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Integrating Systems Improvement with Informatics Tool Development: Evidence Based Results

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Agenda

- About the Veterans Engineering Resource Centers (VERCs)
- Overview of Lean
- Lean Enterprise Deployment
- Lean Transformation Results
- Embracing Continuous Improvement: Integrated Operational Planning (IOP) in the VHA Homeless Programs

Overview of the Veterans Engineering Resource Centers (VERCs)

MWM VERC
Building the Healthcare Work Place of the Future

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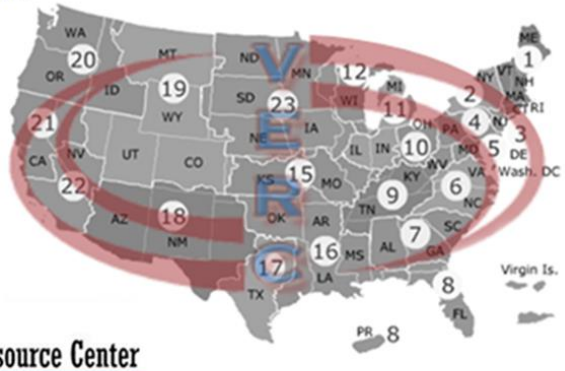

Veterans Engineering Resource Center
VA Pittsburgh Healthcare System

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VERC
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Veterans Engineering Resource Center

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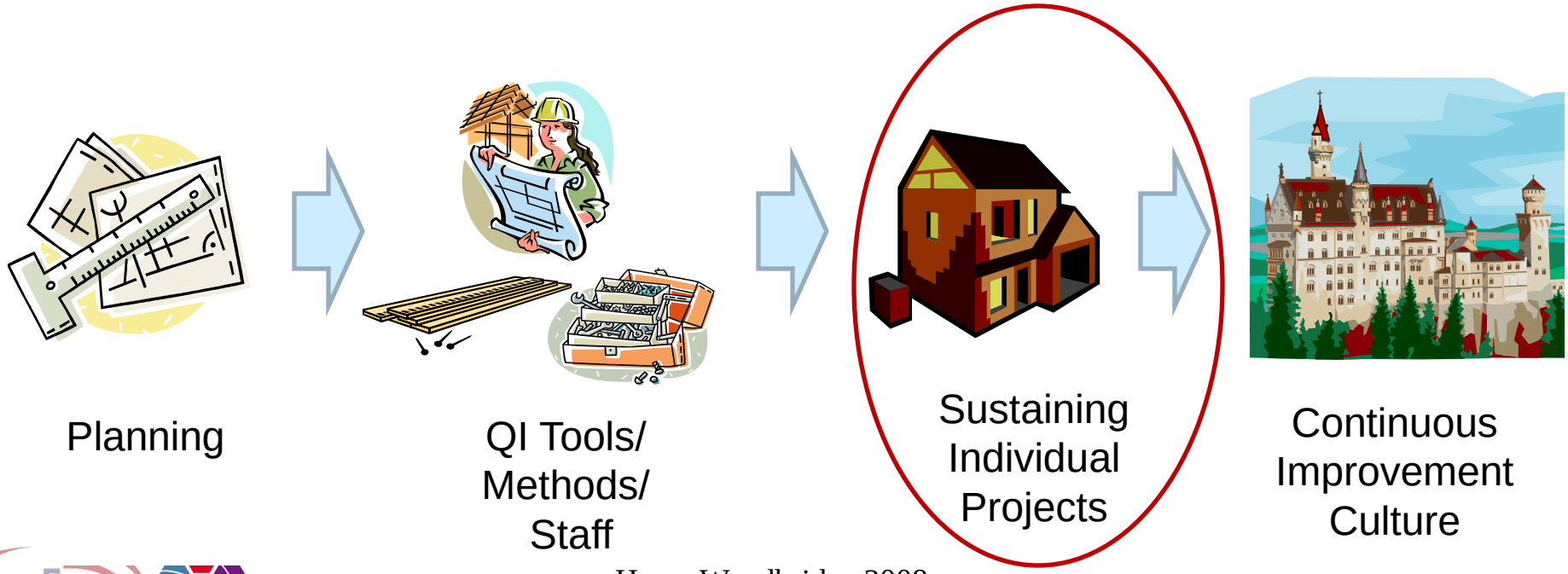
- Mission: To propose, develop, and facilitate innovative solutions to challenges within VHA healthcare delivery through the integration of systems engineering principles.

