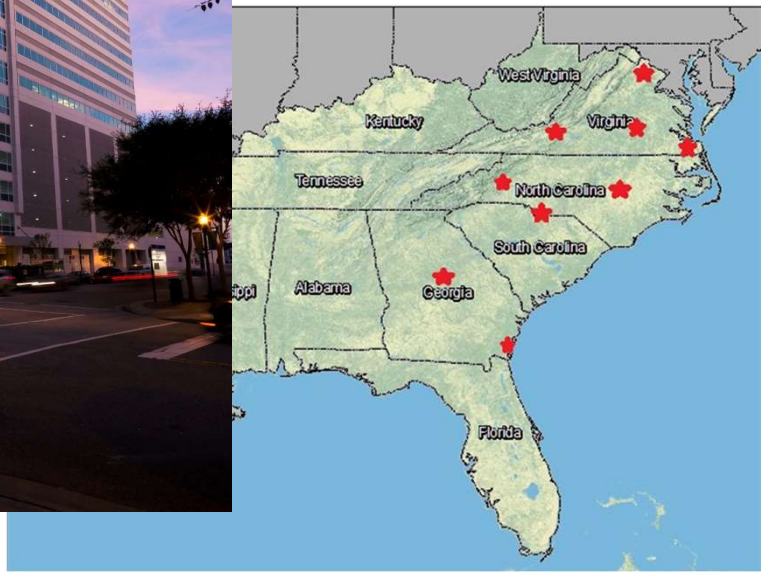
Building Bridges (and Buildings) with Kanban

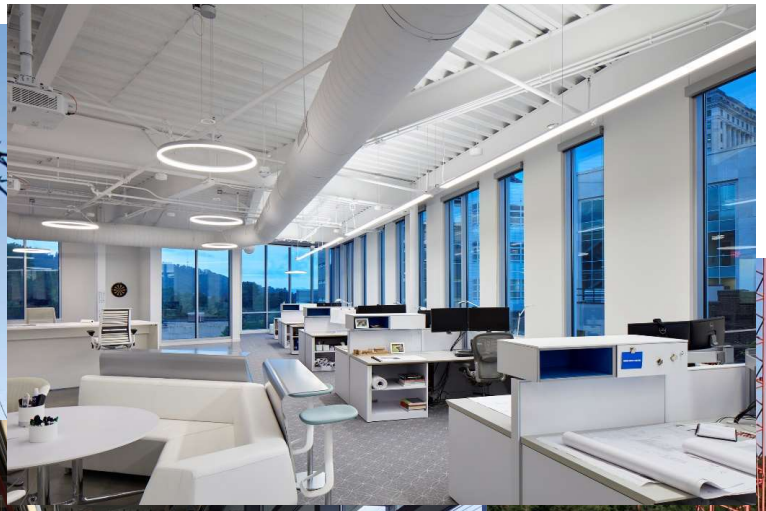
CLARKNEXSEN

The Firm

The Firm


West Virginia
Kentucky
Virginia
Tennessee
North Carolina
South Carolina
Alabama
Georgia
Florida

The Firm



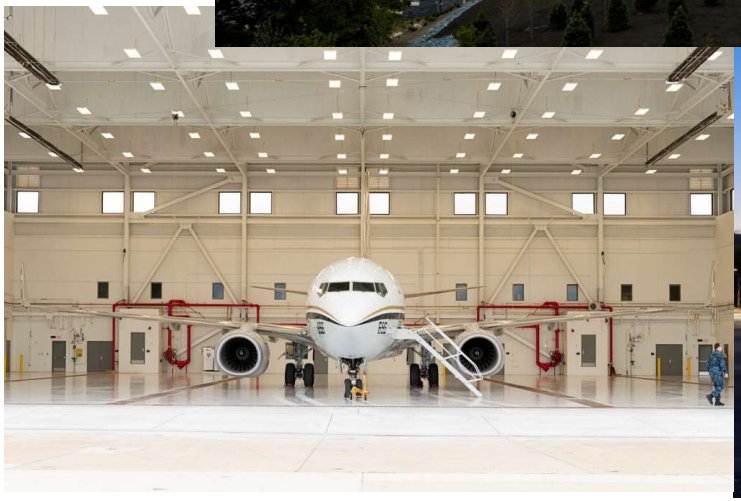
PARTNER. DISCOVER. TRANSFORM.

We begin with partnership. Great ideas come from collaboration.
Our approach crosses disciplines to inspire innovation.
Our process advances communities through discovery and design.
We believe ideas have the power to transform.

"Together we discover, inspire, and shape ideas that transform our world."

Projects

- Buildings
  - Department of Defense
    - Operations/Maintenance
    - Command Centers
    - Support Activities
    - Barracks

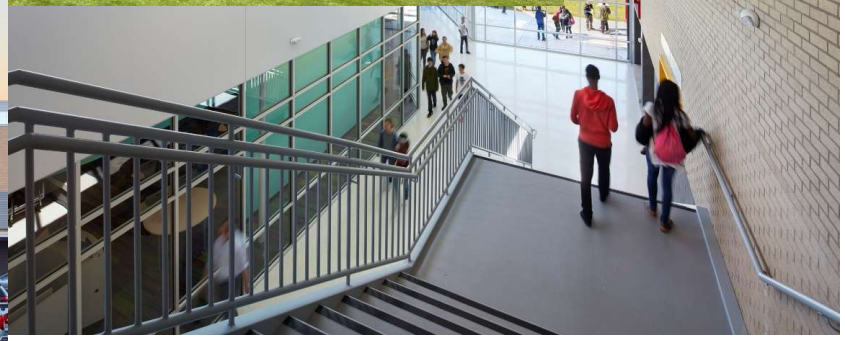


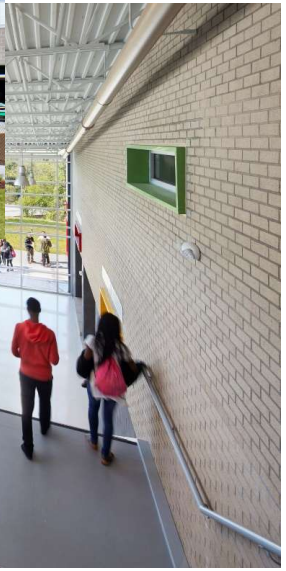
Projects

- Buildings
  - Department of Defense
  - Higher Education
    - Libraries
    - Classroom
    - Student living

Projects

- Buildings
  - Department of Defense
  - Higher Education
  - K-12 Schools





Projects

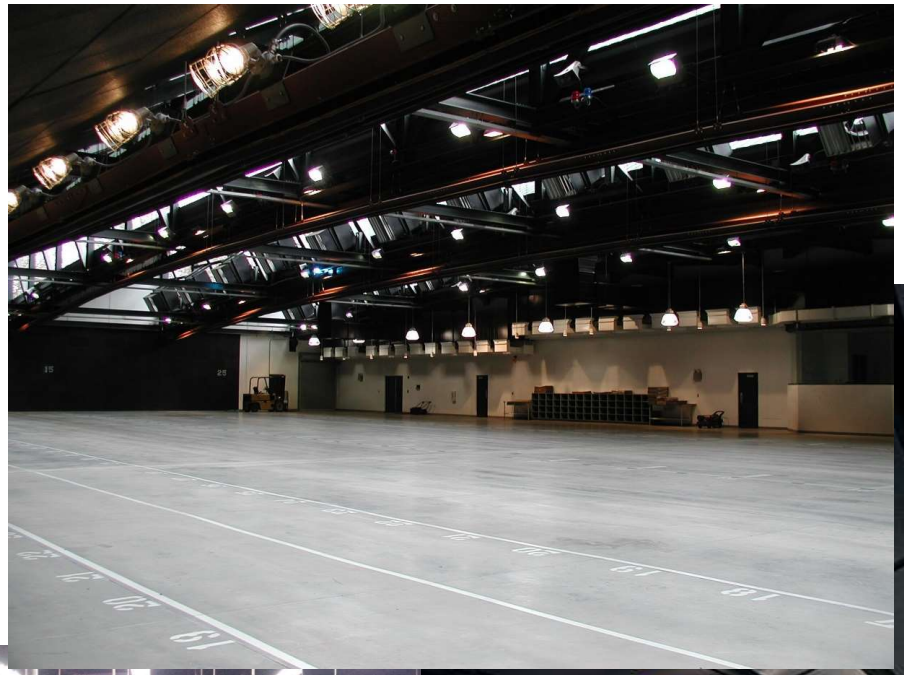
- Buildings
  - Department of Defense
  - Higher Education
  - K-12
  - Commercial Development

Projects

- Buildings
  - Department of Defense
  - Higher Education
  - K-12
  - Commercial Development
  - Industrial/Science & Technology
    - Mineral processing
    - Agricultural Biotech

