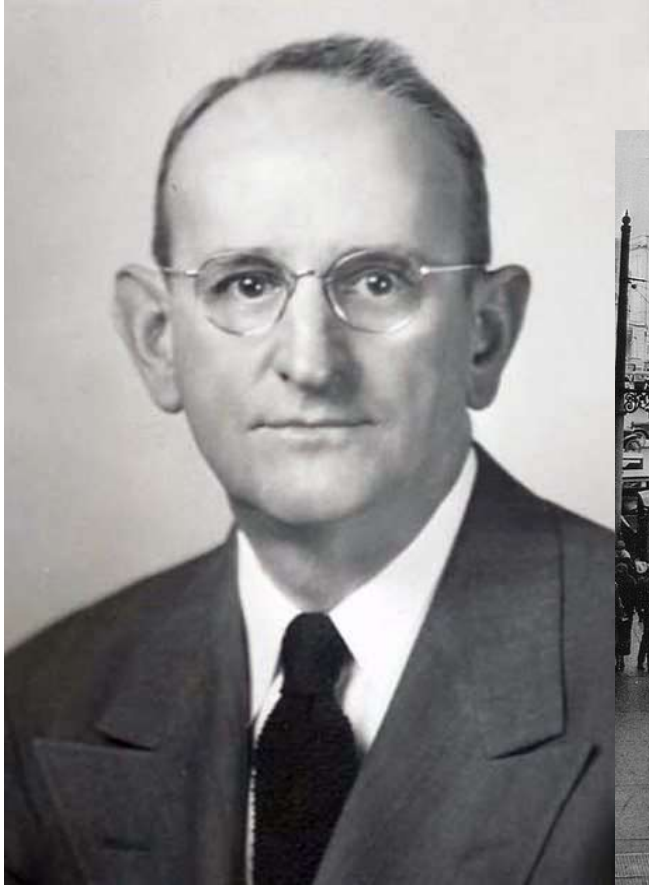




Building Bridges (and Buildings) with Kanban

The Firm



Alvin Womack collection

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CLARKNEXSEN



PARTNER. DISCOVER. TRANSFORM.

CLARKNEXSEN®

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.”

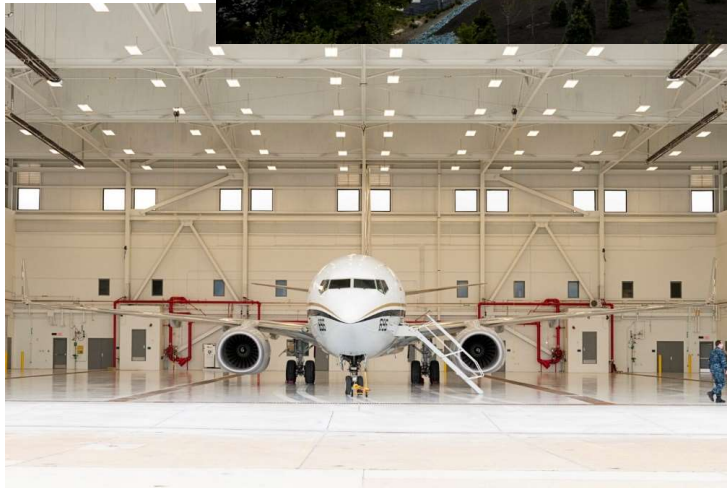
CLARKNEXSEN®

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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



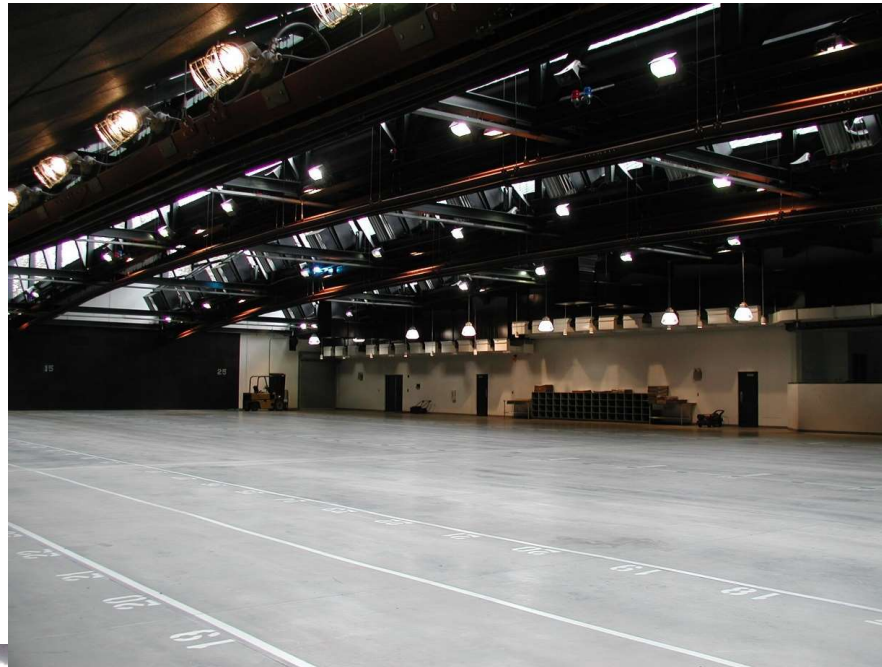
- Buildings
 - Department of Defense
 - Higher Education
 - K-12
 - Commercial Development
 - Industrial/Science & Technology
 - Mineral processing
 - Agricultural Biotech