Lean Introduction/Background

- What is Lean?
  - US translation/adaptation of the Toyota Production System (TPS)
  - Management strategy with a focus on creating value to the customer through identifying and removing waste from within processes and system
- The enterprise-level adoption of Lean has been recommended in order to transform healthcare delivery organizations.
  - Success rates for enterprise-level Lean Deployment are reported at ~10%
  - Deployment timelines 6-10+ years
- Multiple healthcare organizations have been successful in enterprise-wise adoption of Lean strategies.
  - Theda Care
  - Denver Health
  - Virginia Mason

The "Continuous Improvement" Culture Challenge

- Going from "proof of concept" i.e. project level success stories to wide-scale adoption of QI/CI methods



Hagg, Woodbridge 2008

Lean Enterprise Transformation

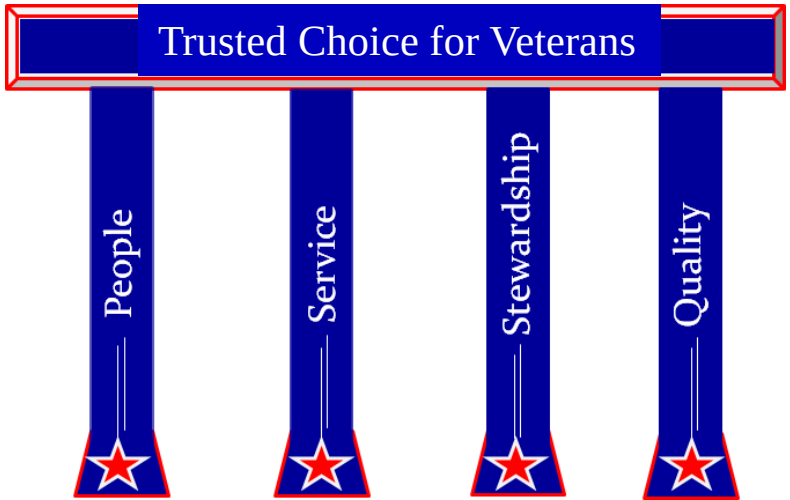
- For the healthcare organizations that have been successful in Lean transformation at the enterprise level: ThedaCare, Virginia Mason, Denver Health, etc:
  - What were the specific methods and deployment strategies used by these organizations?
  - How to translate the available evidence based into a VHA Lean Enterprise Transformation strategy?

Primary Lean Enterprise Transformation Methods

- True North Metrics
- A3 Thinking
- Transformational Plan of Care (TPOC)
- Value Stream Analysis (VSA)
- Rapid Improvement Events (RIEs)
- Lean Management System
- Continuous Daily Improvement

True North Metrics

- *"True North"* → the ideal state for our organization
- True North can only be achieved if <u>all</u> parts of the organization work to provide the highest levels of:
  - **Quality/Safety:** High quality, safe reliable patient care
  - **People:** Employee Safety and Satisfaction
  - **Service**: Access to care, Patient Satisfaction
  - **Stewardship**: Responsible use of provided resources
- *True North Metrics* are used to measure the progress in achieving this ideal state



A3 Thinking

- Standard Approach to Problem Solving used throughout the organization:
  - Strategic Planning (TPOC/TVSA)
  - Value Stream/Rapid Improvement Events
  - Unit Based Problem Solving/Decision Making
- Step by step direction to problem solving
  - Addresses continuous improvement opportunities
- Clear concise one page overview
  - Consolidates large amounts of information in understandable format using visual display

“9-box” A3

Title: | Sponsor: | Coach: | Start Date:

Owner: | Team Members: | Facilitator: | Updated on:

A3

Team/Aim

1. Reasons for Action:

What are you talking about and why? What is the problem you are trying to solve?

Clear, succinct background/problem statement serves as the "compass" for the project

Process Start:

Process End:

In Scope:

Out of Scope:

Map/Measure

2. Current State:

Where do things stand now? Facts, data, or metrics to indicate the problem:

attributes and process map

picture

Relation to True North	Metric	Current State
People		
Service		
Quality		
Resources		

Map/Measure

3. Target State:

What are the target conditions or measures? Establish target metrics (tied to box 2 of A3)

attributes and process map

picture

Relation to TN	Metric	Current State	Target State
People			
Service			
Quality			
Resources			

Change

4. Gap Analysis:

Why does the problem or need exist? What are the top contributors/root causes to the gap (tied to box 2 - 3 of A3)

Current State → GAP → Target State

Cause & Effect Diagram
5 Why's

Problem Statement	Direct Cause	Root Cause(s)

Change

5. Countermeasures / Solution Approach:

Countermeasures - what do you propose to close the gap for those key processes?