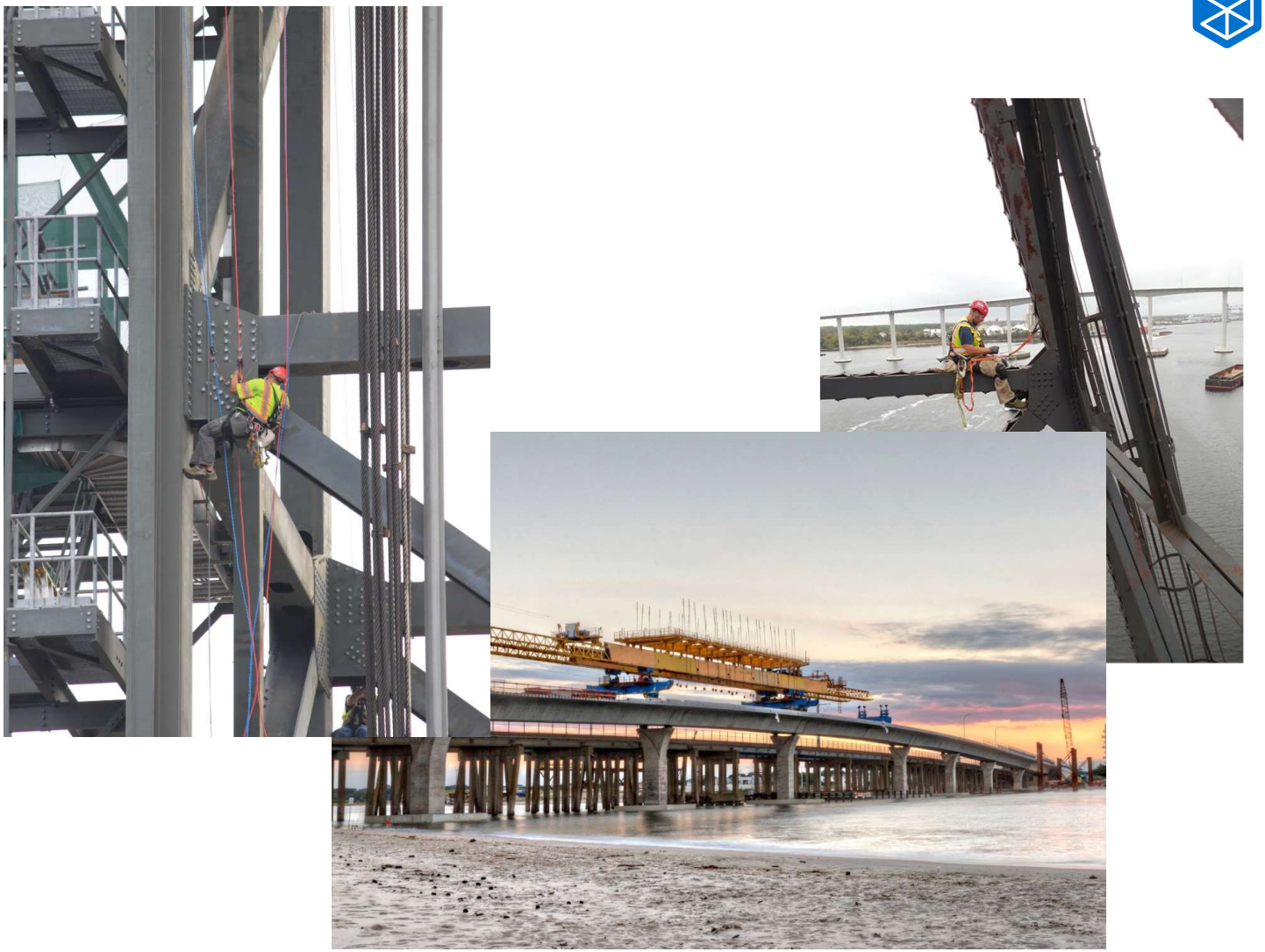
Projects

- Buildings
  - Department of Defense
  - Higher Education
  - K-12
  - Commercial Development
  - Industrial
  - Public Safety and Firearms Training



Projects

- Transportation & Infrastructure
  - Bridge Engineering
  - Bridge Inspections



Projects

- Transportation & Infrastructure
  - Bridge Engineering
  - Bridge Inspections
  - Roadway Engineering

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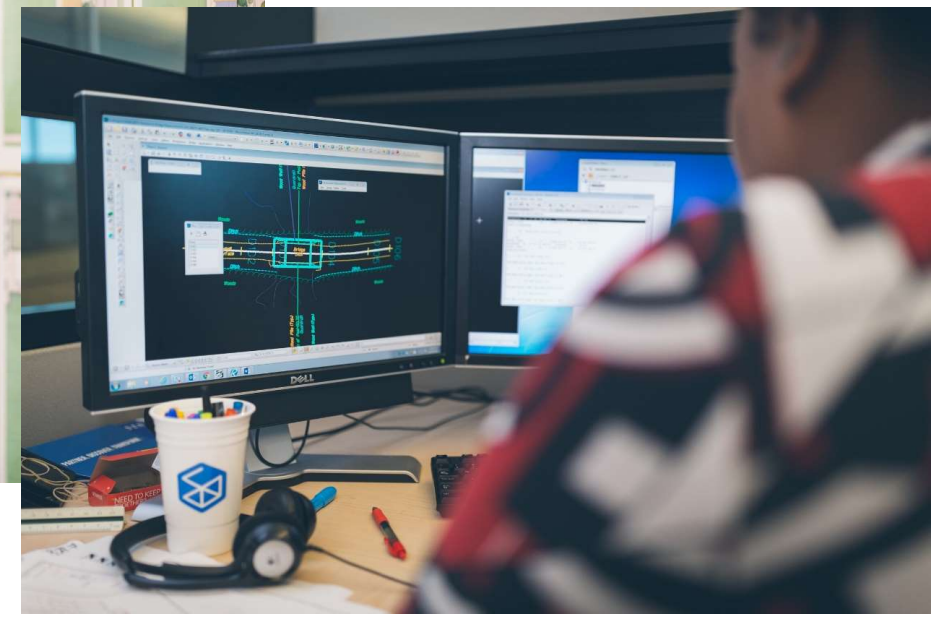
Projects

- Transportation & Infrastructure
  - Bridge Engineering
  - Bridge Inspections
  - Roadway Engineering
  - Water, Wastewater, Stormwater
  - Geospatial Information Systems

Traditional Approach to Work



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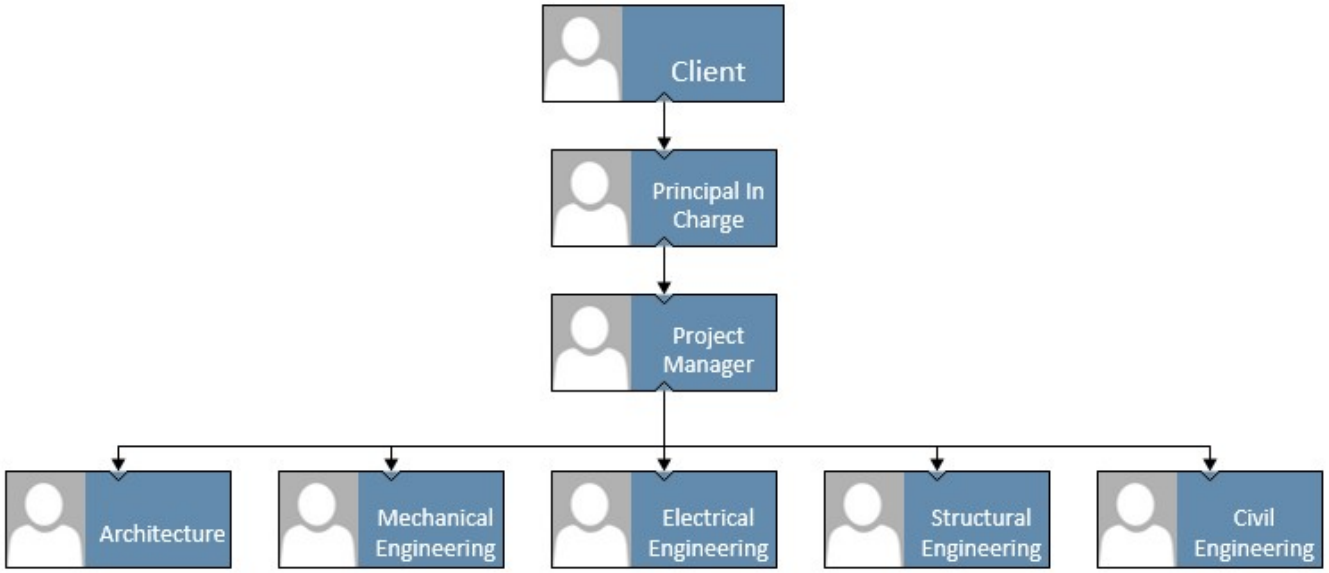
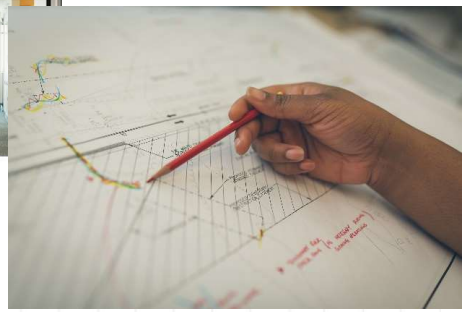


Traditional Approach to Work

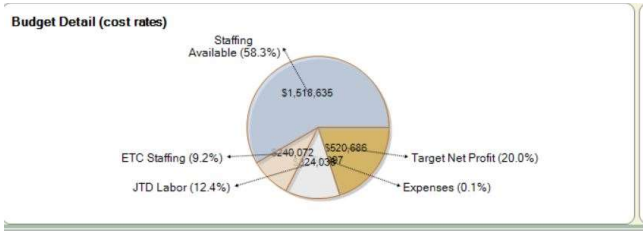
- Typical Phases
  - Scope development or programming (5%)
  - Schematic Design (15%)
  - Design Development (20%)
  - Construction Documents (30%)
  - Bidding (5%)
  - Construction (25%)
  - Post-occupancy or post-construction (free)

