORGENTHAU

A: Decision enables the Power of ACTION. CRITICAL ISSUE: Need for ENVISIONING what the Decision Means for the Organization.

Q: How do you make decisions?

A: Use the SAUSAGE MACHINE.

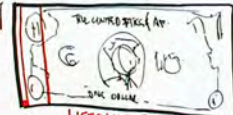


FROM DESIGN CONSTRUCT ITERATE

TO ENVISIONING A NEW DYNAMIC IMAGINE A NEW FUTURE.

FROM JUST OPENING THE DOOR

TO DESIGNING THE FULL LIFE CYCLE.



LIFECYCLE REPAIR MAINTENANCE

PLANNING 1/10 of 1%

Don't tell you the team. If you don't get the PLANNING RIGHT, you're not going to create the right design.

Q: How to CONTRAST IPD.

A: Define successful outcome. Do a deep dive of underlying objectives of clients. Focus of processes + structures to achieve objective.

No specific IDEAS - ALLOW CHANCE - PLAN FOR CHANGE. RESTRICTED BOUNDARIES - COMPROMISE FIRST - THEN IDEAS BECOME A SITUATION. VALUE IDEAS AGAINST PRIORITIZED PROGRAM/GOALS. VALUE IS KEY - CREATING COURAGE THROUGH.

SURPRISE

Q: WHAT'S NEW ABOUT THIS?

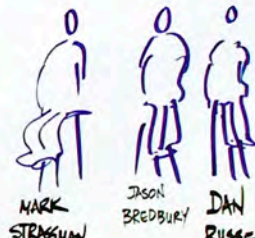
A: Eliminate, propose > dispose. Collaborate to generate a wide range of options. Get the right people, options, structures. It's the PROCESS you go through (NOT OUTCOMES) that COUNT.

EXPOSE BIAS

INCREASE OPTIONS

MAKE JUDGMENT

EARLY SPONTANEOUS OF RISK IS CRITICAL. COMING OUT OF THE TRANSPARENT.



Q: WHAT'S THE IMPACT OF TECHNOLOGY IN DECISION-MAKING + EXECUTION?

A: It's not about the technology. Tech is not the issue. The issue is HOW TEAMS INTERACT. - Need to get rid of legacy. - Need to figure out how to get the 20 year experienced Super Intendant to adopt the new tools. SOCIAL CHANGE IS THE PRIORITY.

Q: How HAVE YOU AFFECTED CHANGE?

A: It's painful. IPD is uncertain. There's not enough education. What value is adding? - Designers are not taking non designer roles. - role of estimators.

A: Learn by education. Understand the risks of early.

Q: How do you DEFINE Roles?

A: Get as many people involved as possible. Involved. Clarify goals.

Q: Role of Power?

A: Don't know.

Q: How To INCREASE PRODUCTIVITY?

A: Create truly collaborative teams. Technical. Shaving in real-time. Get people involved early.

Q: How to get Predictability IMPROVED?

A: Invest time to PLAN what you'll do.

Q: How THE STUBBORN DESIGNER'S GO OR REMOTE?

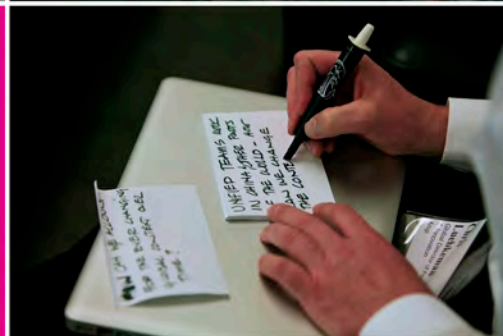
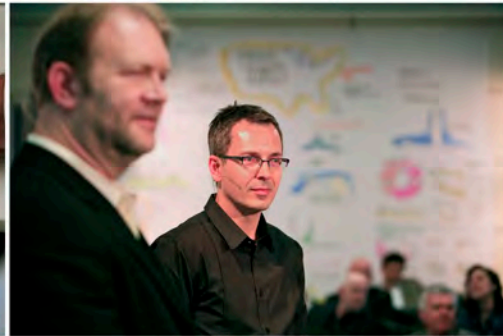
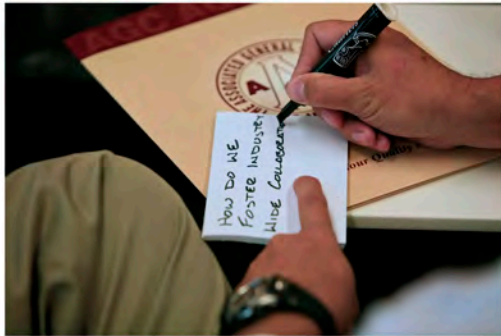
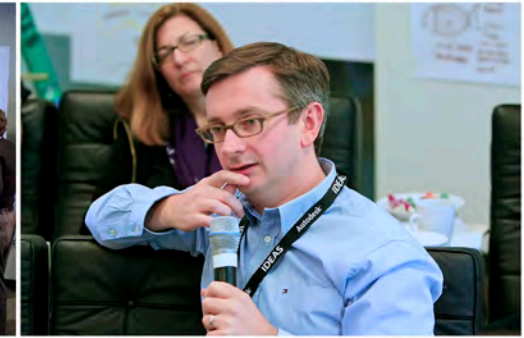
A: Only as far as builders need to create next step. Everything else is a waste of time.

Q: WHAT ABOUT LEAN DESIGN?

A: Learn from other industries and get people in process earlier.