Ask how each root cause could be eliminated or minimized - at least 3 "hows" for each root cause

If we...	Then we expect...
Ex. Exam time ≠ proc. time	Adjust procedure times
	Modify xxx
	Add room for prep
Ex. #2	Trial 1
	Trial 2
	Trial 3
Ex. #3	Trial 1
	Trial 2
	Trial 3

Change

6. Rapid Experiments:

Plan each experiment - what - who - when - where; Learn and improve as you go

Baseline	Target	Trial 1	Trial 2	Trial 3	Trial 4
Ex. Time to register: 13 min	5 min	12	7	13	4

Action photos during experiments

Sustain

7. Implementation / Completion Plans:

What are the implementation plans? Who does what by when?

Refine Standard Work, Train and Communicate

What	Who	By When

Sustain

8. Confirmed State:

What were the actual results?

Did you close the performance gap [does Box 8 = Box 3] - are we moving the metrics? Are we having the anticipated outcomes and sustaining them? Spread - how far, how fast? More Check - Act or new PDCA?

Pictures of "new" work

Relation to TN	Metric	Current State	Target State	Confirmed State
People				
Service				
Quality				
Resources				

Sustain

9. Insights:

What were the insights or lessons learned?

What's going well? What can be improved upon? What is the plan for improvement based on plus/delta? What new improvement opportunities and when will they be addressed?

What Worked Well?

What Didn't Work Well?

Actions for Improvement:

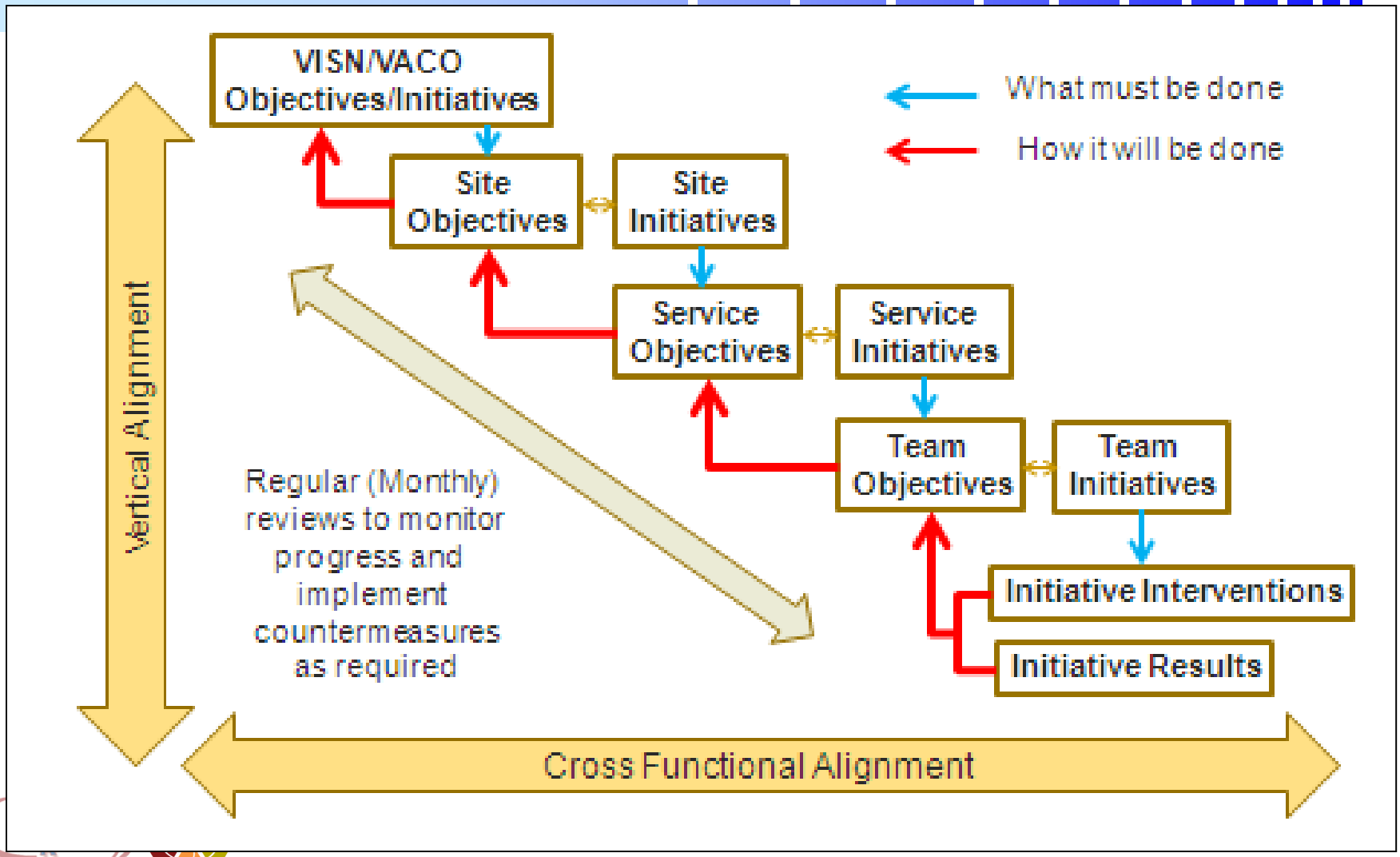
Current State → GAP → Target State

Where's the next big performance gap?????

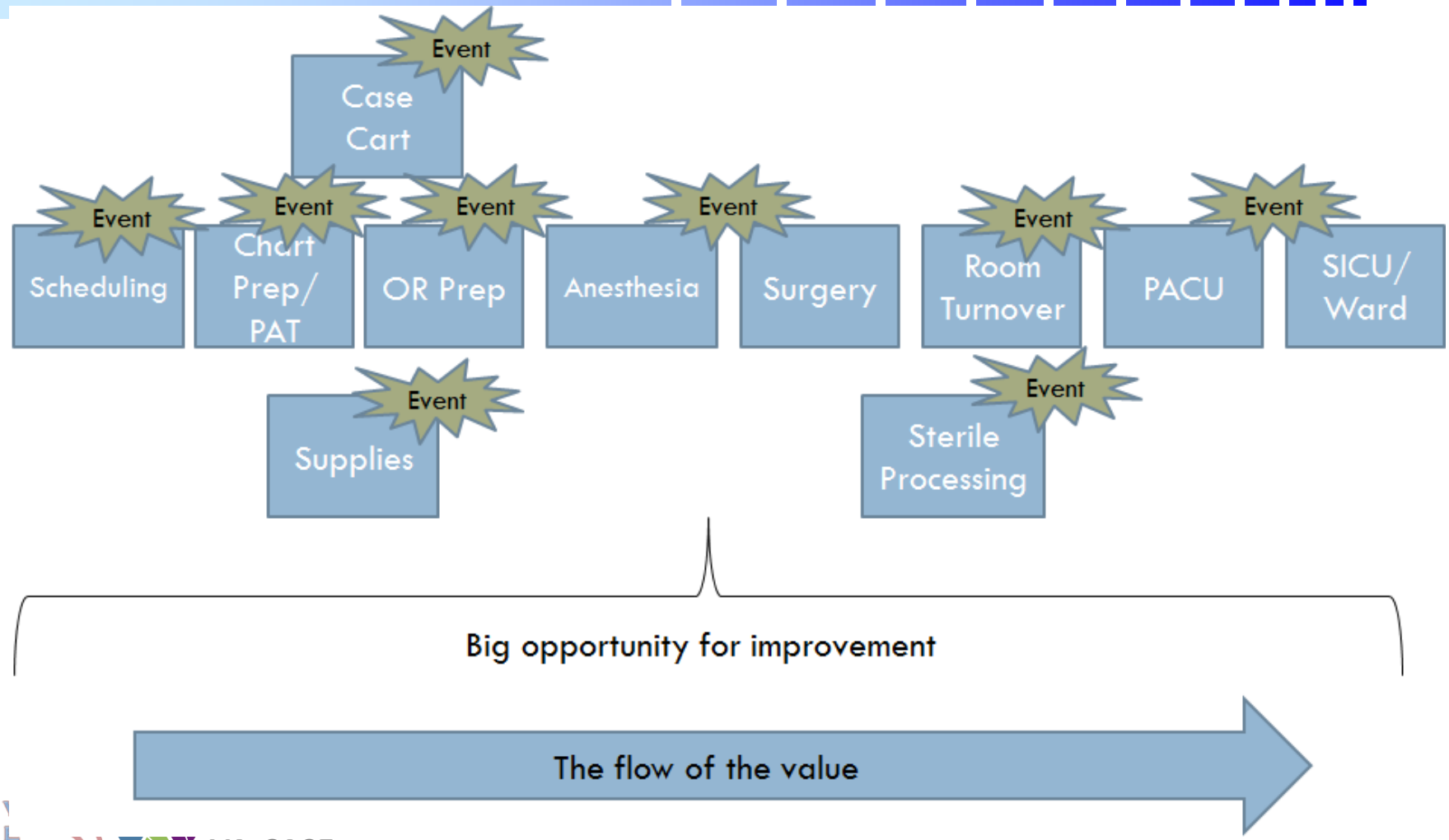
Transformational Plan of Care (TPOC)

- Transformational Plan of Care (TPOC)
  - Annual Strategic Planning Event used to create the vision, goals and high-level implementation plan for the upcoming year.
    - True North Metrics defined
    - Value Streams selected
  - Insures strategic alignment throughout the organization

Strategic Alignment through the Organization



What does a Value Stream Improvement Look like?