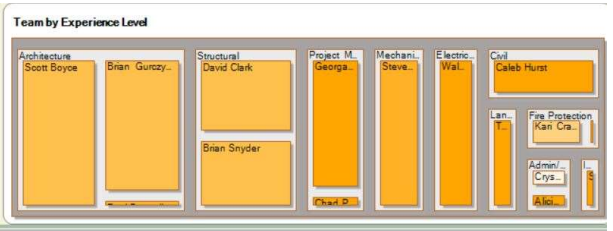


Status	Phase	Follows	Lag	Start	Duration	End	Complete	Billing Fee	People	Notes
Not Used	Acctg Purposses Only		0 wks		0 wks		0.0%			
Done	Contract Negotiations		-24 wks	09/01/2017	9 wks	10/31/2017	100.0%			
Done	Programming		2 wks	10/02/2017	17 wks	02/02/2018	100.0%		0.84 FTEs	
Done	Schematic Design		-8 wks	12/04/2017	13 wks	03/09/2018	100.0%		2.35 FTEs	
Active	**Design Development**		**6 wks**	**03/12/2018**	**13 wks**	**06/15/2018**	**20.8%**		**10.69 FTEs**	
Active	Construction Documents		15 wks	06/18/2018	9 wks	08/19/2018	0.0%		11.84 FTEs	

Traditional Approach to Work

- Schedule for interdisciplinary coordination milestones
- PM sets schedule and budget by discipline based on hours, communicates scope of work to team leads
- Project planning = "I need X number of Y people on the project"
  - X * Y * number of schedule days > effort in fees - almost always
- Generally, work until we run out of time
- Most profitable when we run short of people to staff projects
  - Also the most mistakes made
  - EV, Budget vs. Actual metrics





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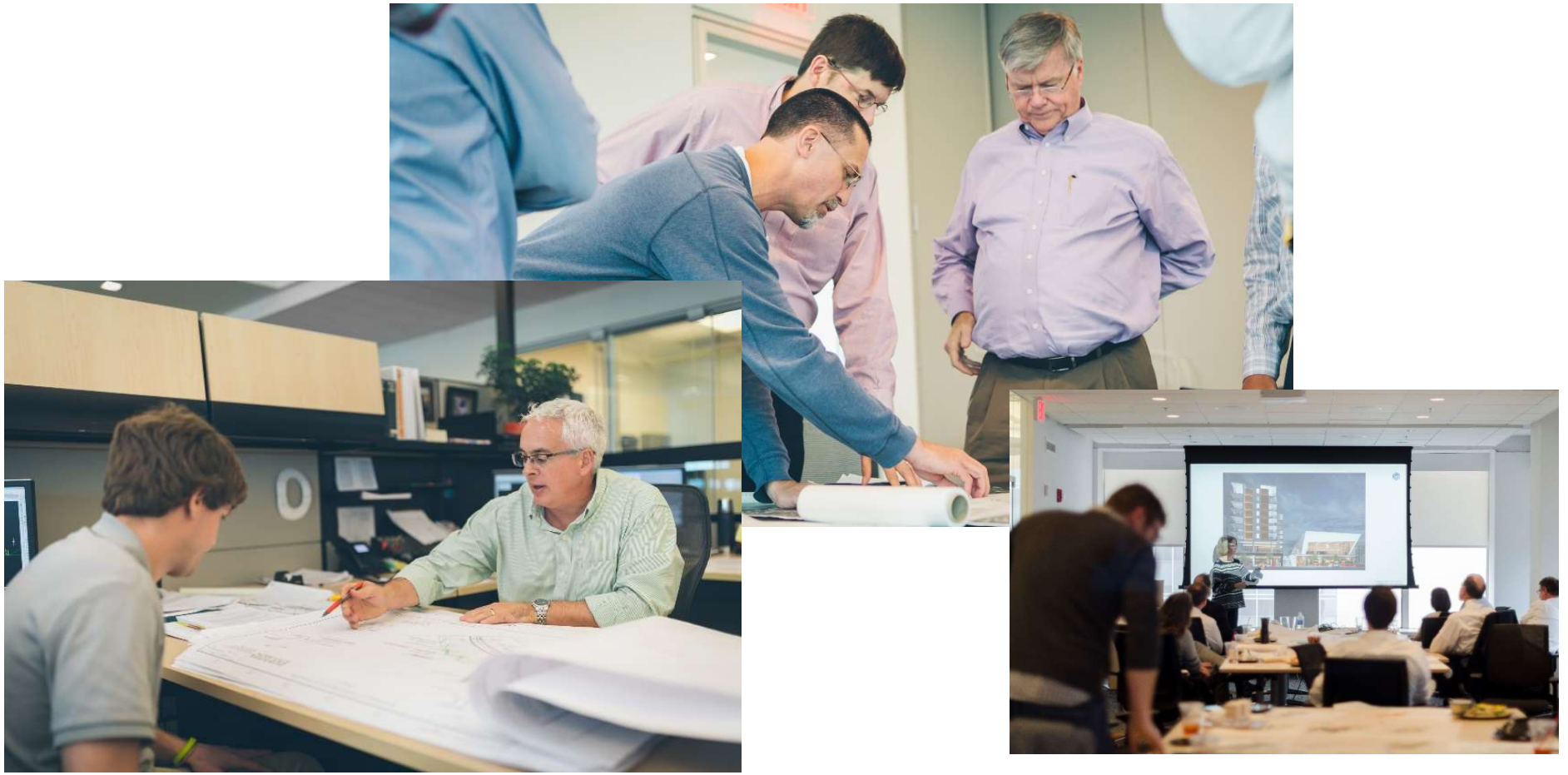
☐		Schematic Design	Structural Engineer	Structural	12/04/2017	03/09/2018	David Clark	$ 107.55	$ 100.80	124 hrs	per detail
☐		Schematic Design	Structural Engineer	Structural	12/04/2017	03/09/2018	Brian Snyder	$ 107.55	$ 100.80	116 hrs	per detail
☐		Design Developm...	Structural CADD...	Structural	03/12/2018	06/15/2018		$ 107.55	$ 72.80	6 hrs	per week
☐		Design Developm...	Structural Engineer	Structural	03/12/2018	06/15/2018	David Clark	$ 107.55	$ 100.80	570 hrs	per detail
☐		Design Developm...	Structural Engineer	Structural	03/12/2018	06/15/2018	Brian Snyder	$ 107.55	$ 100.80	456 hrs	per detail
☐		Construction Doc...	Structural CADD...	Structural	06/18/2018	08/19/2018		$ 107.55	$ 72.80	12 hrs	per week
☐		Construction Doc...	Structural EIT	Structural	06/18/2018	08/19/2018		$ 107.55	$ 72.80	16 hrs	per week
☐		Construction Doc...	Structural Engineer	Structural	06/18/2018	08/19/2018	David Clark	$ 107.55	$ 100.80	300 hrs	per detail
☐		Construction Doc...	Structural Engineer	Structural	06/18/2018	08/19/2018	Brian Snyder	$ 107.55	$ 100.80	300 hrs	per detail
☐		Construction Admi...	Structural Engineer	Structural	07/09/2018	01/31/2020	Brian Snyder	$ 107.55	$ 100.80	344 hrs	per detail
☐		Construction Admi...	Structural Engineer	Structural	07/09/2018	01/31/2020	David Clark	$ 107.55	$ 100.80	344 hrs	per detail

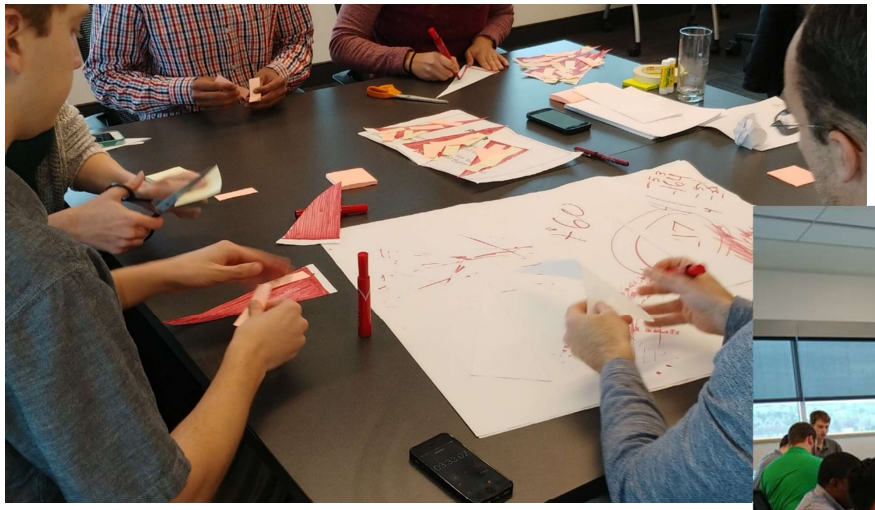
Traditional Approach to Work



The Lean Journey Begins

The Lean Journey Begins

- Approach
  - Why
    - “Stop Starting, Start Finishing”
    - Kanban pizza, dot-card games
  - Model work processes
    - Kanban board
    - Explicit Policies
  - Daily meetings
    - Trello
    - Skype