Projects

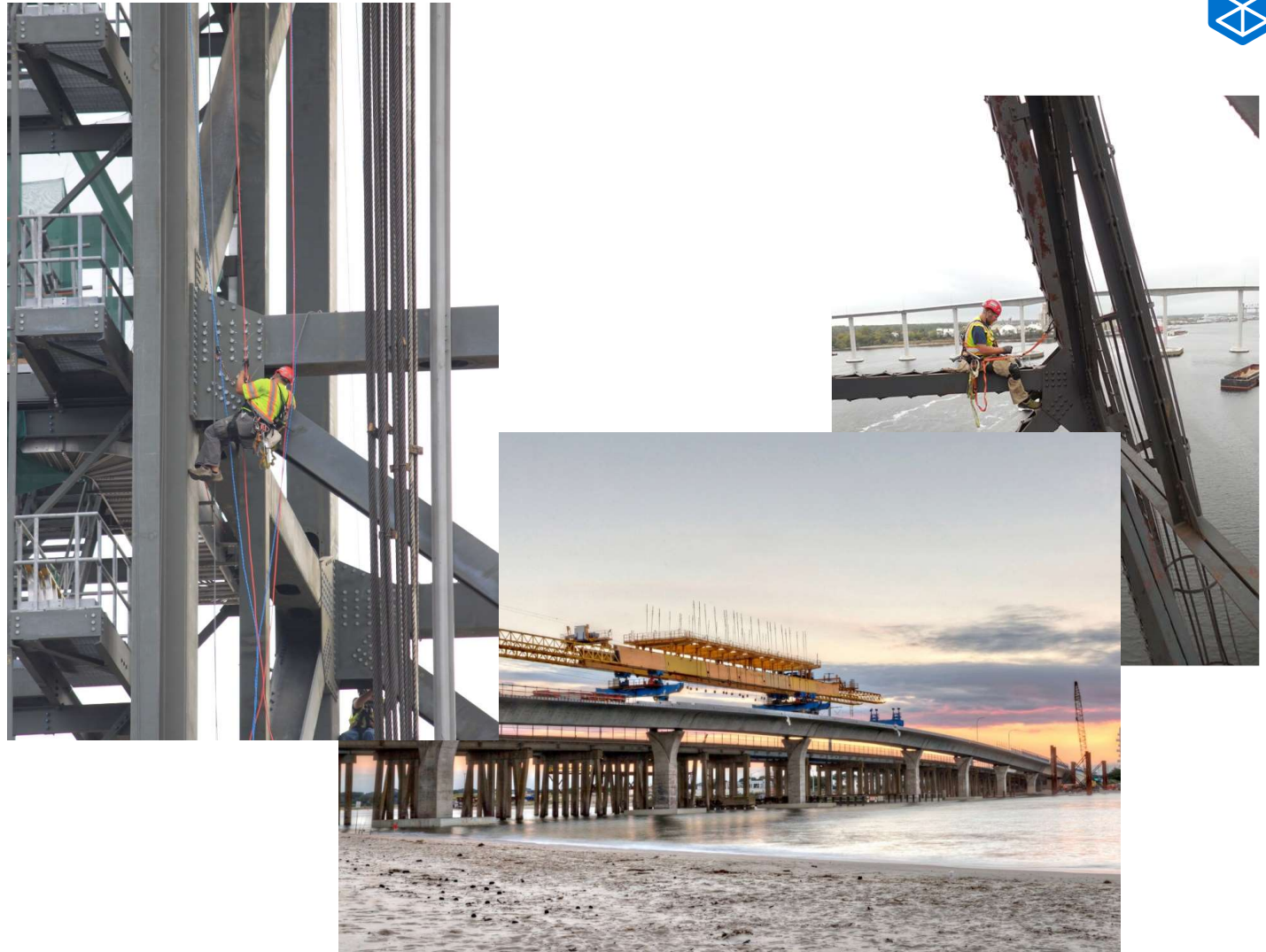


- Buildings
 - Department of Defense
 - Higher Education
 - K-12
 - Commercial Development
 - Industrial
 - Public Safety and Firearms Training



Projects

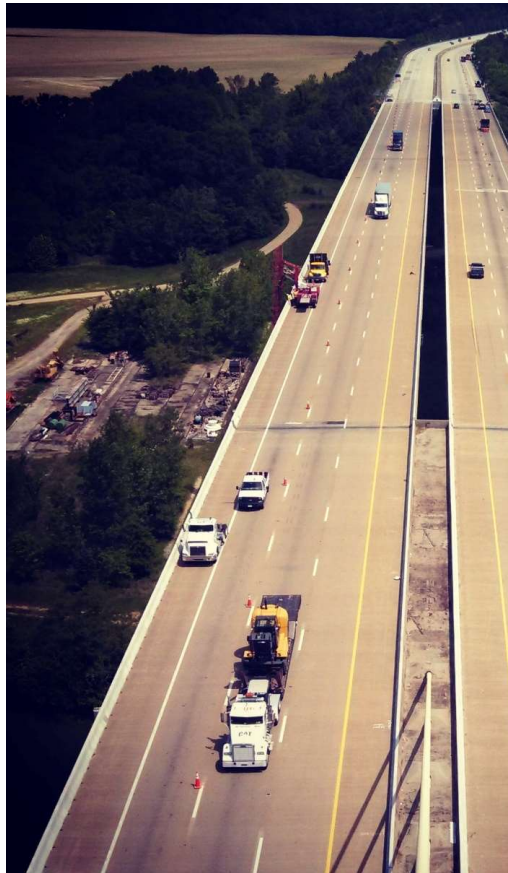
- Transportation & Infrastructure
 - Bridge Engineering
 - Bridge Inspections



Projects



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



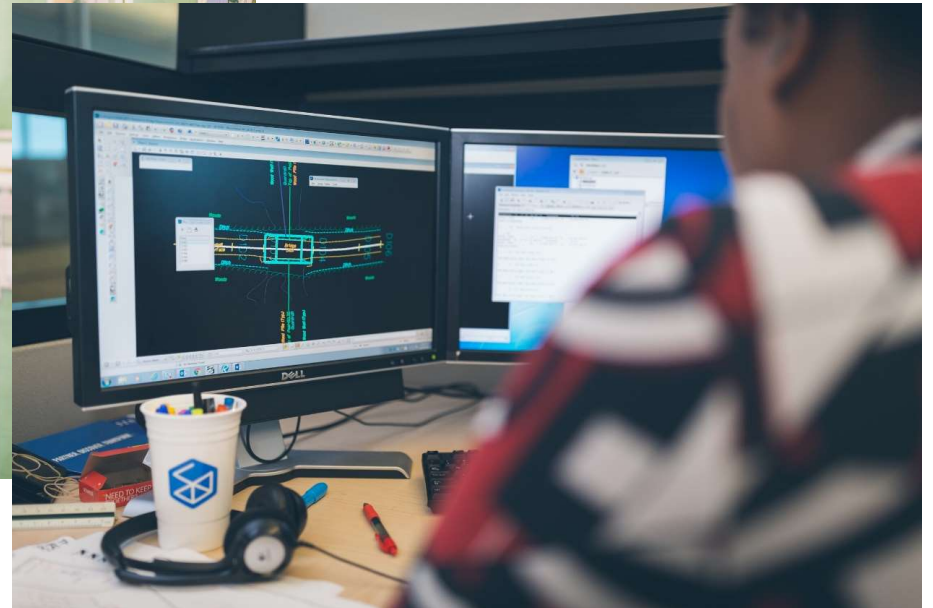
Projects



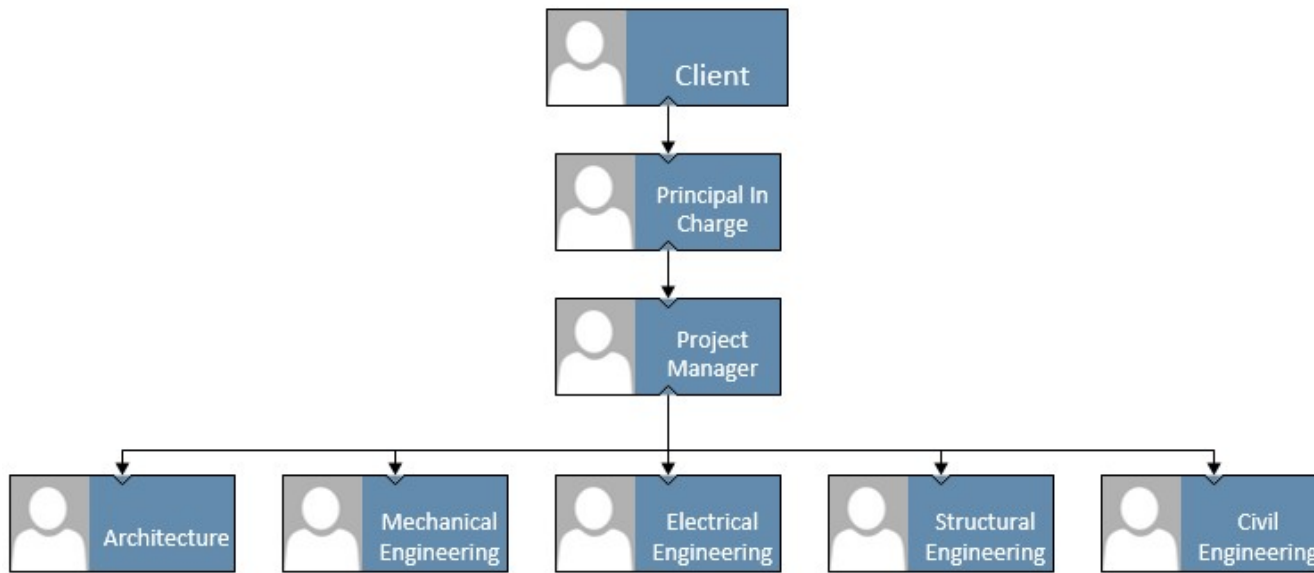
- Transportation & Infrastructure
 - Bridge Engineering
 - Bridge Inspections
 - Roadway Engineering
 - Water, Wastewater, Stormwater
 - Geospatial Information Systems