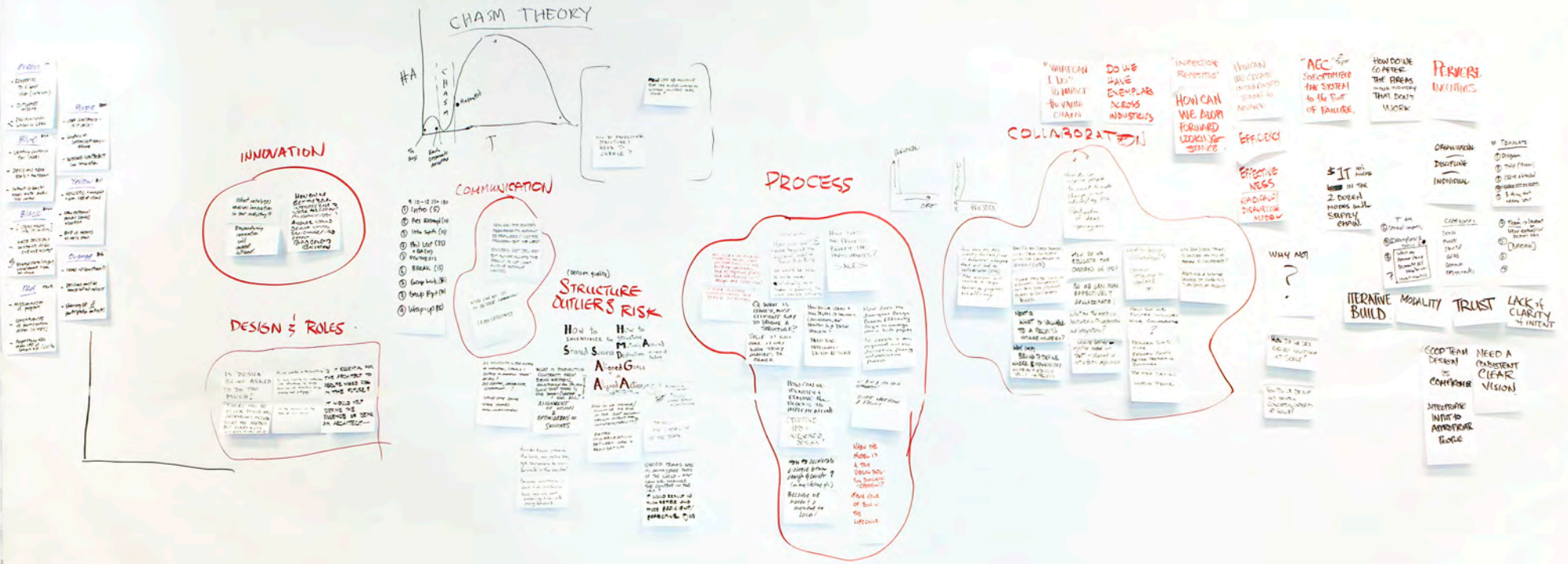
UNTRAIN people to do what they have done before.

REMOVE FEAR that people are responsible for their early ideas.



Issues Report-Out + Discussion

Phil Bernstein, Autodesk, Inc.
Tom Wujec, Autodesk, Inc.