First Quarter Reflection

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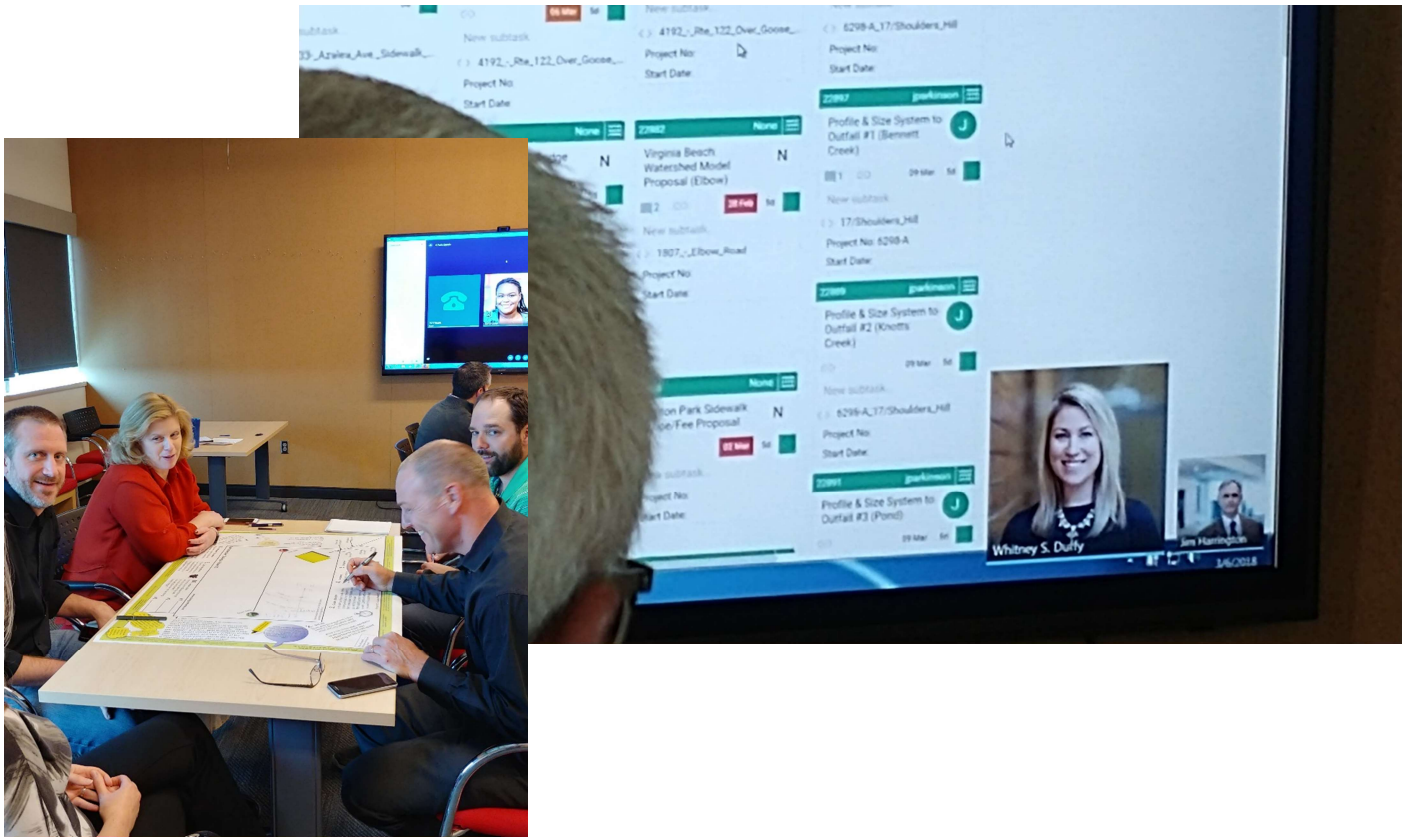

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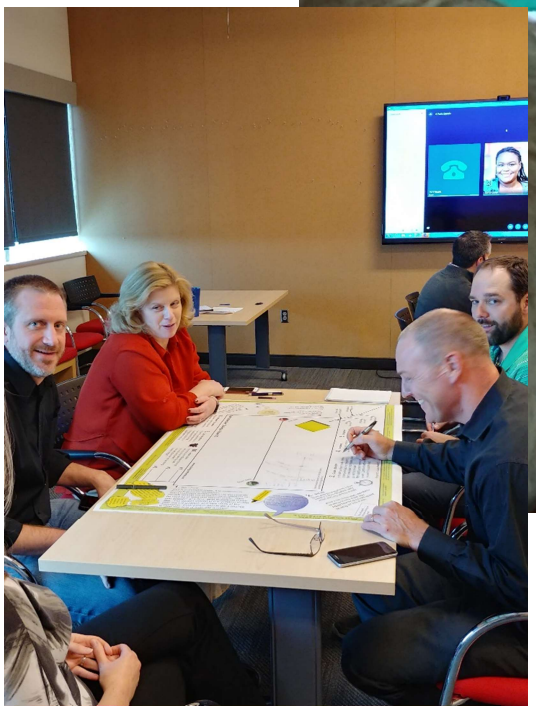