Traditional Approach to Work



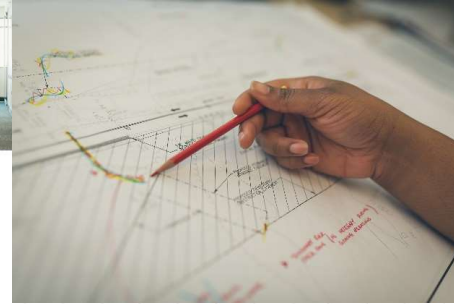
Traditional Approach to Work



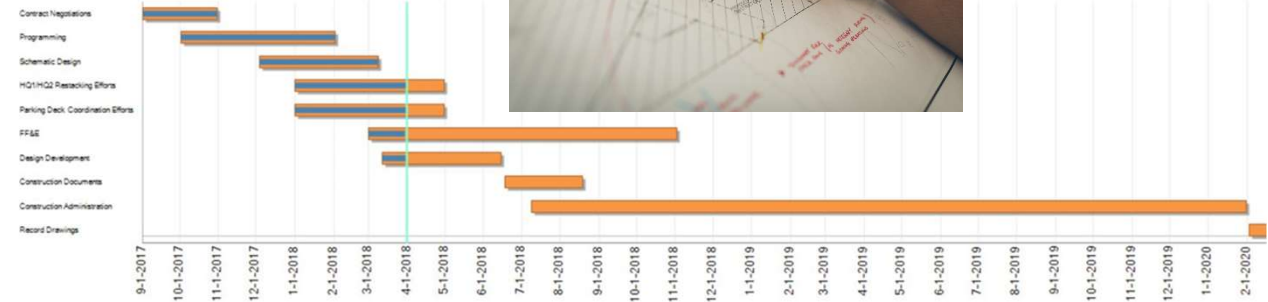
Traditional Approach to Work



- 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)



Budget Detail



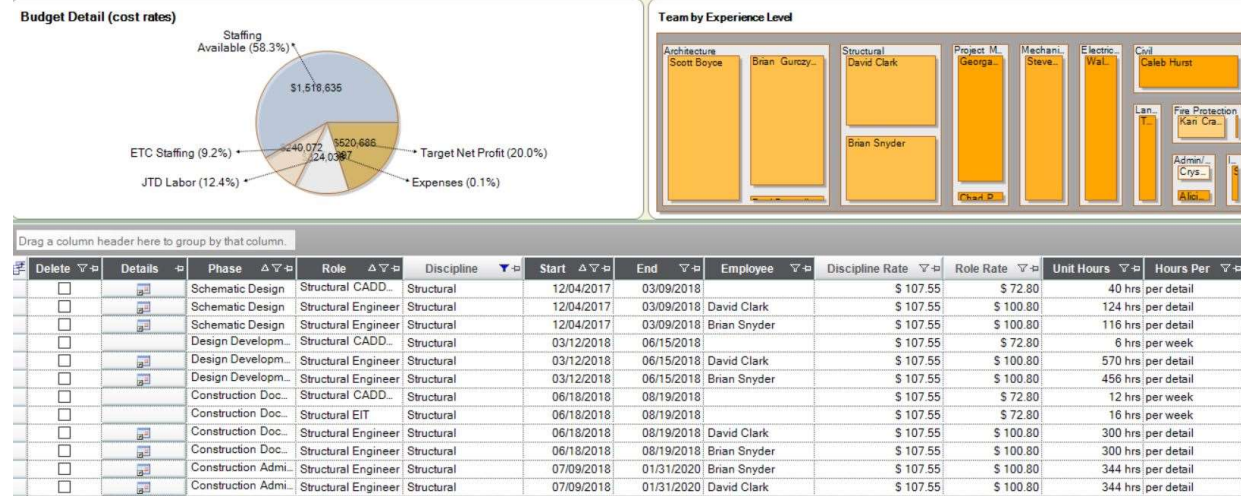
Status	Phase	Follows	Lag	Start	Duration	End	Complete	Billing Fee	People	Notes
Not Used	Acctg Purposes Only		0 wks		0 wks		0.0%			
Done	Contract Negotiations		-24 wks	09/01/2017	9 wks	10/31/2017	100.0%			
Done	Programming		2 wks	10/02/2017	17 wks	02/02/2018	100.0%		0.84 FTEs	
Done	Schematic Design		-8 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