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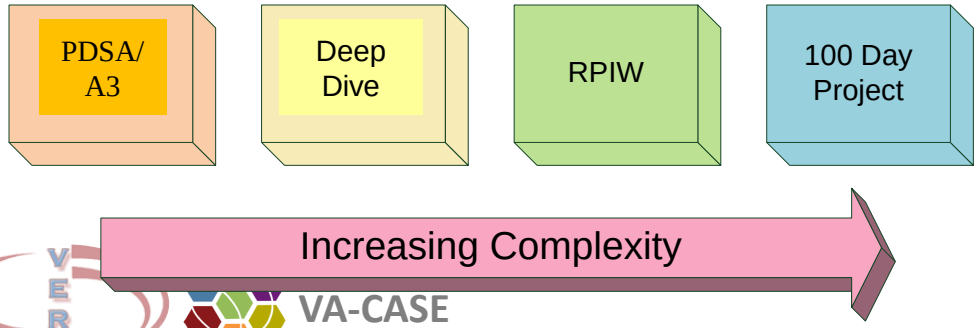
Approaches to Rapid Improvement Events (RIEs)

- PDSA/A3
  - Within a clinical microsystem
  - Microsystem is capable
- Deep Dive
  - 1 Day Event
  - Defined charter
  - Little analysis required
  - Motivated team
- Rapid Process Improvement Workshop (RPIW)
  - 1 Week Event
  - Defined charter
  - Many PDSAs
- 100 Day Project
  - 8 Week Project/4 Week Pilot Cycle
  - Analysis required
  - Ambiguous charter



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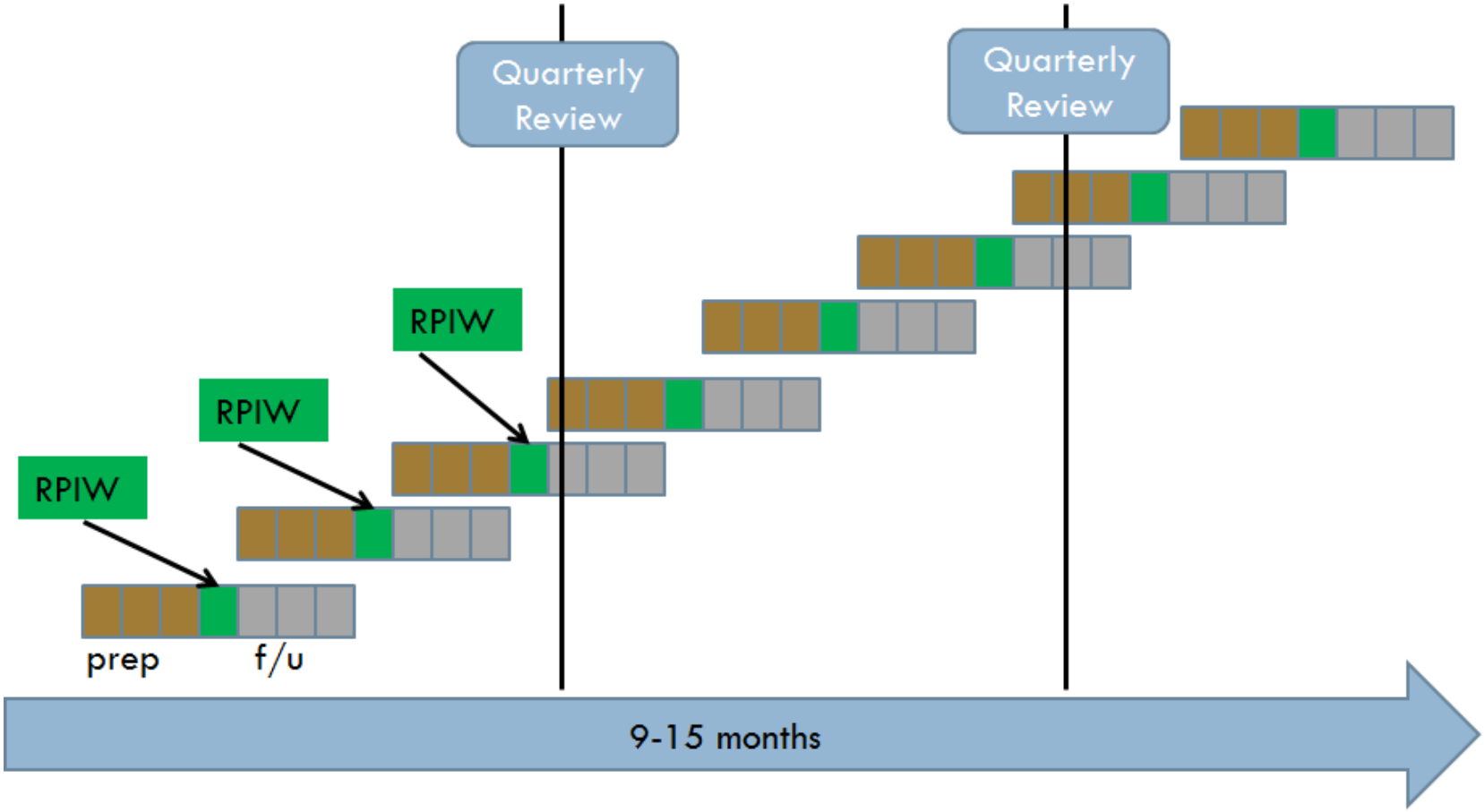
Value Stream Implementation