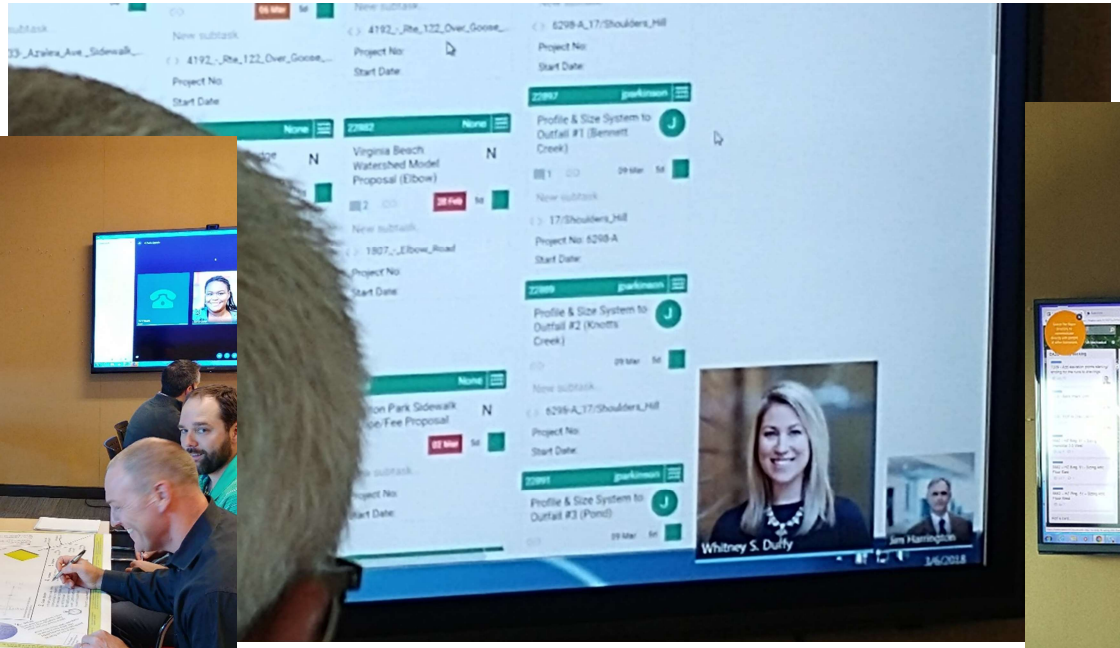

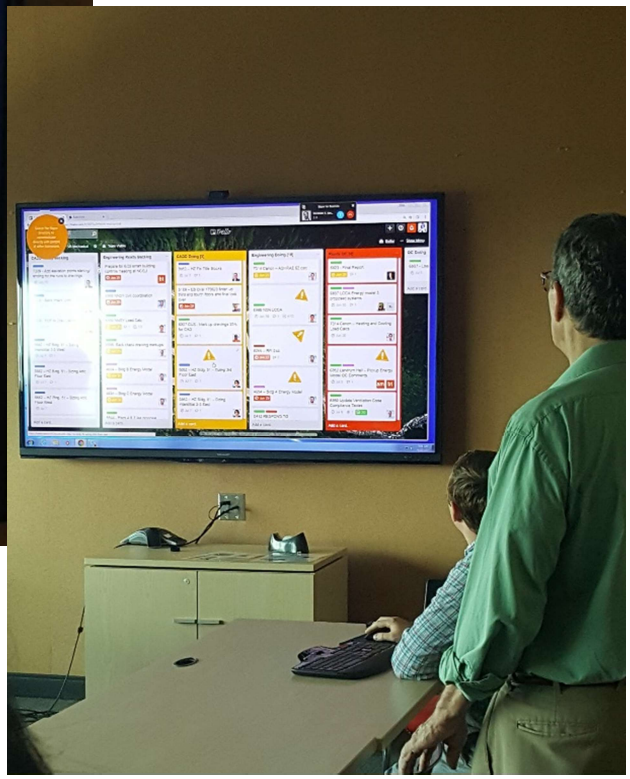

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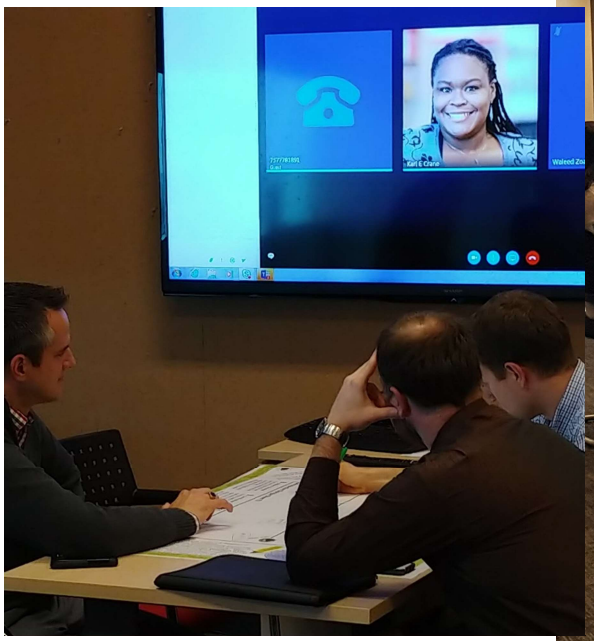
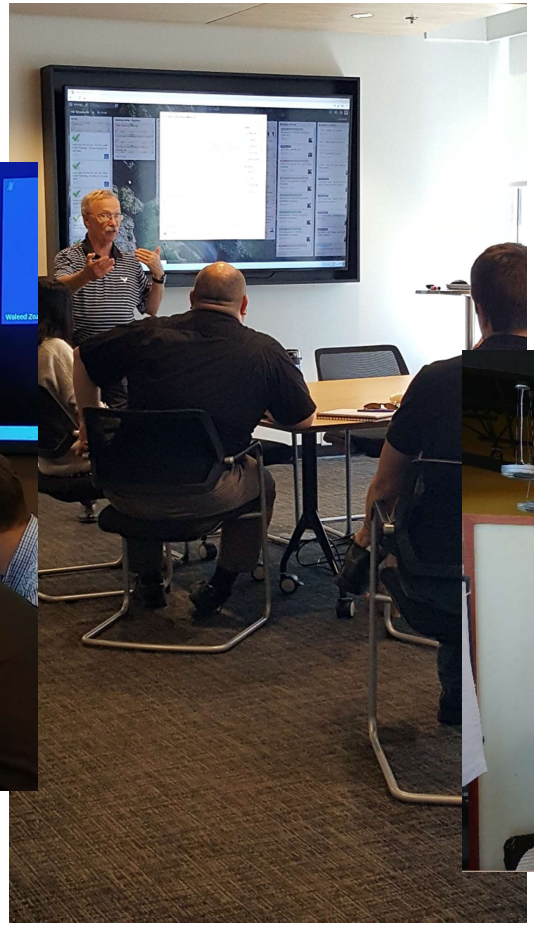
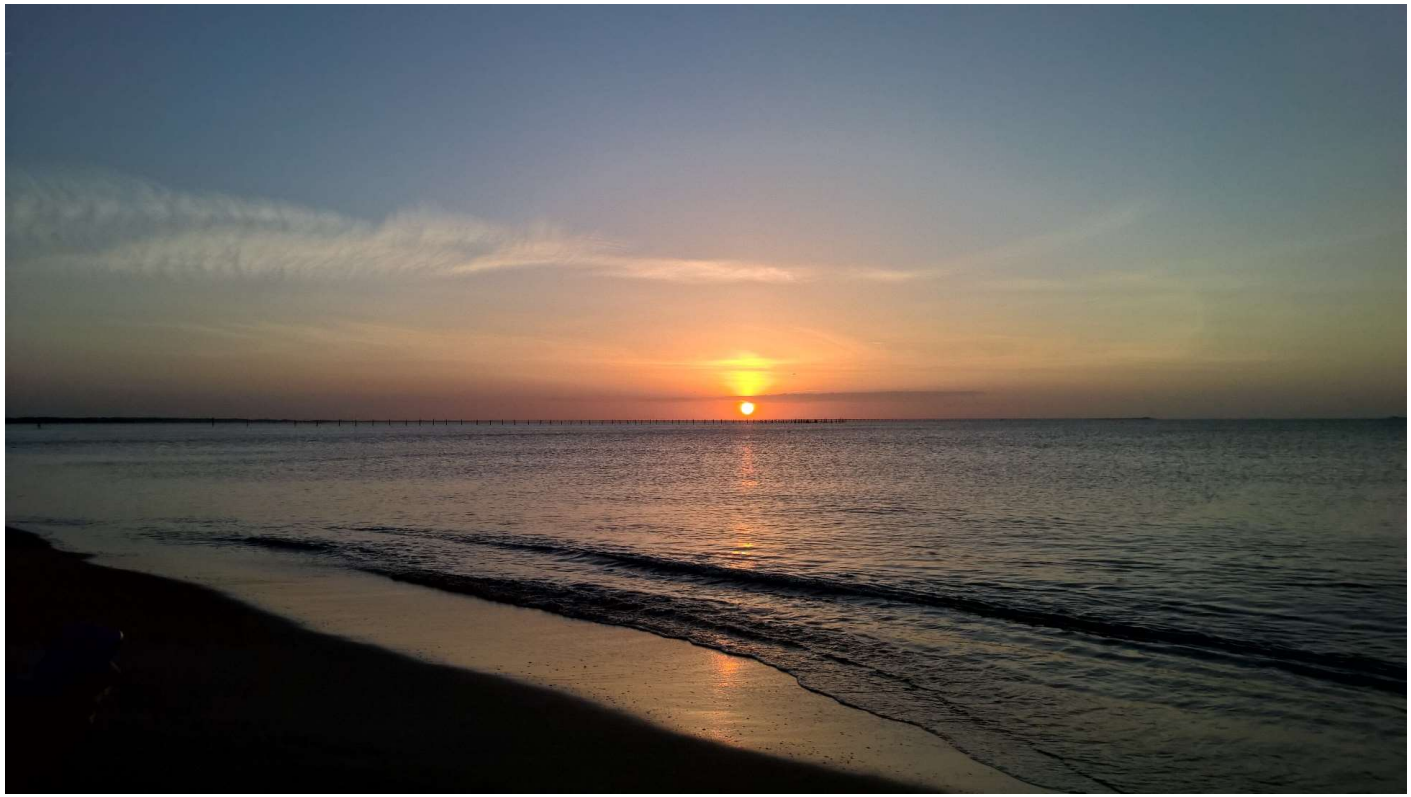
Next 3 Months - More Teams



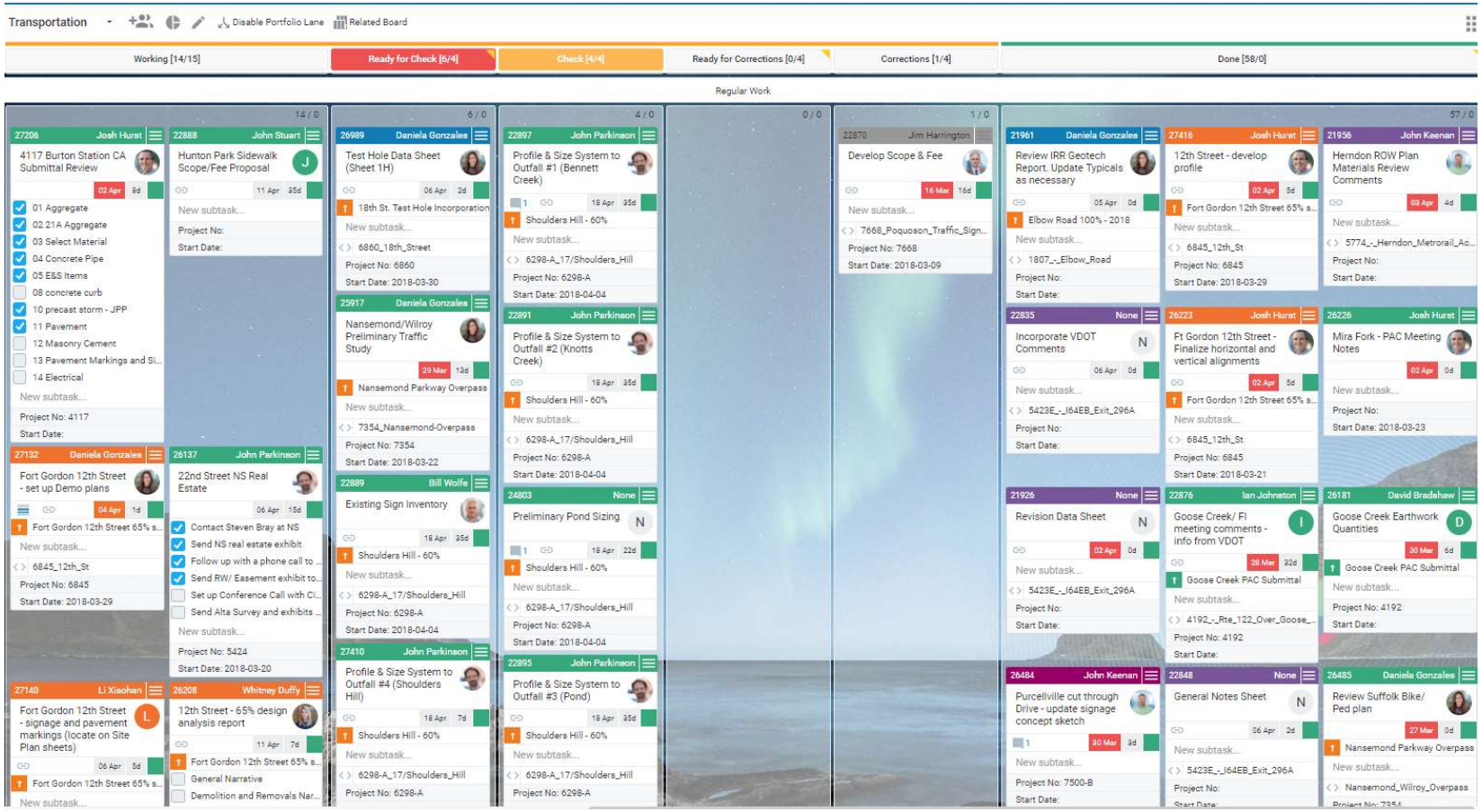


6 Month Reflection

- Approach
- Sharing work
- Practices improving
- Culture shift?