Traditional Approach to Work



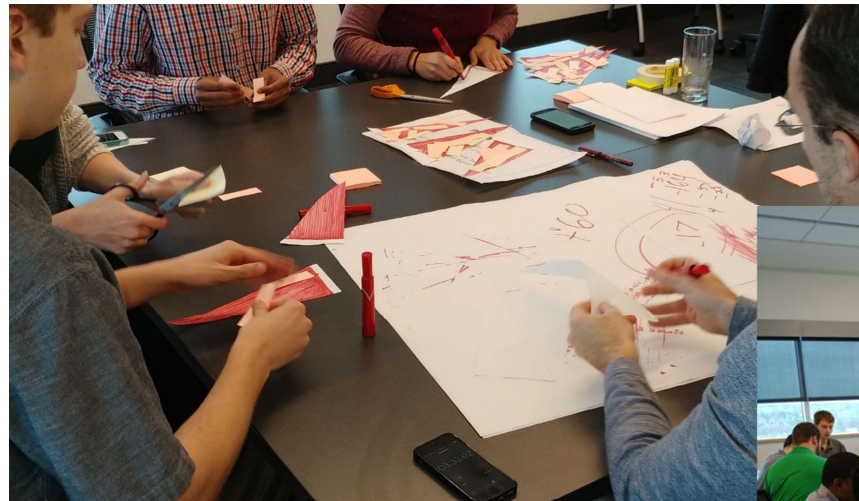
The Lean Journey Begins



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

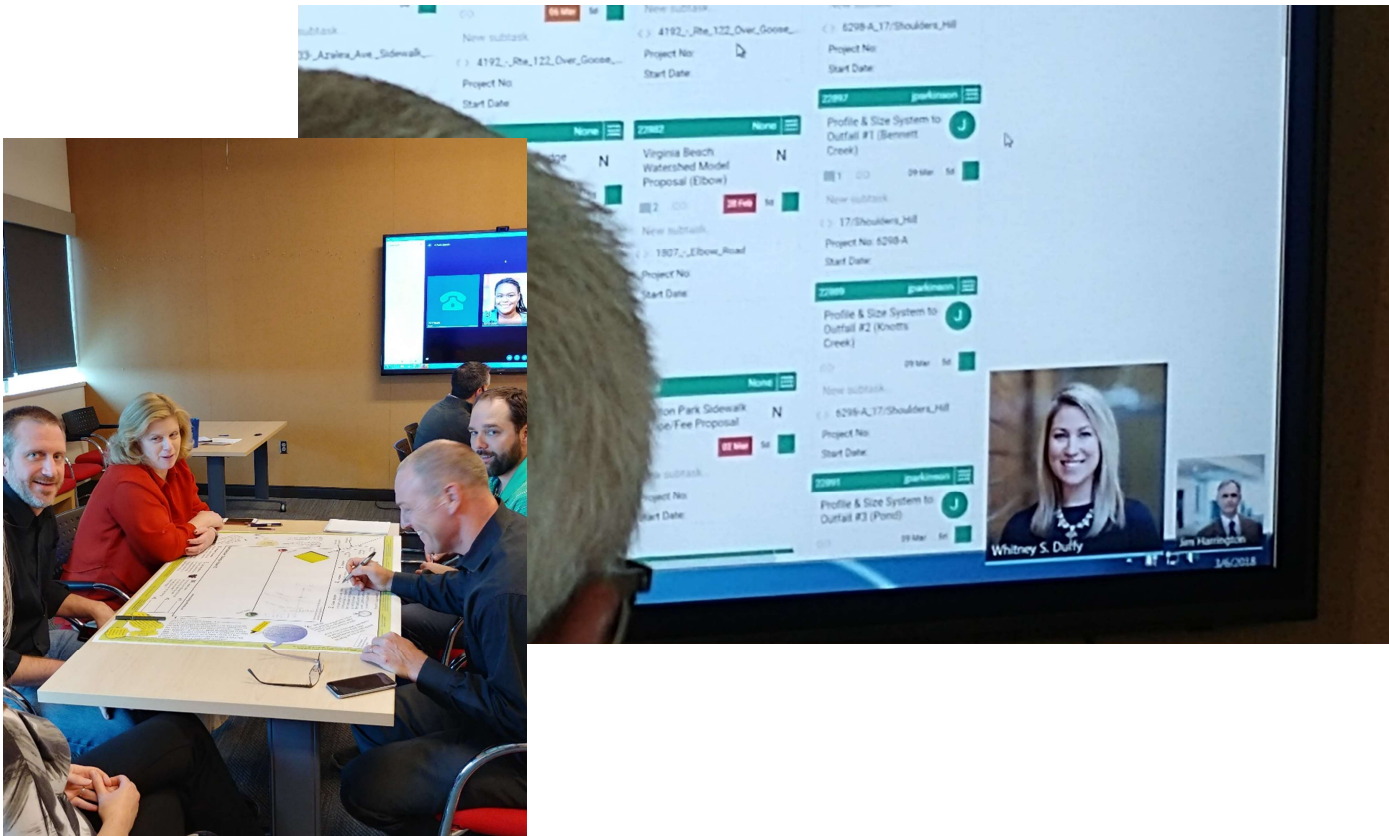


First Quarter Reflection

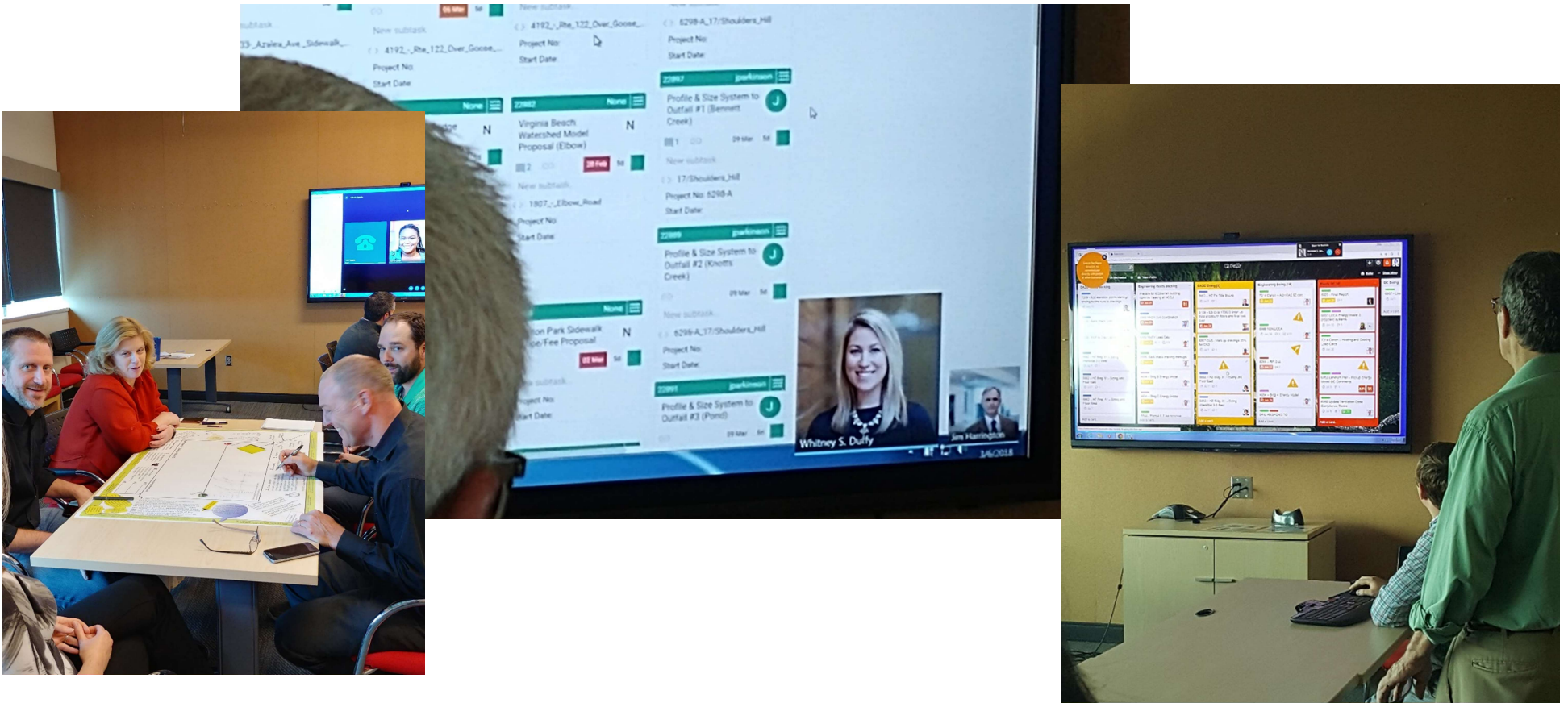


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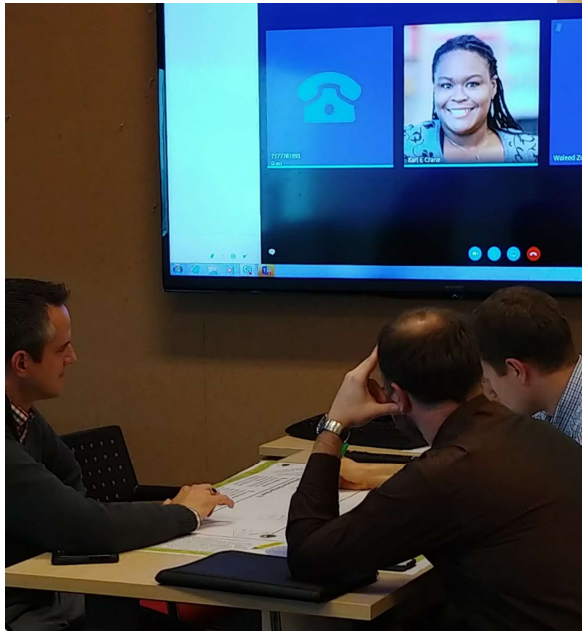
First Quarter Reflection