IDEAS

THE INNOVATION
+ DESIGN SERIES



IDEAS

**THE INNOVATION
+ DESIGN SERIES**

**Tuesday, May 3
Improvisation**



Improvisation

John Moody

Doug Cox

1 CHANGES - 3 PEOPLE
-ANGER
-JOY
-LUST
-SAD
-PARANOIA
-HILLBILLY
-FEAR

2 LAST LETTER - 3 PEOPLE
-RELATIONSHIP, PLACE

3 3 HAT
-3 WORD DESCRIPTION
-RELATIONSHIP
-PROBLEM

4 EXPERT - 1 LONG STORY/STORY
- 4 PEOPLE

5 ENTRANCE TEXT (TAPE)
-IDEA WALL

6 FISH BOWL - FAMILY BUS.
-EMBARRASS TO ADMIT
-REALLY PROUD OF
-PET PEEVE
-EXCUSE
-FAMOUS MOVIE LINE

7 ALPHABET - 3 PEOPLE
-WHO
-ACTIVITY

8 1-2-3-4
-RELATIONSHIP
-EVENT

9 BUILD IT - 2 PEOPLE
-WEEKEND PROJECT

10 COMMERCIAL
-COMPANY
-SLOGAN





IDEAS

THE INNOVATION
+ DESIGN SERIES



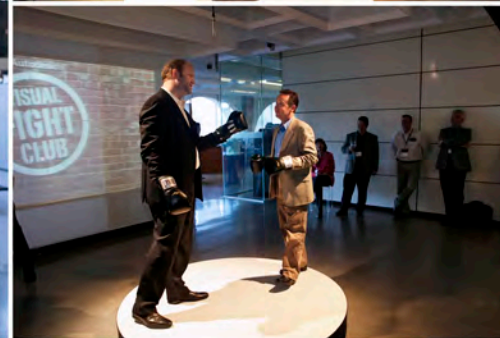
IDEAS

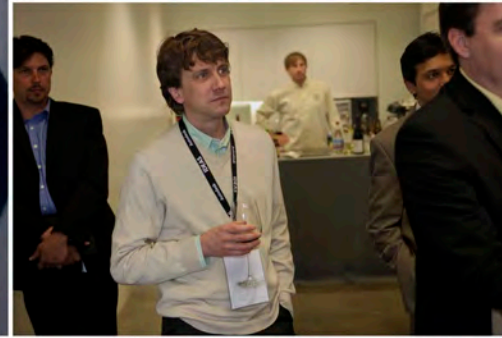
**THE INNOVATION
+ DESIGN SERIES**

**Tuesday, May 3
Visual Fight Club**

Visual Fight Club

Mac vs. PC
Ideas vs. Decisions
Decisions vs. Realization
Ideas vs. Realization

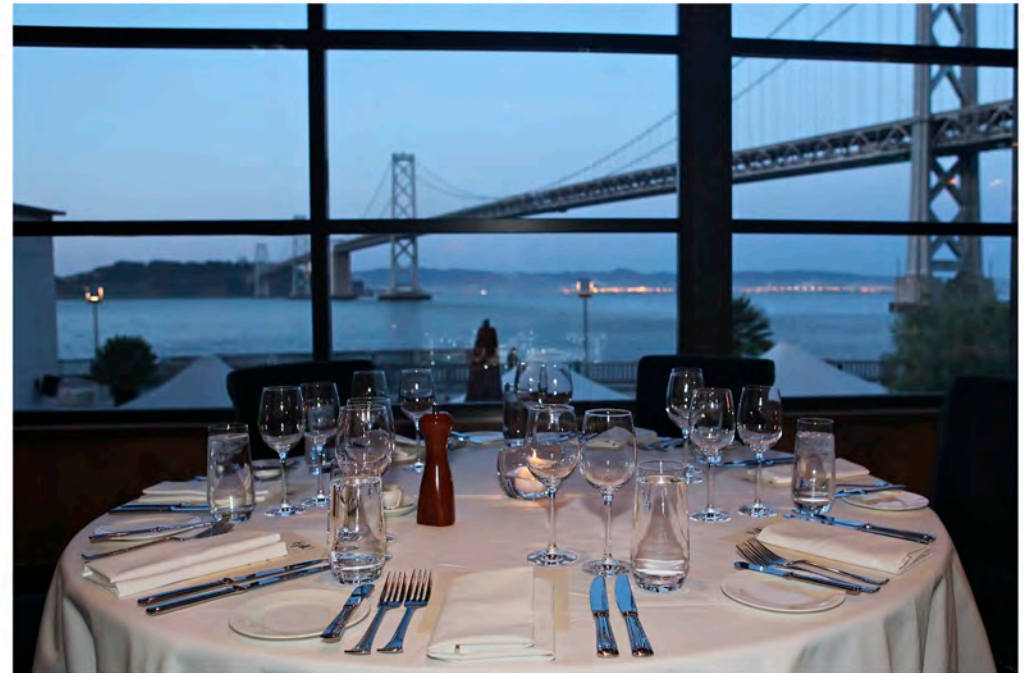
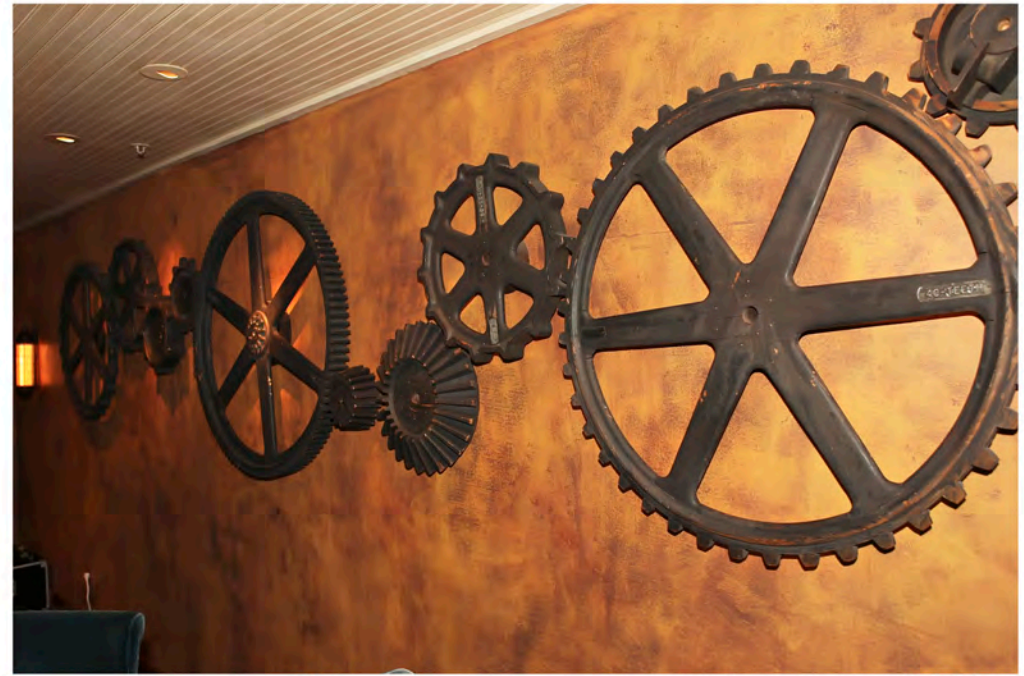




IDEAS

**THE INNOVATION
+ DESIGN SERIES**

Tuesday, May 3
Dinner







IDEAS

THE INNOVATION
+ DESIGN SERIES



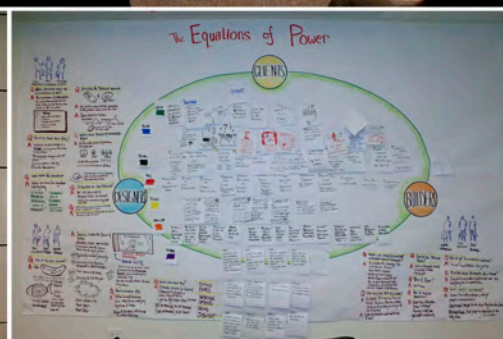
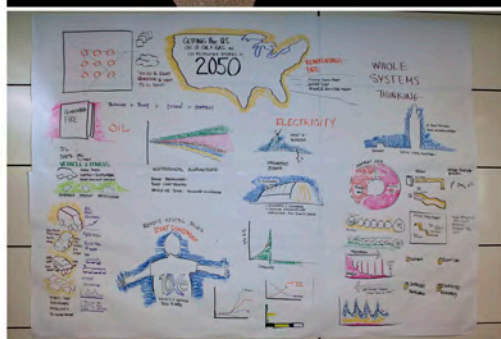
IDEAS

**THE INNOVATION
+ DESIGN SERIES**

Wednesday, May 4

Recap + Intro

Discussion + Group Work



Recap + Intro

Gregory Miller, The Madrone Project

Jonathan Knowles, Autodesk, Inc.