6 Months Reflection



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6 Months Reflection

- Adoption?
  - Successes
  - Struggles

Same Mistakes

"I think we're in good enough shape to start making the same mistakes again."

FROM *HARVARD BUSINESS REVIEW*, DECEMBER 2010. CARTOON BY TERESA BURNS PARKHURST.

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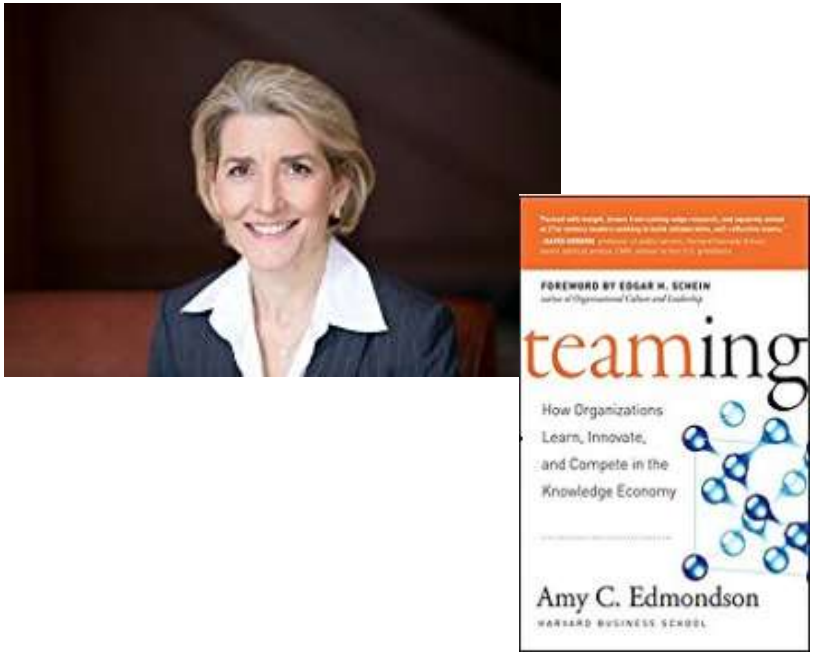
Execution Based vs. Learning Based Firm



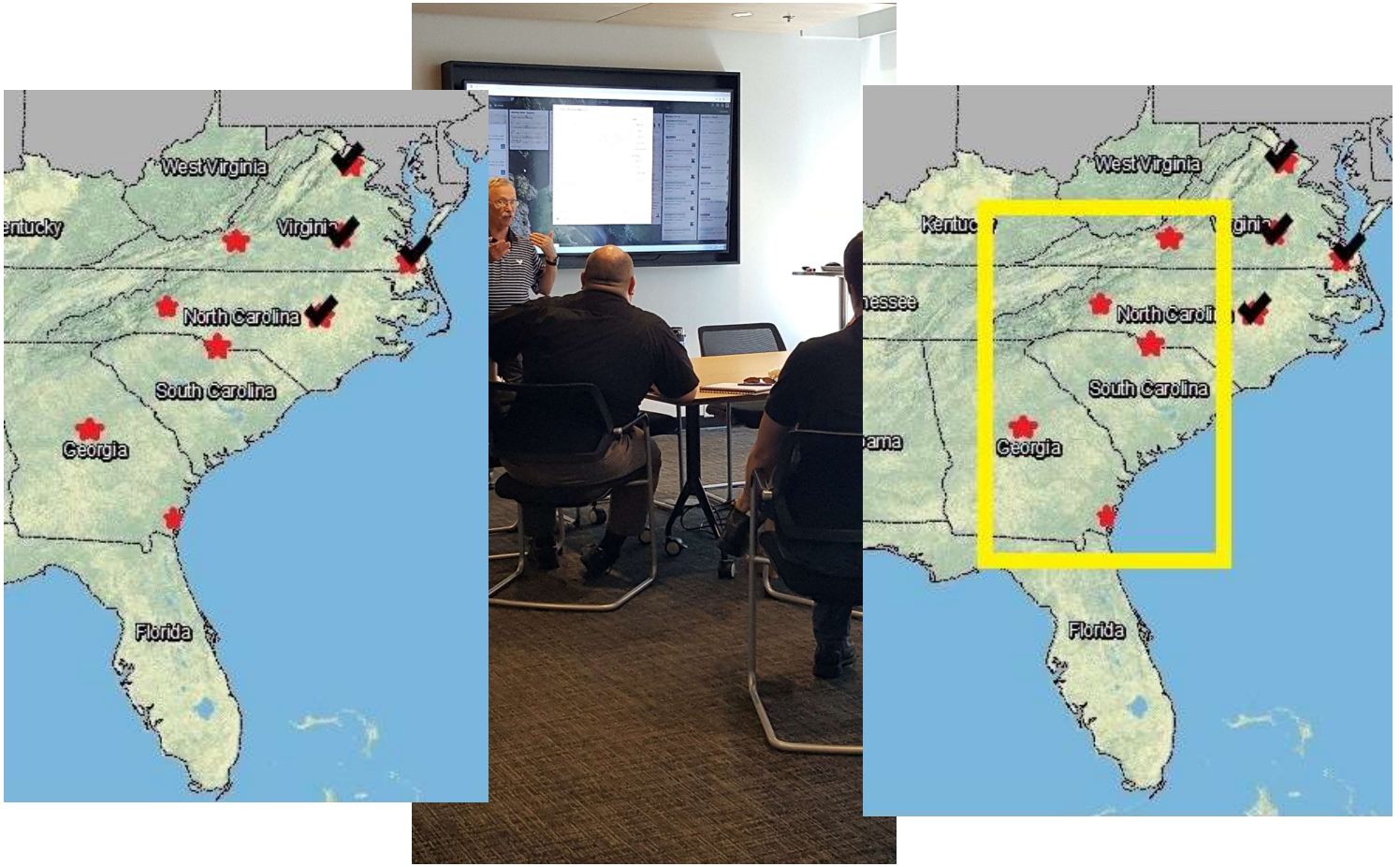
Edmondson, Amy C., "Teaming: How Organizations Learn, Innovate, and Compete in the Knowledge Economy"

Execution Based vs. Learning Based Firm

Management Approach	Organizing to Execute	Organizing to Learn
Hiring	Conformers, rule followers	Problem solvers, experimenters
Training	Learning before doing	Learning from doing
Measuring performance	Did YOU do it right?	Did WE learn?
Structuring work	Separate expertise	Integrate expertise
Employee discretion allowed	Choose among options	Experiment through trial and error.
Empowerment means	Employees can deviate from the script if special circumstances make it necessary	There is no script. Improvise!
Process goal	Drive out variance	Use variance to analyze and improve

Edmondson, Amy C., "Teaming: How Organizations Learn, Innovate, and Compete in the Knowledge Economy"

The Rest of the Teams



One Year Reflection

- Improvements
  - Communication
  - Less finger pointing, more collaborative attention to solving problems
  - Visualization and attention to blocked or overdue work items
  - Improved profit
    - Working on what work needed to be done, not what has next on my list
    - Attention to how long someone was spending on a work item
    - Better near-term work planning
  - On schedule delivery

How Can We Improve?

- Use of analytics
  - What needs to improve?
  - Is it improving?
- Manager engagement and commitment
- More Lean leaders
- Delivery planning
  - Project
  - Service

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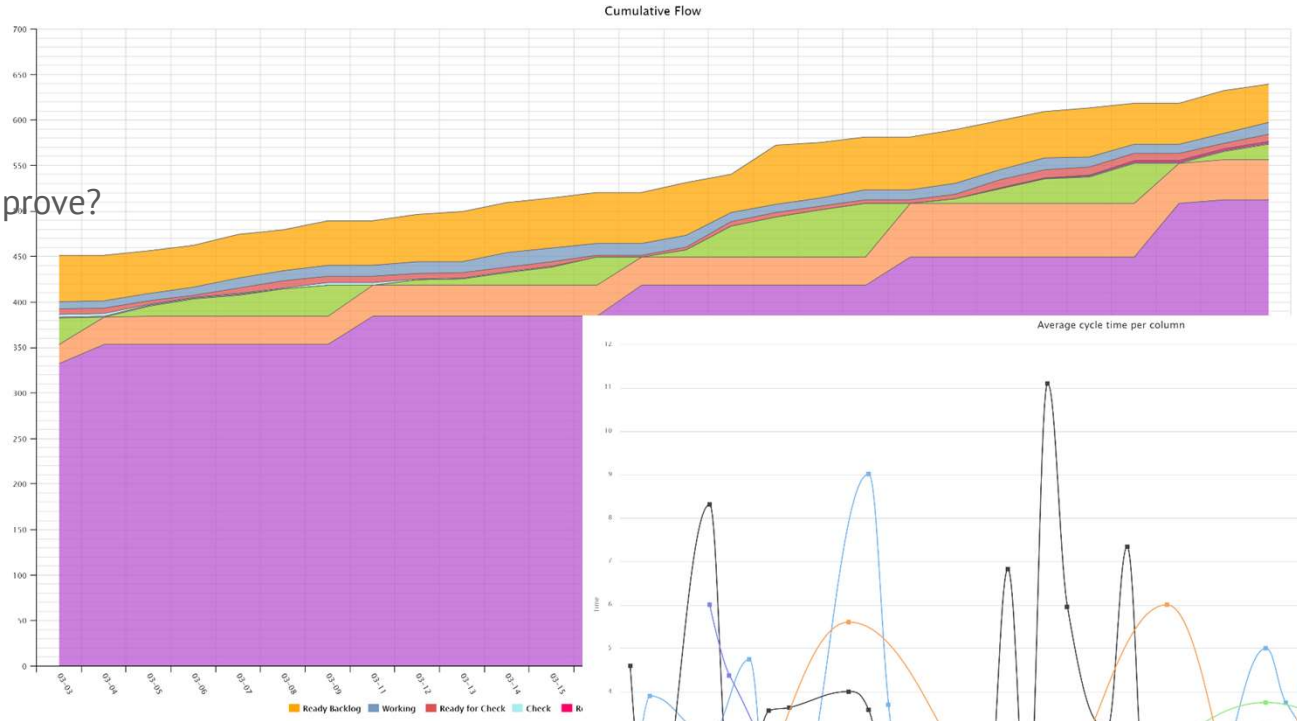
Measurement and Analytics

- Use of analytics
  - What needs to improve?
  - Is it improving?