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Lean Management System

- Facilitating Continuous Daily Improvement
  - Daily Status Meetings (Stat Sheets)
  - 15 Minute Stand-ups (Daily Huddles)
  - Standard Work Audit/Review

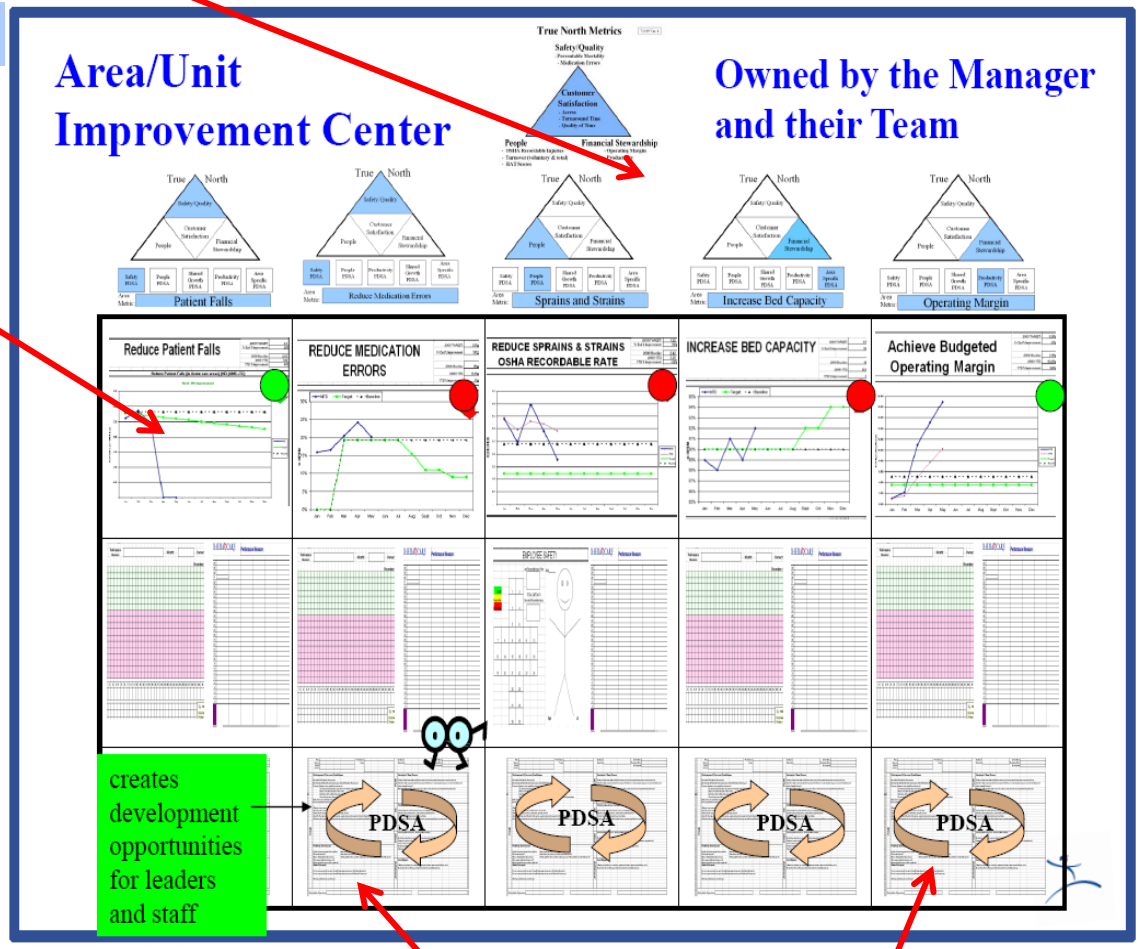
- Enabling Sustained Strategic Deployment
  - Leader Standard Work
  - Dashboards/Scorecards
  - Monthly Performance Review Meetings
  - Area/SR Improvement Centers