First Quarter Reflection



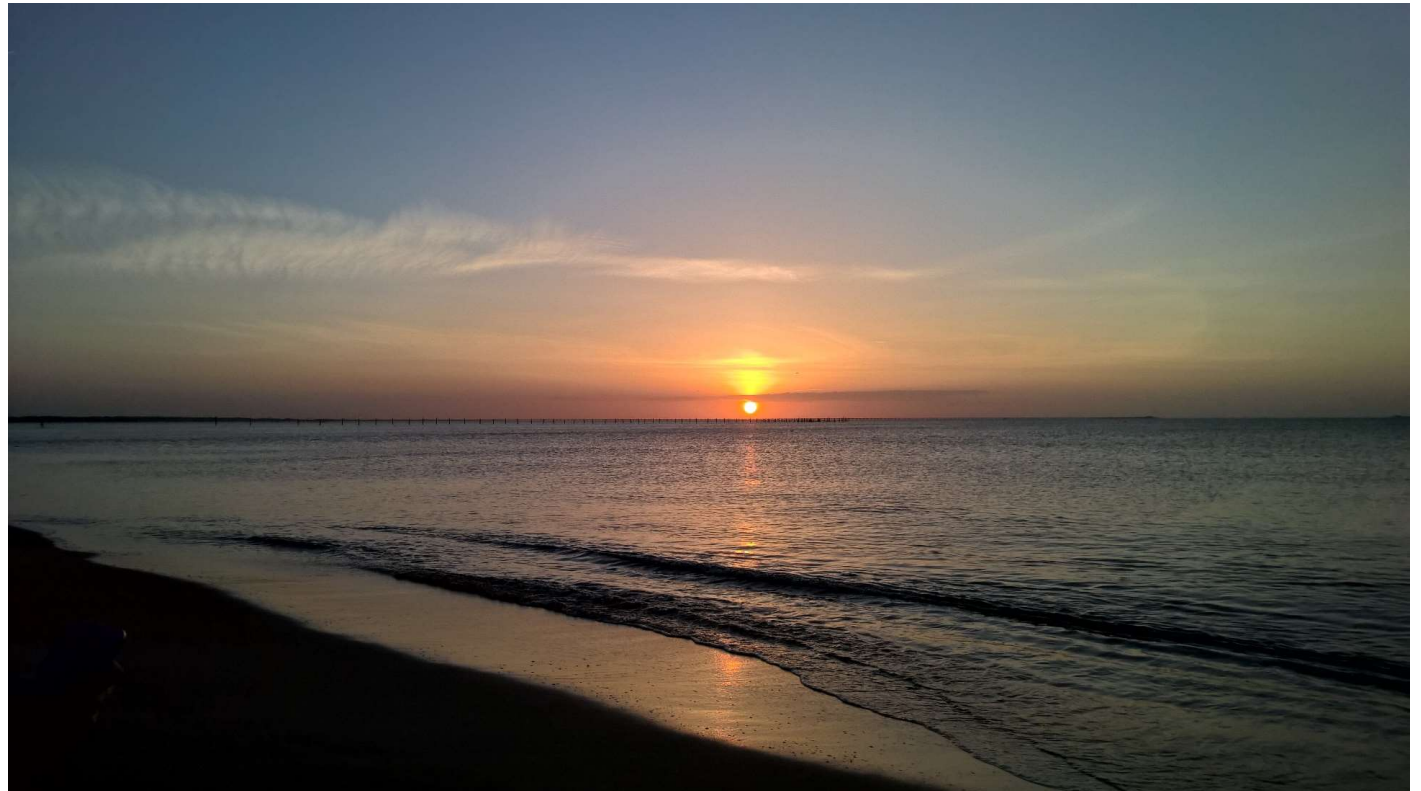
Next 3 Months - More Teams



6 Month Reflection



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



6 Months Reflection



Transportation + Disable Portfolio Lane Related Board

Working [14/15] Ready for Check [6/4] Check [4/4] Ready for Corrections [0/4] Corrections [1/4] Done [58/0]

Regular Work

<p>27206 Joah Hurst</p> <p>4117 Burton Station CA Submittal Review</p> <ul style="list-style-type: none">01 Aggregate02 21A Aggregate03 Select Material04 Concrete Pipe05 E&S Items08 concrete curb10 precast storm - JPP11 Pavement12 Masonry Cement13 Pavement Markings and S...14 Electrical <p>New subtask...</p> <p>Project No: 4117</p> <p>Start Date:</p>	<p>22888 John Stuart</p> <p>Hunton Park Sidewalk Scope/Fee Proposal</p> <p>New subtask...</p> <p>Project No:</p> <p>Start Date:</p>	<p>26989 Daniela Gonzales</p> <p>Test Hole Data Sheet (Sheet 1H)</p> <ul style="list-style-type: none">1 18th St. Test Hole Incorporation <p>New subtask...</p> <p>Project No: 6860</p> <p>Start Date: 2018-03-30</p>	<p>22897 John Parkinson</p> <p>Profile & Size System to Outfall #1 (Bennett Creek)</p> <ul style="list-style-type: none">1 Shoulders Hill - 60% <p>New subtask...</p> <p>Project No: 6298-A</p> <p>Start Date: 2018-04-04</p>	<p>22870 Jim Harrington</p> <p>Develop Scope & Fee</p> <p>New subtask...</p> <p>Project No: 7668</p> <p>Start Date: 2018-03-09</p>	<p>21961 Daniela Gonzales</p> <p>Review IRR Geotech Report. Update Typical as necessary</p> <ul style="list-style-type: none">1 Elbow Road 100% - 2018 <p>New subtask...</p> <p>Project No:</p> <p>Start Date:</p>	<p>27416 Joah Hurst</p> <p>12th Street - develop profile</p> <ul style="list-style-type: none">1 Fort Gordon 12th Street 65% a... <p>New subtask...</p> <p>Project No: 6845</p> <p>Start Date: 2018-03-29</p>	<p>21956 John Keenan</p> <p>Herndon ROW Plan Materials Review Comments</p> <p>New subtask...</p> <p>Project No:</p> <p>Start Date:</p>	<p>22835 None</p> <p>Incorporate VDOT Comments</p> <p>New subtask...</p> <p>Project No:</p> <p>Start Date:</p>	<p>26223 Joah Hurst</p> <p>Ft Gordon 12th Street - Finalize horizontal and vertical alignments</p> <ul style="list-style-type: none">1 Fort Gordon 12th Street 65% a... <p>New subtask...</p> <p>Project No: 6845</p> <p>Start Date: 2018-03-21</p>	<p>26226 Joah Hurst</p> <p>Mira Fork - PAC Meeting Notes</p> <p>New subtask...</p> <p>Project No:</p> <p>Start Date: 2018-03-23</p>	<p>21926 None</p> <p>Revision Data Sheet</p> <p>New subtask...</p> <p>Project No:</p> <p>Start Date:</p>	<p>22876 Ian Johnston</p> <p>Goose Creek/ Ft meeting comments - info from VDOT</p> <ul style="list-style-type: none">1 Goose Creek PAC Submittal <p>New subtask...</p> <p>Project No: 4192</p> <p>Start Date:</p>	<p>26181 David Bradshaw</p> <p>Goose Creek Earthwork Quantities</p> <ul style="list-style-type: none">1 Goose Creek PAC Submittal <p>New subtask...</p> <p>Project No: 4192</p> <p>Start Date:</p>	<p>27140 Li Xiaohan</p> <p>Fort Gordon 12th Street - signage and pavement markings (locate on Site Plan sheets)</p> <ul style="list-style-type: none">1 Fort Gordon 12th Street 65% a... <p>New subtask...</p>	<p>26208 Whitney Duffy</p> <p>12th Street - 65% design analysis report</p> <ul style="list-style-type: none">1 Fort Gordon 12th Street 65% a... <p>New subtask...</p> <p>Project No: 6298-A</p> <p>Start Date:</p>	<p>27410 John Parkinson</p> <p>Profile & Size System to Outfall #4 (Shoulders Hill)</p> <ul style="list-style-type: none">1 Shoulders Hill - 60% <p>New subtask...</p> <p>Project No: 6298-A</p> <p>Start Date:</p>	<p>22895 John Parkinson</p> <p>Profile & Size System to Outfall #3 (Pond)</p> <ul style="list-style-type: none">1 Shoulders Hill - 60% <p>New subtask...</p> <p>Project No: 6298-A</p> <p>Start Date:</p>	<p>26484 John Keenan</p> <p>Purcellville cut through Drive - update signage concept sketch</p> <p>New subtask...</p> <p>Project No: 7500-B</p> <p>Start Date:</p>	<p>22848 None</p> <p>General Notes Sheet</p> <p>New subtask...</p> <p>Project No: 5423E_-_I64EB_Exit_296A</p> <p>Start Date:</p>	<p>26485 Daniela Gonzales</p> <p>Review Suffok Bike/ Ped plan</p> <ul style="list-style-type: none">1 Nansemond Parkway Overpass <p>New subtask...</p> <p>Project No: 7354</p> <p>Start Date:</p>
---	--	--	--	---	---	--	---	---	--	--	---	--	---	---	---	--	--	--	---	--