Jon Pittman, Autodesk, Inc.



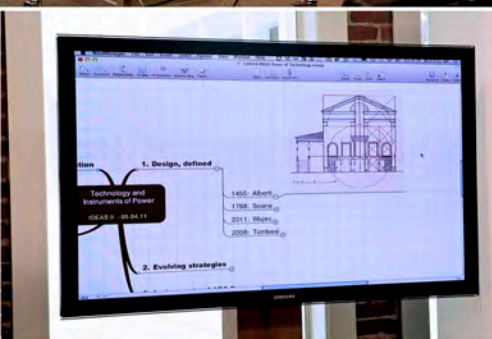
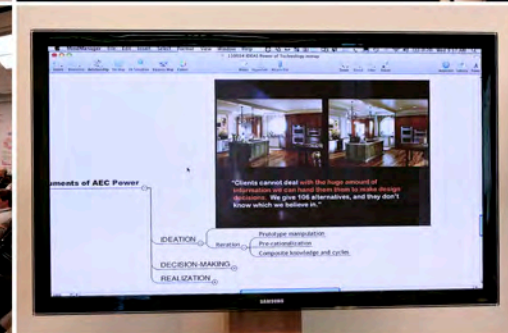
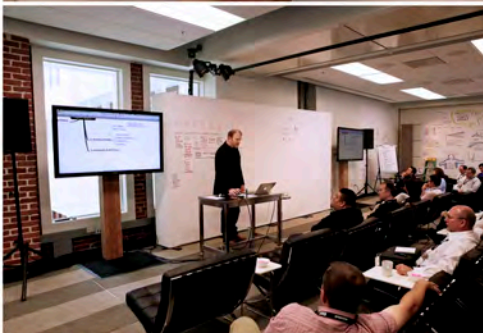
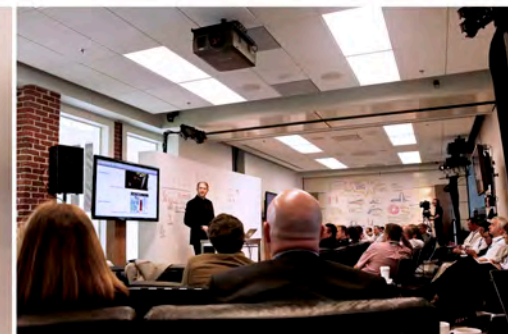
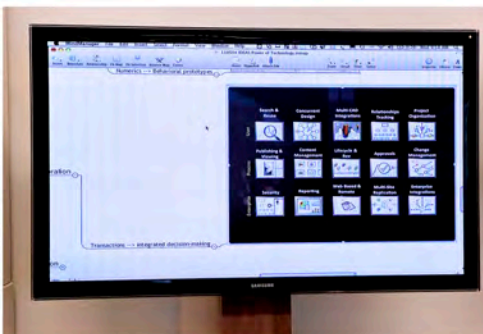
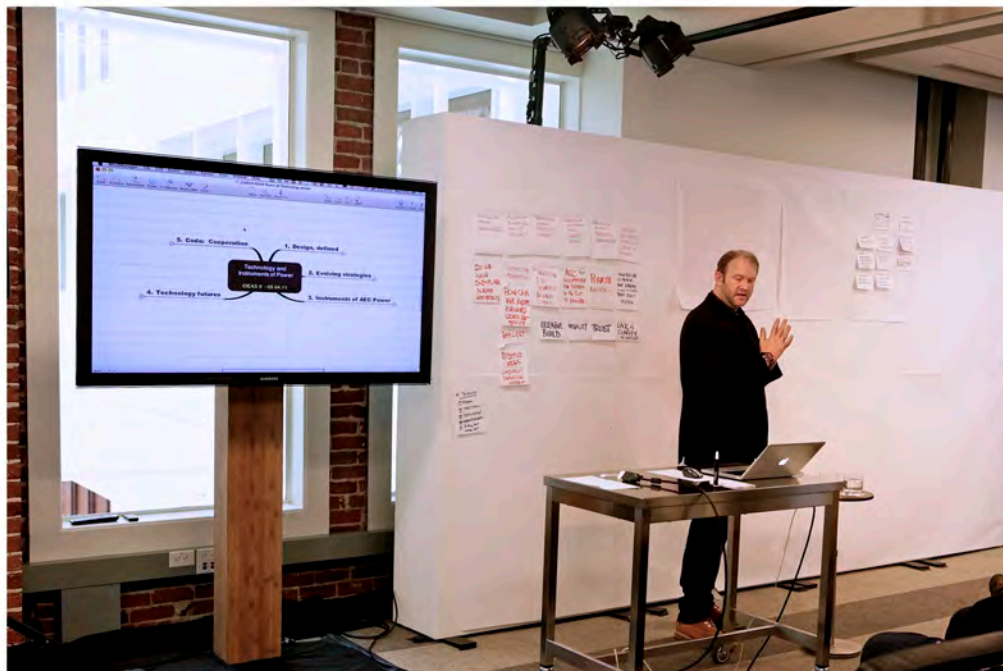


Exemplar + Synthesis I

Tom Wujec, Autodesk, Inc.

Phil Bernstein, Autodesk, Inc.