Area Improvement Visual Boards

'True North' Drivers directly impacted by Improvement Initiative

- Used to display current status of a project or initiative at the unit level
- Can be setup to follow the A3 framework
- Used in conjunction with 15 minute stand-ups

Data



Implementation/ Control Plans

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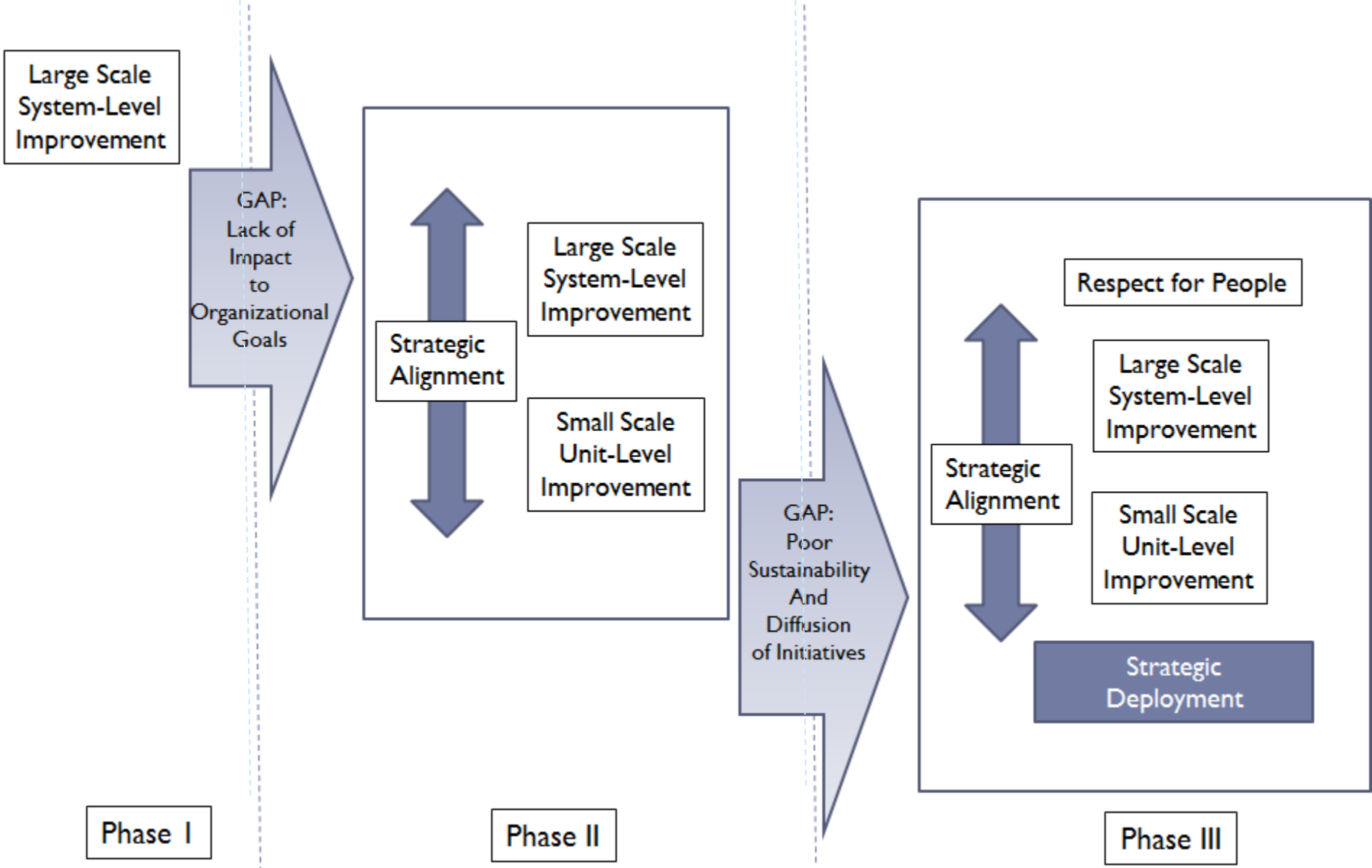
Three Primary Lean Enterprise Transformation Strategies