Leader Engagement and Commitment

Distinctions Between Three Leadership Styles

	COMMAND & CONTROL	CONSENSUS	COLLABORATIVE
Organizational structure	Hierarchy	Matrix or small group	Dispersed, cross-organizational network
Who has the relevant information?	Senior management	Formally designated members or representatives of the relevant geographies and disciplines	Employees at all levels and locations and a variety of external stakeholders
Who has the authority to make final decisions?	The people at the top of the organization have clear authority	All parties have equal authority	The people leading collaborations have clear authority
What is the basis for accountability and control?	Financial results against plan	Many performance indicators, by function or geography	Performance on achieving shared goals
Where does it work best?	Works well within a defined hierarchy; works poorly for complex organizations and when innovation is important	Works in small teams; works poorly when speed is important	Works well for diverse groups and cross-unit and cross-company work, and when innovation and creativity are critical

FROM "ARE YOU A COLLABORATIVE LEADER?" BY HERMINIA IBARRA AND MORTEN T. HANSEN, JULY 2011 © HBR.ORG

Focus on Leaders

Learning Frame Versus Execution Frame

Project Dimension	Learning Frame	Execution Frame
Leader's view of self in carrying out the project	Important and interdependent in overcoming the challenges ahead.	Knows what to do and in a position to tell others what to do.
Leader's view of others in carrying out the project	Valued partners with essential input for overcoming the challenges ahead.	Co-actors or subordinates.
Overall view of the situation created by the project and corresponding tacit goal for the project	Challenging, full of unknowns, and an opportunity to try out new concepts and techniques. The tacit goal is to learn as much as possible so as to figure out what to do next.	Same as, or "not that different from," normal situation. The tacit goal is to get the job done. The learning frame involved a more inclusive, inquiry-oriented

Edmondson, Amy C., "Teaming: How Organizations Learn, Innovate, and Compete in the Knowledge Economy"

Focus on Leaders

Execution-as-Efficiency vs. Execution-as-Learning

Execution-as-Learning	Execution-as-Efficiency
Leaders set direction.	Leaders have the answers.
Constant small changes are a way of life.	Implementing change is seen as a huge undertaking.
Feedback is two-way.	Feedback is one-way.
Employee judgment is essential.	Employee judgment is discouraged.
Fear inhibits experimentation, analysis, and problem solving.	Fear of the boss is normal.

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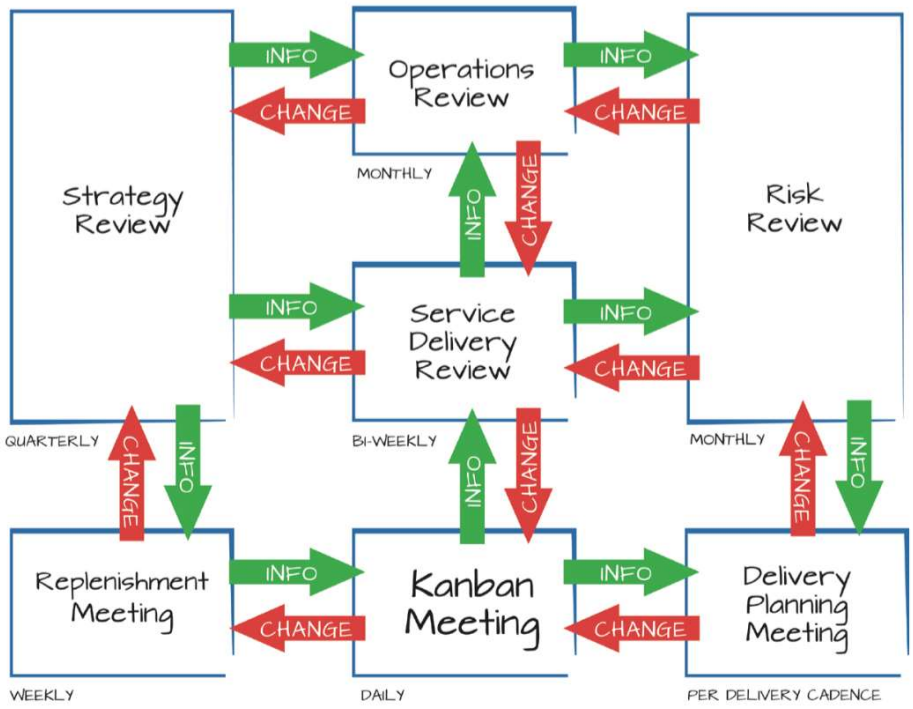
Cultivating Leader Engagement

- Focus: getting leaders engaged
  - Show value to them in their role
  - Integration with project and departmental activities through the Kanban cadences
    - Renewed emphasis with teams on
      - Replenishment
      - Service delivery
- Senior leaders
  - Introduce additional cadences
    - Strategy
    - Operations review



More Lean Leaders

Project Managers

SMR519

"According to the traditional approach, project success can be achieved by focusing on planning and on controlling and managing risks. Although the popularity of this approach has sharply increased across industries, research covering a wide variety of projects consistently reveals poor performance. A large percentage of projects run significantly over budget and behind schedule and deliver only a fraction of their original requirements."

- "today's successful project managers cope with unexpected events by a combination of the traditional agile approaches"

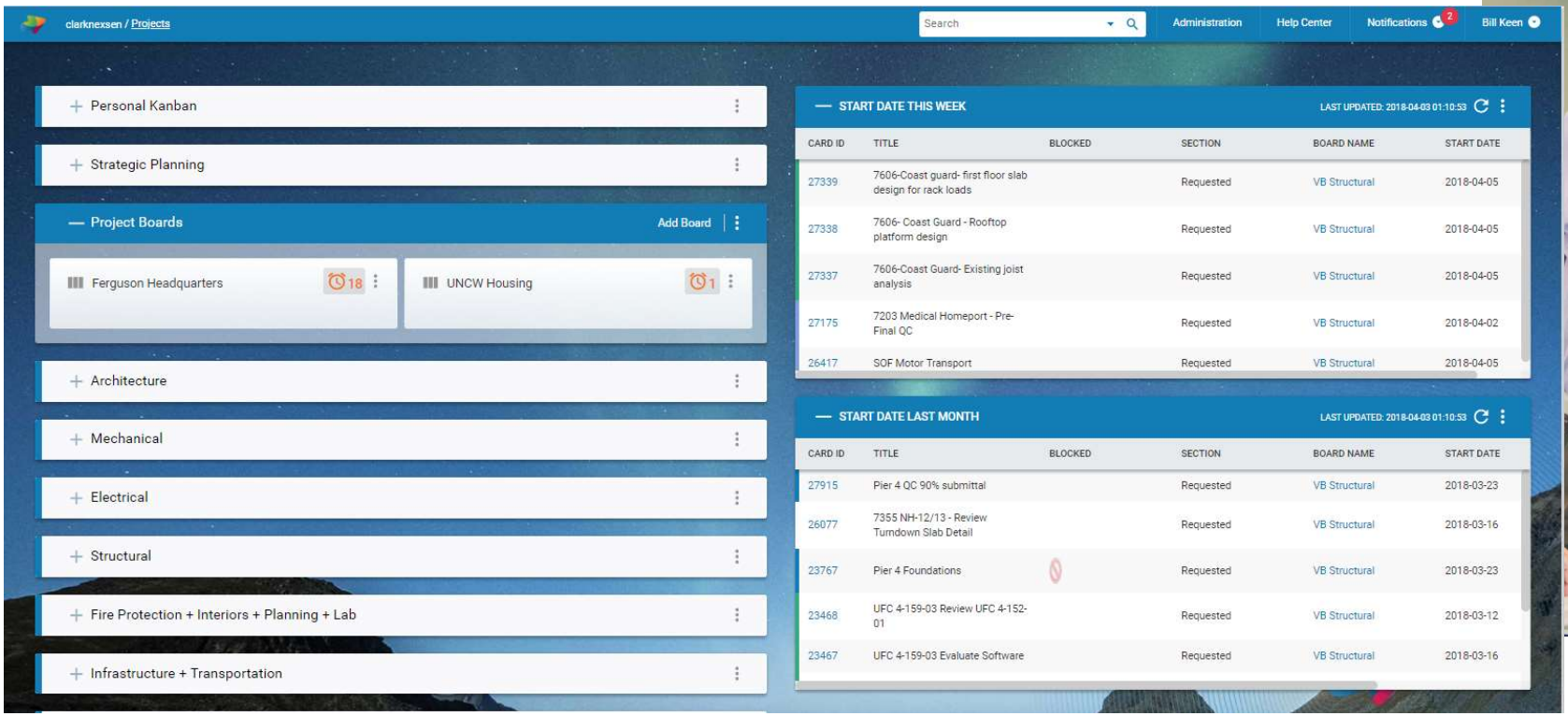
What Successful Project Managers Do

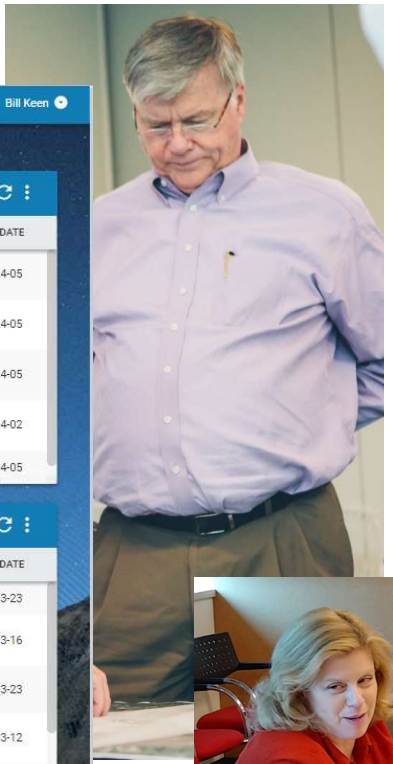
Traditional approaches to project management emphasize long-term planning and a focus on stability to manage risk. But today, managers leading complex projects often combine traditional and "agile" methods to give them more flexibility — and better results.