6 Months Reflection

- Adoption?
 - Successes
 - Struggles



Same Mistakes

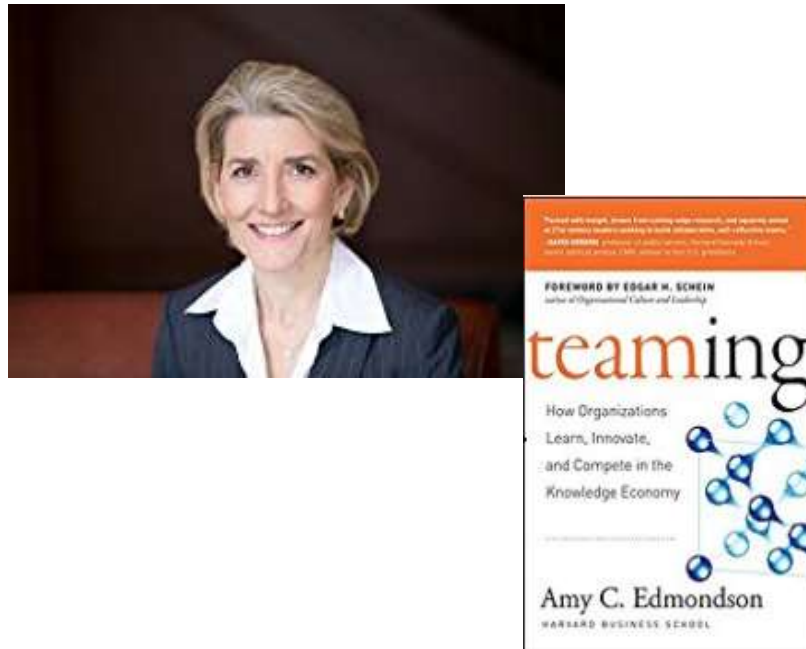


"I think we're in good enough shape to start making the same mistakes again."

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

© HBR.ORG

Execution Based vs. Learning Based Firm



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

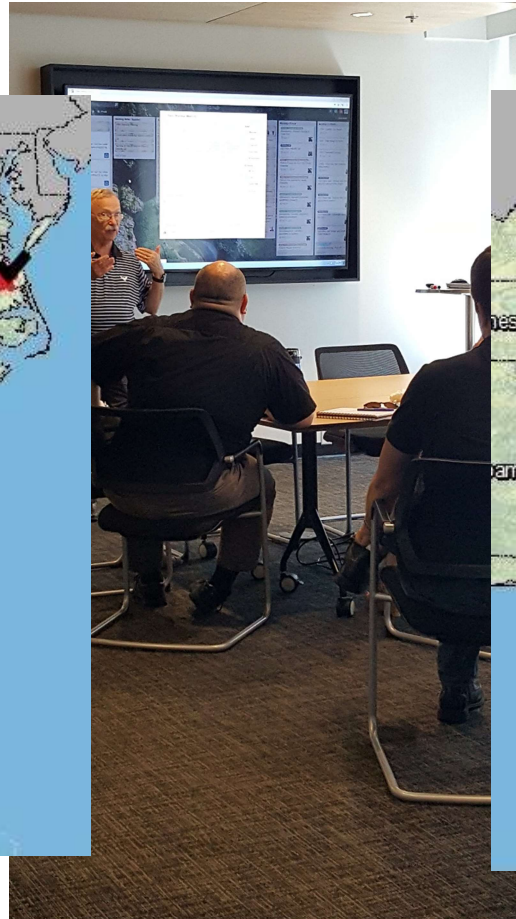
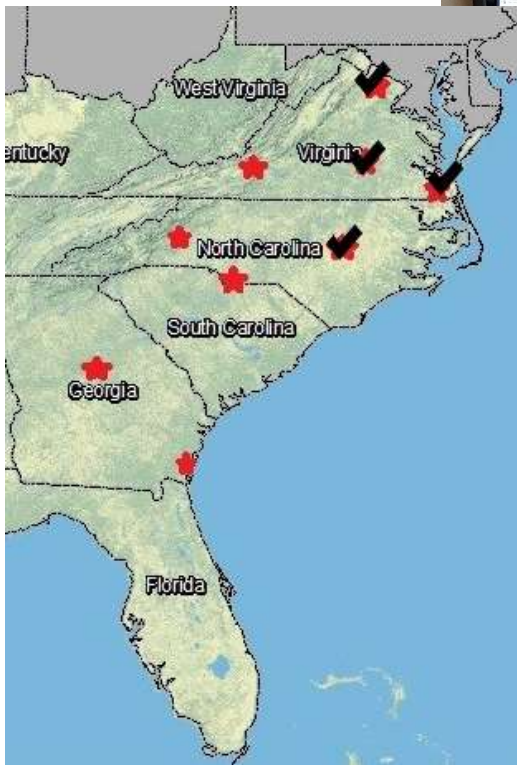
Execution Based vs. Learning Based Firm