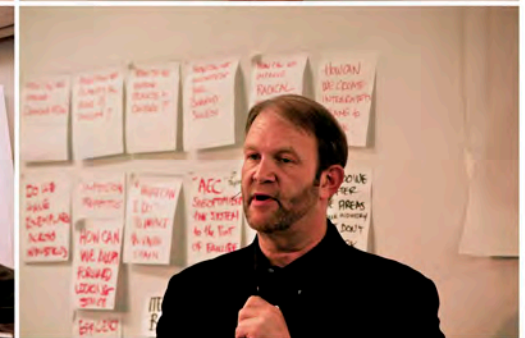
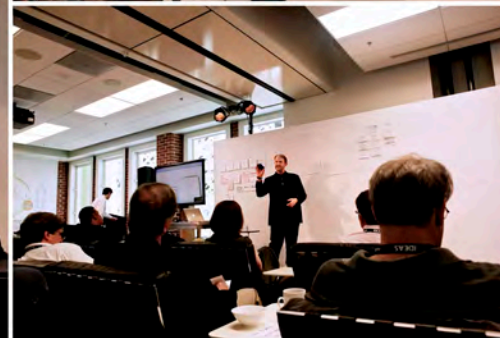
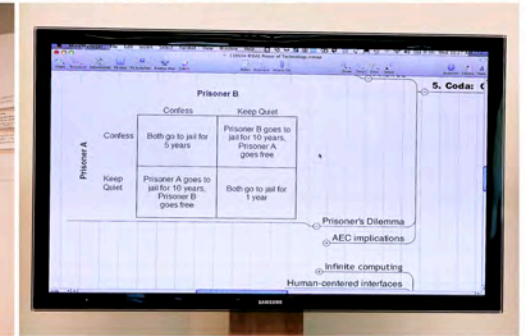
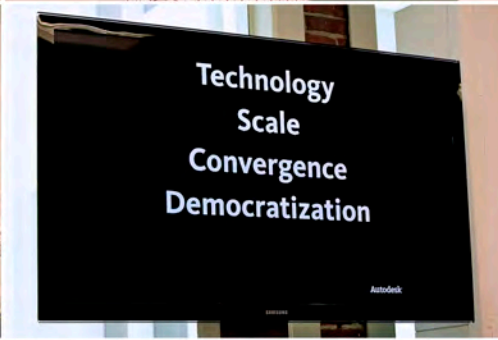


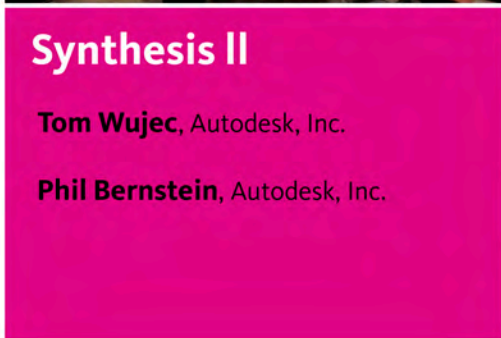
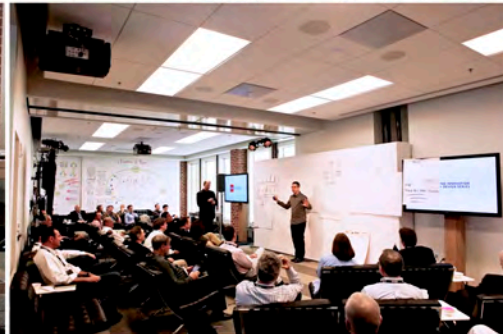
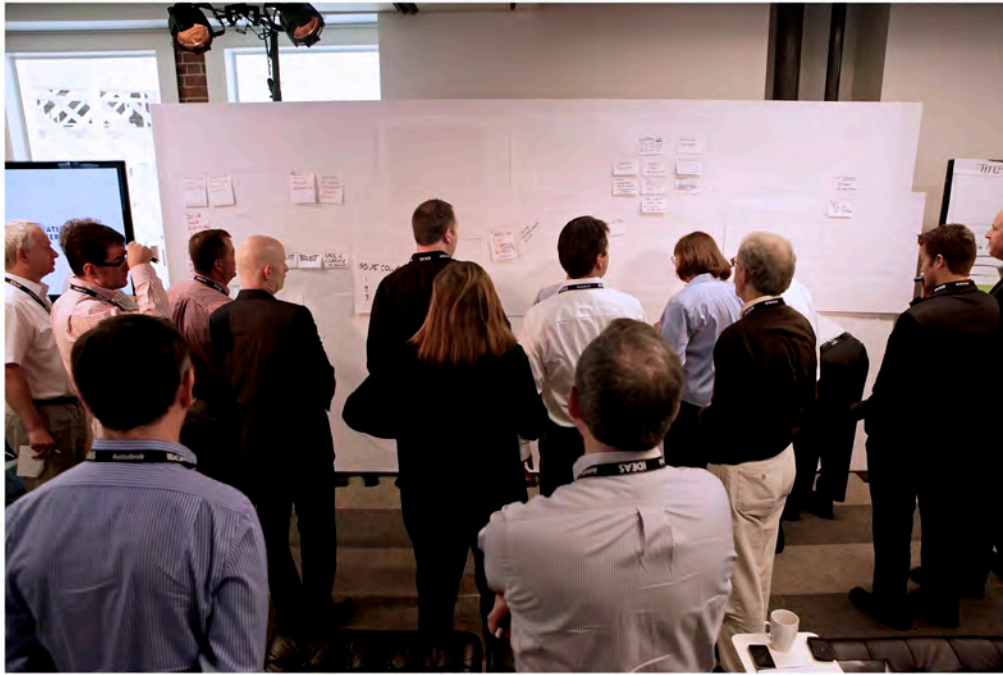
Future Technology

-Design Ideation, Decision Making,
and Realization

Phil Bernstein, Autodesk, Inc.

Brian Mathews, Autodesk, Inc.