The Four Roles of the Project Manager

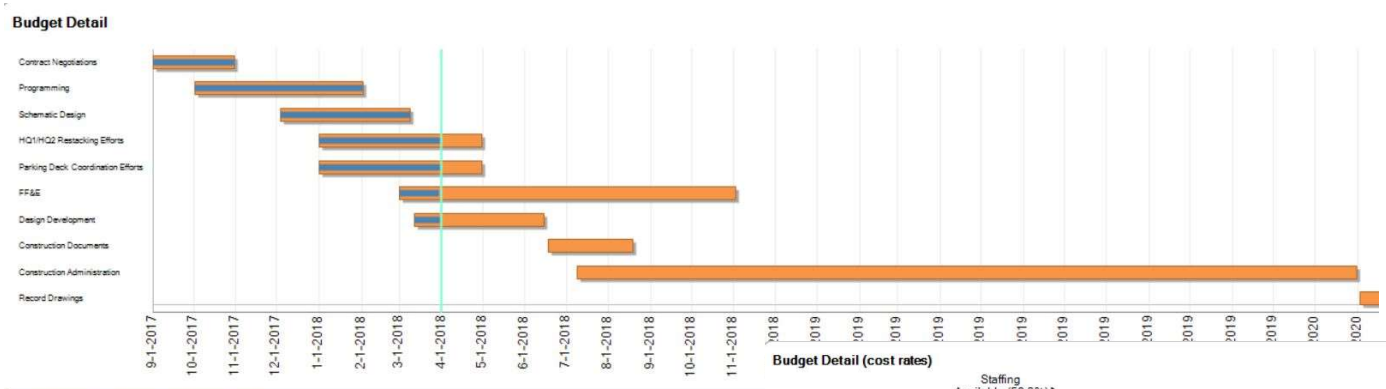
Role	Key Activities
Develop collaboration	• Select the right people • Develop mutual interdependence and trust
Integrate planning and review with learning	• Develop stable short-term plans and flexible long-term plans • Conduct learning-based project reviews
Prevent major disruptions	• Anticipate and cope proactively with a few major problems
Maintain forward momentum	• Resolve problems by hands-on engagement • Update and connect through frequent face-to-face communications • Walk the floor frequently

The Role of the Project Manager





The Role of the Project Manager



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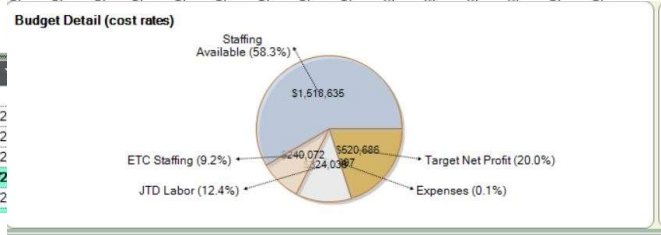

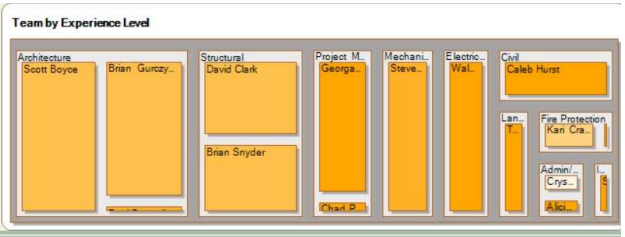

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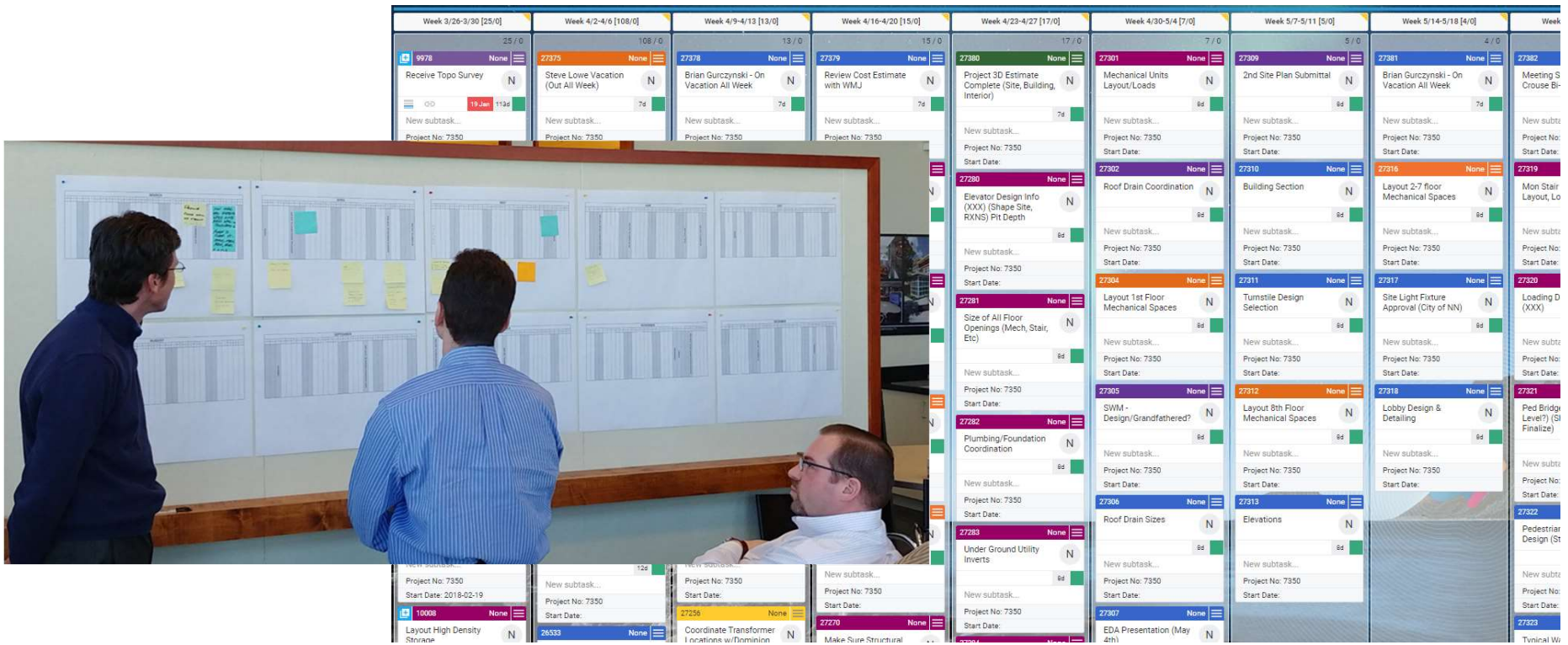
☐		Schematic Design	Structural Engineer	Structural	12/04/2017	03/09/2018	Brian Snyder	$ 107.55	$ 100.80	116 hrs	per detail
☐		Design Developm...	Structural CADD...	Structural	03/12/2018	06/15/2018		$ 107.55	$ 72.80	6 hrs	per week
☐		Design Developm...	Structural Engineer	Structural	03/12/2018	06/15/2018	David Clark	$ 107.55	$ 100.80	570 hrs	per detail
☐		Design Developm...	Structural Engineer	Structural	03/12/2018	06/15/2018	Brian Snyder	$ 107.55	$ 100.80	456 hrs	per detail
☐		Construction Doc...	Structural CADD...	Structural	06/18/2018	08/19/2018		$ 107.55	$ 72.80	12 hrs	per week
☐		Construction Doc...	Structural EIT	Structural	06/18/2018	08/19/2018		$ 107.55	$ 72.80	16 hrs	per week
☐		Construction Doc...	Structural Engineer	Structural	06/18/2018	08/19/2018	David Clark	$ 107.55	$ 100.80	300 hrs	per detail
☐		Construction Doc...	Structural Engineer	Structural	06/18/2018	08/19/2018	Brian Snyder	$ 107.55	$ 100.80	300 hrs	per detail
☐		Construction Admi...	Structural Engineer	Structural	07/09/2018	01/31/2020	Brian Snyder	$ 107.55	$ 100.80	344 hrs	per detail
☐		Construction Admi...	Structural Engineer	Structural	07/09/2018	01/31/2020	David Clark	$ 107.55	$ 100.80	344 hrs	per detail

The Role of the Project Manager



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After That?

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