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

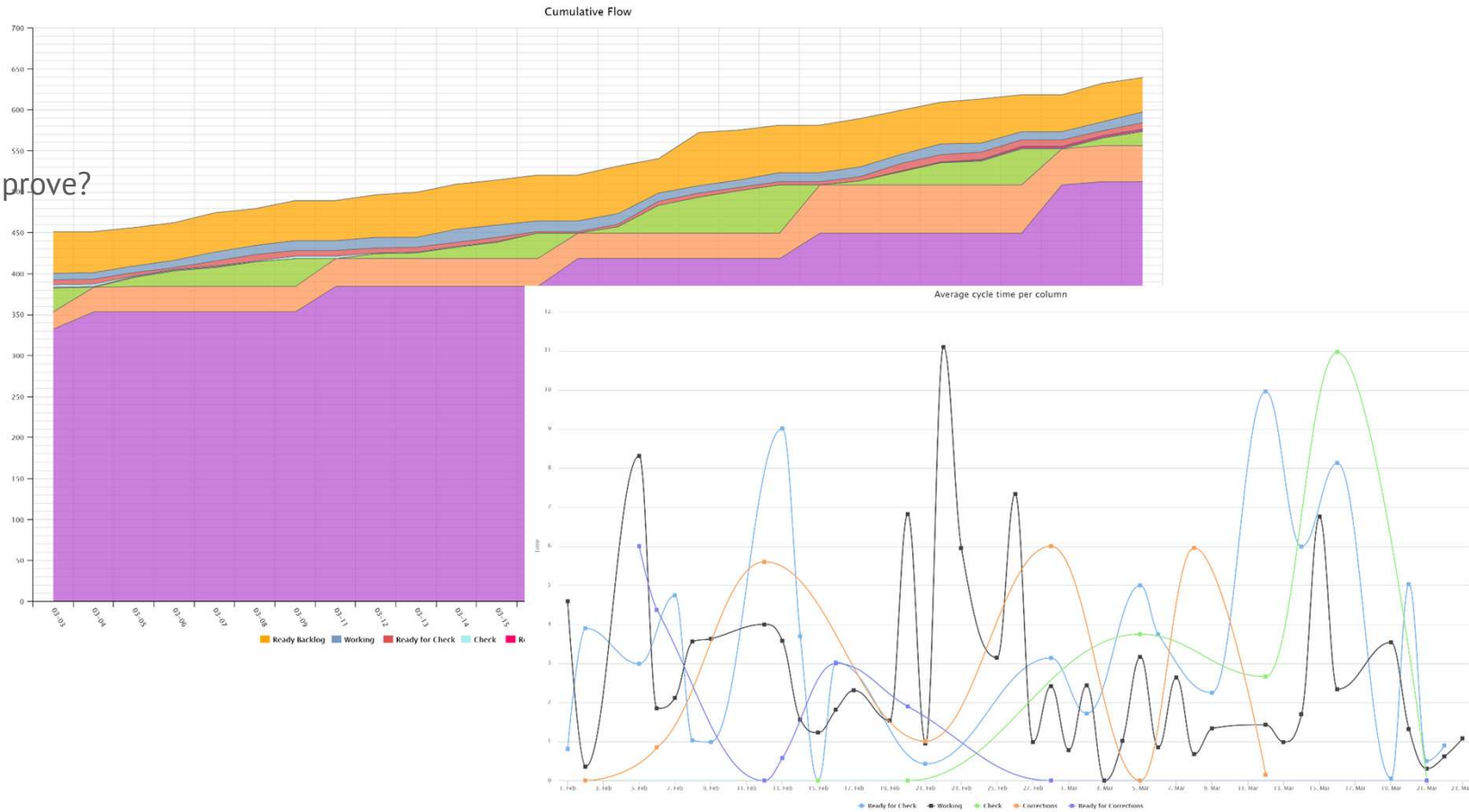


[This Photo](#) by Unknown Author is licensed under [CC BY-NC-ND](#)

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

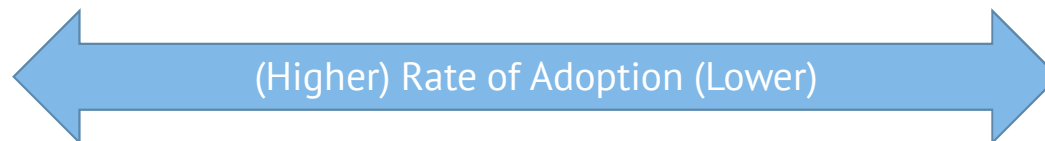
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Focus on Leaders



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



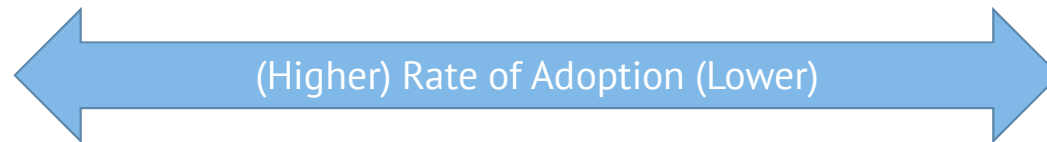
Edmondson, Amy C., "Teaming: How Organizations Learn, Innovate, and Compete in the Knowledge Economy"

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.

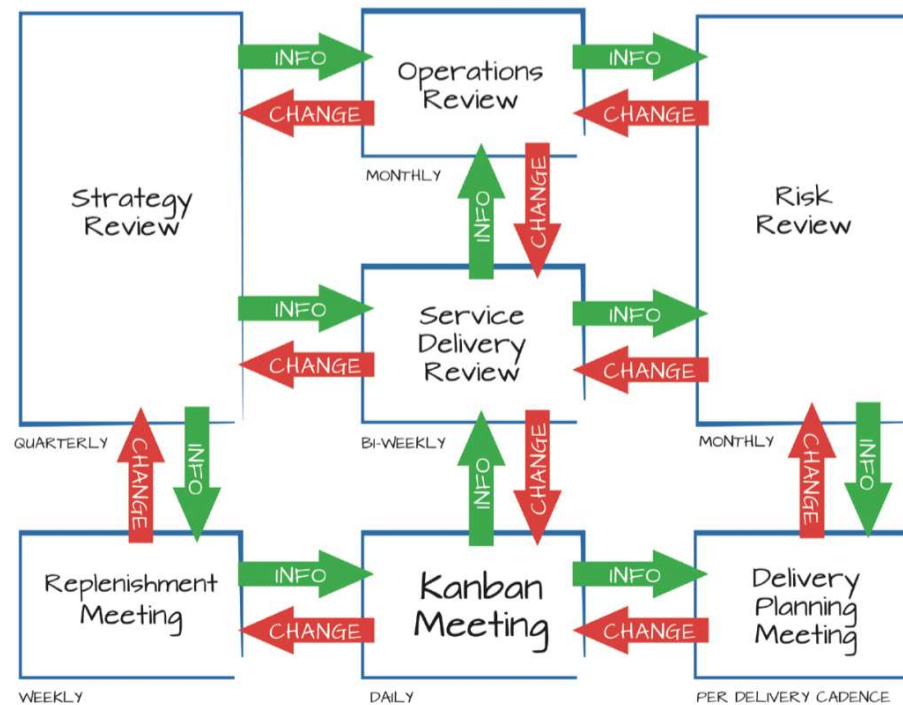


Edmondson, Amy C., "Teaming: How Organizations Learn, Innovate, and Compete in the Knowledge Economy"

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

“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”

MIT Sloan
Management Review

SMR519



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	<ul style="list-style-type: none">• Select the right people• Develop mutual interdependence and trust
Integrate planning and review with learning	<ul style="list-style-type: none">• Develop stable short-term plans and flexible long-term plans• Conduct learning-based project reviews
Prevent major disruptions	<ul style="list-style-type: none">• Anticipate and cope proactively with a few major problems
Maintain forward momentum	<ul style="list-style-type: none">• 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



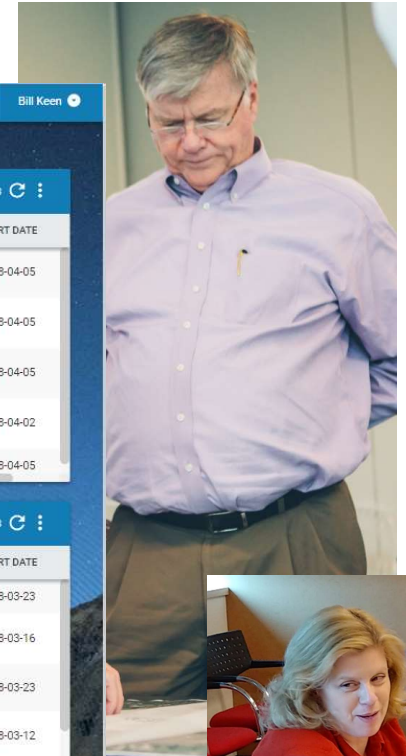
clarknexsen / Projects

Search Administration Help Center Notifications 2 Bill Keen

- + Personal Kanban
- + Strategic Planning
- Project Boards
 - Ferguson Headquarters (18)
 - UNCW Housing (1)
- + Architecture
- + Mechanical
- + Electrical
- + Structural
- + Fire Protection + Interiors + Planning + Lab
- + Infrastructure + Transportation