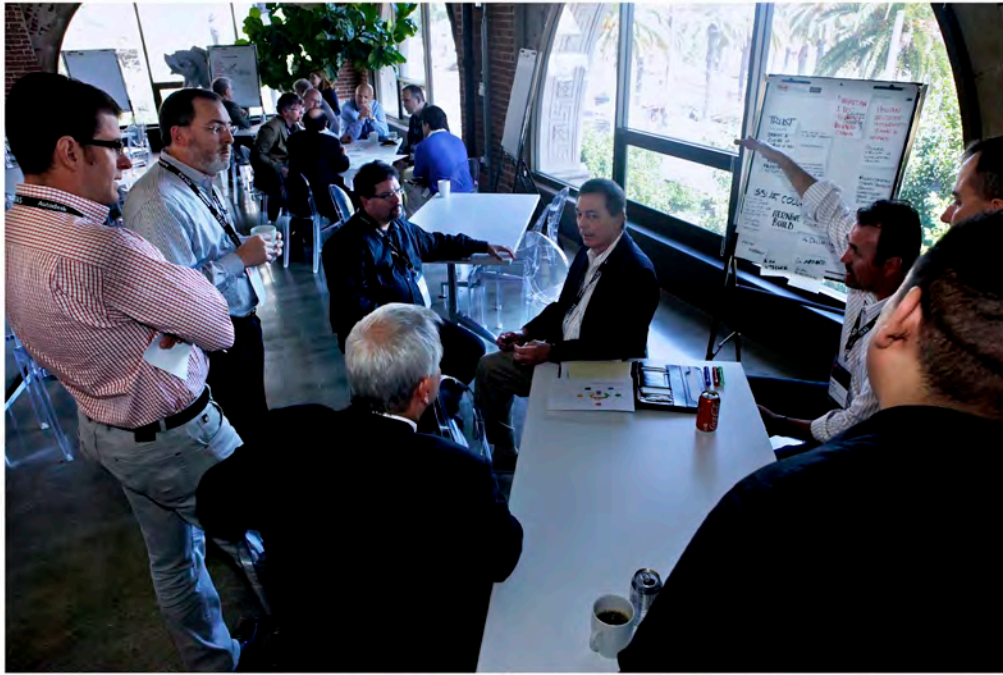




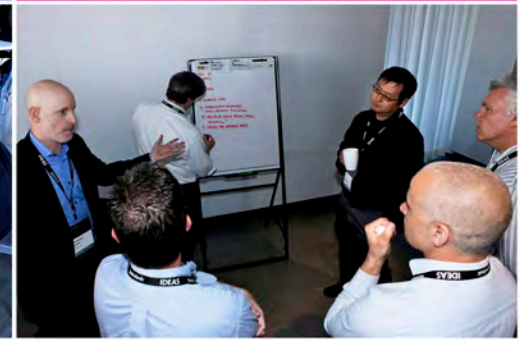
Synthesis II

Tom Wujec, Autodesk, Inc.

Phil Bernstein, Autodesk, Inc.



Group Work





Report-Out + Conclusion

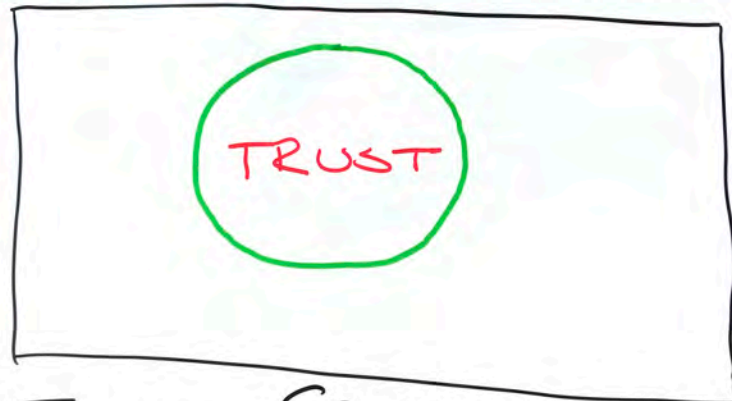
Tom Wujec, Autodesk, Inc.

Phil Bernstein, Autodesk, Inc.

Jon Pittman, Autodesk, Inc.



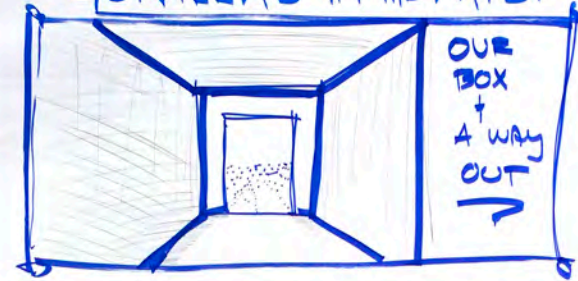
CULTURE OF TRUST



TOTAL COLLABORATION

- TRANSPARENCY
- SHARED ACCOUNTABILITY
- EMPOWERMENT
- RELATIONSHIP BUILDING

GORILLAS IN THE MIST



ISSUE: LEARNING & SHARING

- IDEAS
1. GLOBAL DESIGN LIBRARY/WIKI
CASE STUDIES
 2. KNOWLEDGE CAPTURE FROM 'BACKGROUND' BLOGS
 3. EDUCATIONAL LINKS/RETOOLING FOR NEW TEAMS
 4. ESTABLISH EXEMPLARY "SOCIETY"
FINDING GREAT ONES, MINUSSET CO-OPITION

'GORILLAS IN THE MIST'

EMULATE, SHAPE

communication

the quiet bldgs that we don't really hear about

Conceptual parallels

EVIDENCE BASED DESIGN
VISIONING
SCENARIOS
CASE STUDIES

HOW CAN WE ADD FORWARD LOOKING STANCE

CREATING BOUNDARY SPANNING RELATIONSHIPS

NON-TRADITIONAL TEAMS
INCLUSIVE EXEMPLARS

MAP DISRUPTIVE CHANGES IN OTHER INDUSTRIES TO AEC COLLABORATION

IDENTIFICATION OF KEY KNOWLEDGE IN OVERABUNDANCE OF INFO + DATA

DO WE HAVE FINDING EXEMPLARS ACROSS INDUSTRIES

Haley Lerman

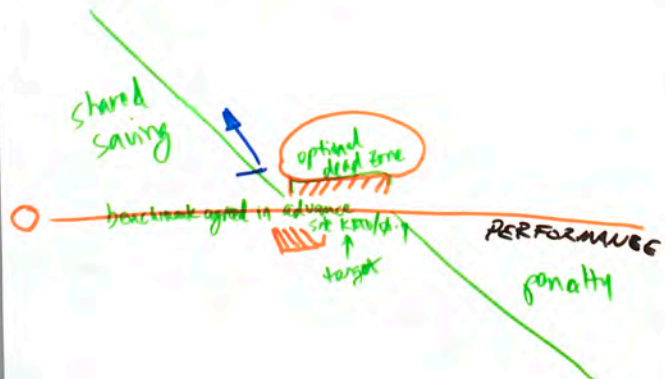
Knowledge / Learning / Performance Feedback
OPEN ARCHITECTURE