START DATE THIS WEEK					
CARD ID	TITLE	BLOCKED	SECTION	BOARD NAME	START DATE
27339	7606-Coast guard- first floor slab design for rack loads		Requested	VB Structural	2018-04-05
27338	7606- Coast Guard - Rooftop platform design		Requested	VB Structural	2018-04-05
27337	7606-Coast Guard- Existing joist analysis		Requested	VB Structural	2018-04-05
27175	7203 Medical Homeport - Pre-Final QC		Requested	VB Structural	2018-04-02
26417	SOF Motor Transport		Requested	VB Structural	2018-04-05

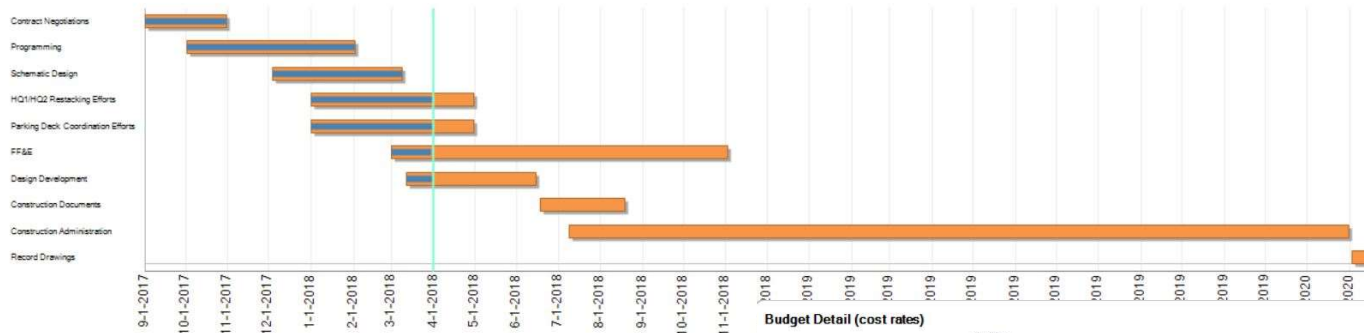
START DATE LAST MONTH					
CARD ID	TITLE	BLOCKED	SECTION	BOARD NAME	START DATE
27915	Pier 4 QC 90% submittal		Requested	VB Structural	2018-03-23
26077	7355 NH-12/13 - Review Turndown Slab Detail		Requested	VB Structural	2018-03-16
23767	Pier 4 Foundations		Requested	VB Structural	2018-03-23
23468	UFC 4-159-03 Review UFC 4-152-01		Requested	VB Structural	2018-03-12
23467	UFC 4-159-03 Evaluate Software		Requested	VB Structural	2018-03-16



The Role of the Project Manager

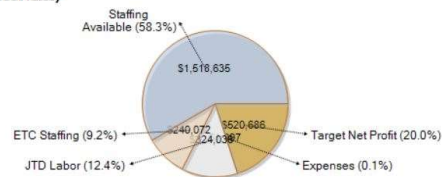


Budget Detail



Status	Phase	Follows	Lag	Start	Duration	End
Not Used	Acctg Purposes Only		0 wks		0 wks	
Done	Contract Negotiations		-24 wks	09/01/2017	9 wks	10/31/2
Done	Programming		2 wks	10/02/2017	17 wks	02/02/2
Done	Schematic Design		-8 wks	12/04/2017	13 wks	03/09/2
Active	Design Development		6 wks	03/12/2018	13 wks	06/15/2
Active	Construction Documents		15 wks	06/18/2018	9 wks	08/19/2

Budget Detail (cost rates)



Team by Experience Level



Drag a column header here to group by that column.

Delete	Details	Phase	Role	Discipline	Start	End	Employee	Discipline Rate	Role Rate	Unit Hours	Hours Per
<input type="checkbox"/>		Schematic Design	Structural CADD	Structural	12/04/2017	03/09/2018		\$ 107.55	\$ 72.80	40 hrs	per detail
<input type="checkbox"/>		Schematic Design	Structural Engineer	Structural	12/04/2017	03/09/2018	David Clark	\$ 107.55	\$ 100.80	124 hrs	per detail
<input type="checkbox"/>		Schematic Design	Structural Engineer	Structural	12/04/2017	03/09/2018	Brian Snyder	\$ 107.55	\$ 100.80	116 hrs	per detail
<input type="checkbox"/>		Design Developm...	Structural CADD	Structural	03/12/2018	06/15/2018		\$ 107.55	\$ 72.80	6 hrs	per week
<input type="checkbox"/>		Design Developm...	Structural Engineer	Structural	03/12/2018	06/15/2018	David Clark	\$ 107.55	\$ 100.80	570 hrs	per detail
<input type="checkbox"/>		Design Developm...	Structural Engineer	Structural	03/12/2018	06/15/2018	Brian Snyder	\$ 107.55	\$ 100.80	456 hrs	per detail
<input type="checkbox"/>		Construction Doc...	Structural CADD	Structural	06/18/2018	08/19/2018		\$ 107.55	\$ 72.80	12 hrs	per week
<input type="checkbox"/>		Construction Doc...	Structural EIT	Structural	06/18/2018	08/19/2018		\$ 107.55	\$ 72.80	16 hrs	per week
<input type="checkbox"/>		Construction Doc...	Structural Engineer	Structural	06/18/2018	08/19/2018	David Clark	\$ 107.55	\$ 100.80	300 hrs	per detail
<input type="checkbox"/>		Construction Doc...	Structural Engineer	Structural	06/18/2018	08/19/2018	Brian Snyder	\$ 107.55	\$ 100.80	300 hrs	per detail
<input type="checkbox"/>		Construction Admi...	Structural Engineer	Structural	07/09/2018	01/31/2020	Brian Snyder	\$ 107.55	\$ 100.80	344 hrs	per detail
<input type="checkbox"/>		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



The image displays a project management software interface, likely Primavera P6, showing a Gantt chart for Project No. 7350. The chart is organized into weekly columns, each representing a week with a specific date range and total hours available. Tasks are listed in rows, each with a unique ID, a name, a duration, and a start date. The tasks are color-coded and include details like task names, durations, and start dates.

Week	Task ID	Task Name	Duration	Start Date
Week 3/26-3/30 [25/0]	9978	Receive Topo Survey	7d	19 Jan
Week 4/2-4/6 [108/0]	27375	Steve Lowe Vacation (Out All Week)	7d	
Week 4/9-4/13 [13/0]	27378	Brian Gurczynski - On Vacation All Week	7d	
Week 4/16-4/20 [15/0]	27379	Review Cost Estimate with WMJ	7d	
Week 4/23-4/27 [17/0]	27280	Project 3D Estimate Complete (Site, Building, Interior)	7d	
Week 4/30-5/4 [7/0]	27201	Mechanical Units Layout/Loads	8d	
Week 5/7-5/11 [5/0]	27309	2nd Site Plan Submittal	8d	
Week 5/14-5/18 [4/0]	27381	Brian Gurczynski - On Vacation All Week	7d	
Week 5/21-5/25 [4/0]	27382	Meeting S Crouse B...	7d	

After That?



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