REWARD FOR DESIGN EFFICIENCY RESULT

ISSUE: DESIGNERS ARE NOT
REWARDED FOR EFF. DESIGN
SAVINGS

1. Shared ^{REWARDS FOR EFF. DESIGN} SAVINGS ^{NOR} IMPROVEMENT _{and} PENALTY
2. CLIENTS ENCOURAGE and DESIGNERS COMPETE ON THIS BASIS
3. OPTIONAL CONTINUING IMPROVEMENT / REWARD
4. PAYMENT COULD INCLUDE EQUITY

+ INCENTIVE

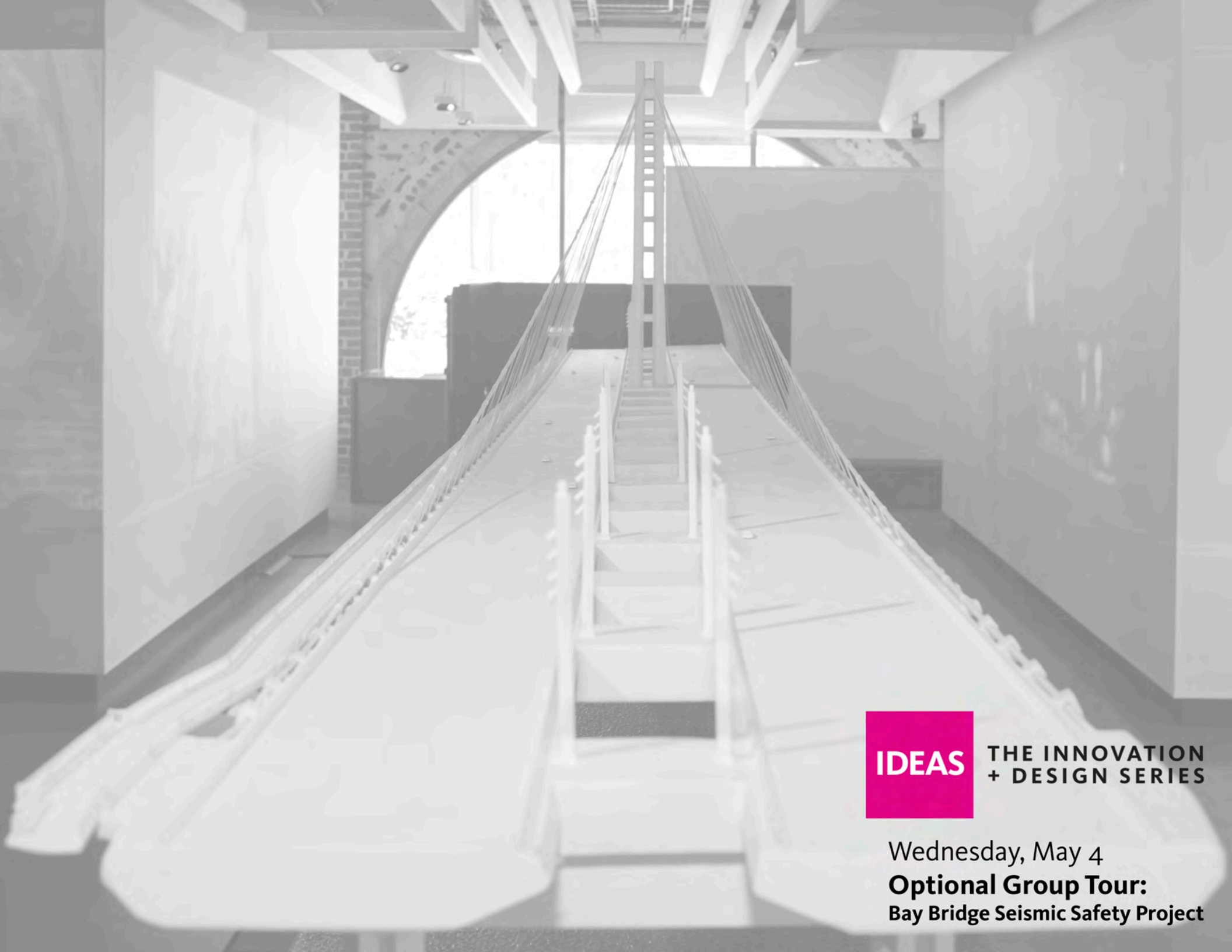


PENALTY



IDEAS

THE INNOVATION
• DESIGN SERIES

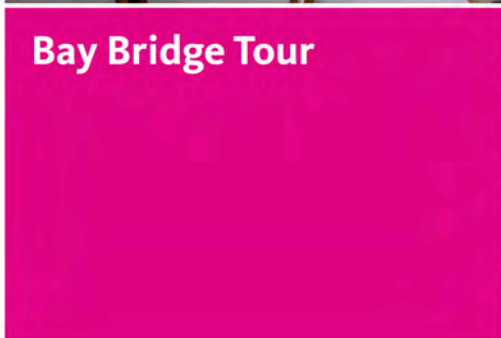
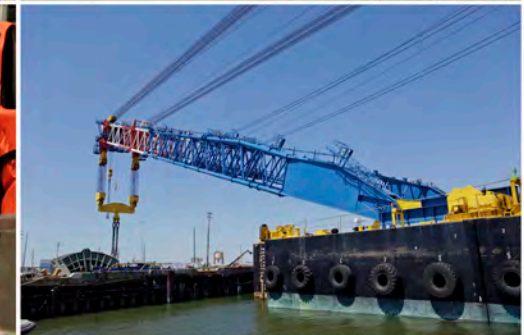
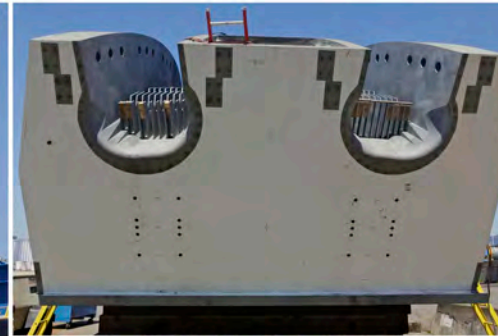


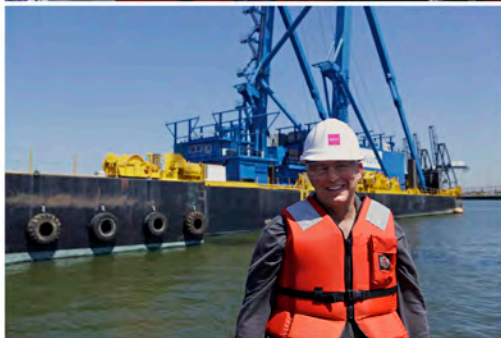
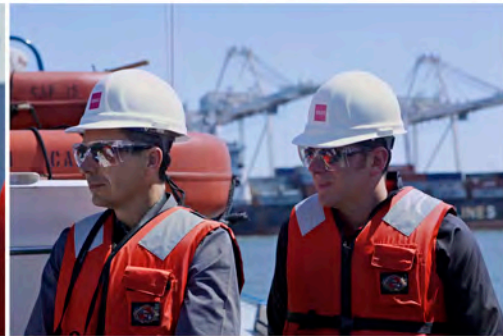
IDEAS

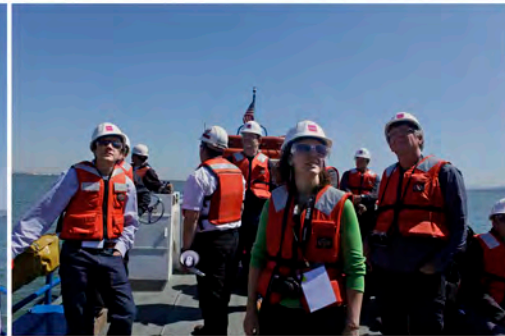
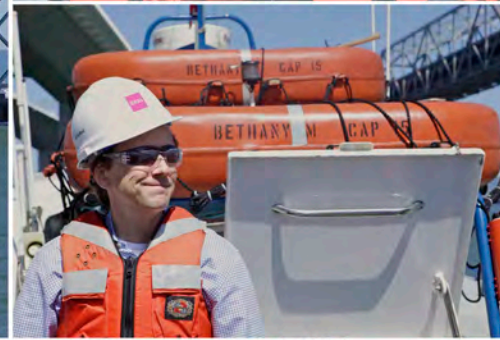
THE INNOVATION
+ DESIGN SERIES

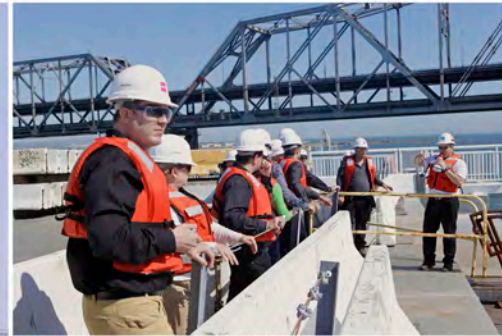
Wednesday, May 4

Optional Group Tour:
Bay Bridge Seismic Safety Project









Autodesk®

IDEAS

THE INNOVATION
DESIGN SERIES



Participants

German Aparicio, informedCITIES
 Howard W. Ashcraft, Jr., Hanson Bridgett LLP
 Carl Bass, Autodesk, Inc.
 Phil Bernstein, Autodesk, Inc.
 Bill Black, Haworth
 Jason Bredbury, Skanska
 Davis Chauviere, HKS, Inc.
 Robert Colelli, MMM Group Limited
 Maurice Conti, Autodesk, Inc.
 Ron Dellaria, Astorino
 Jeff DiBattista, DIALOG
 Hugh Dubberly, Dubberly Design Office
 Chris France, Little
 Erin Rae Hoffer, Autodesk, Inc.
 Henry King, Doblin
 Jonathan Knowles, Autodesk, Inc.
 Kurt Komraus, Buro Happold
 Jeff Kowalski, Autodesk, Inc.
 Eric Lamb, DPR Construction
 Nancy Levinson, Places/Design Observer
 Amory Lovins, Rocky Mountain Institute
 Chris Luebke, Arup

Brian Mathews, Autodesk, Inc.
 Richard McWilliams, Capita Symonds
 Robert Middlebrooks, Autodesk, Inc.
 Gregory Miller, The Madrone Project
 David Morris, EMCOR
 Rich Nitzsche, Perkins+Will
 Jon Pittman, Autodesk, Inc.
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 Marcus Reedy, David Evans and Associates, Inc.
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 Dan Russell, Sundt Construction
 Christopher Sharples, SHoP Architects PC
 Nathan Shedroff, California College of the Arts
 Mark Strassman, Autodesk, Inc.
 Richard Thomas, SHP Leading Design
 Renee Tietjen, Department of Veterans Affairs
 Rich Trahey, ThyssenKrupp System Engineering, Inc.
 Keith Warren, VTN
 Shane Williams, Array Healthcare Facilities Solutions, Inc.
 Tom Wujec, Autodesk, Inc.
 Heather Yurko, Cisco



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