- Lean Deployment strategies drive "pull" for the transformational program within the organization
  - ***Respect for People:*** front line staff are the primary problem solvers within these organizations…ensures internal capacity and capability is developed at staff, facilitation and leadership levels
  - ***Strategic Alignment:*** provides transparency throughout the organization with respect to organizational goals and metrics as well as a balanced project portfolio
  - ***Strategic Deployment:*** ensures that the transformational initiatives are tangible and relevant to the front-line staff and that management systems are aligned. This is often achieved through the integration of a Lean Management System.

How are these strategies deployed?

- All three strategies – Strategic Alignment, Strategic Deployment (Lean Management System)and Respect for People are critical to maintaining "pull" for the transformational program
- **Leadership Capability** drives all three key strategies
- Transformation is a dynamic process…Transitional phases within transformation efforts are indicative of leadership identifying and resolving issues with program outcomes in order to maintain "pull"

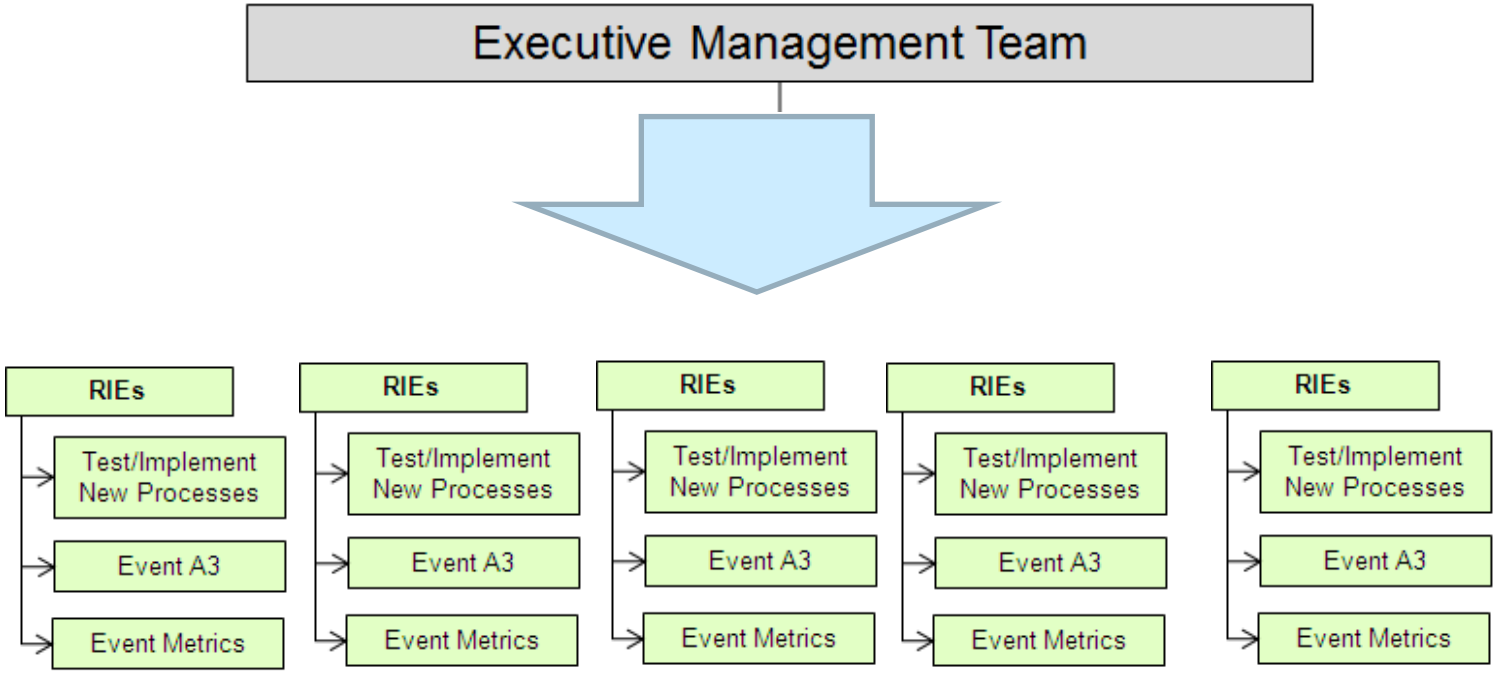
Lean Enterprise Deployment Strategy



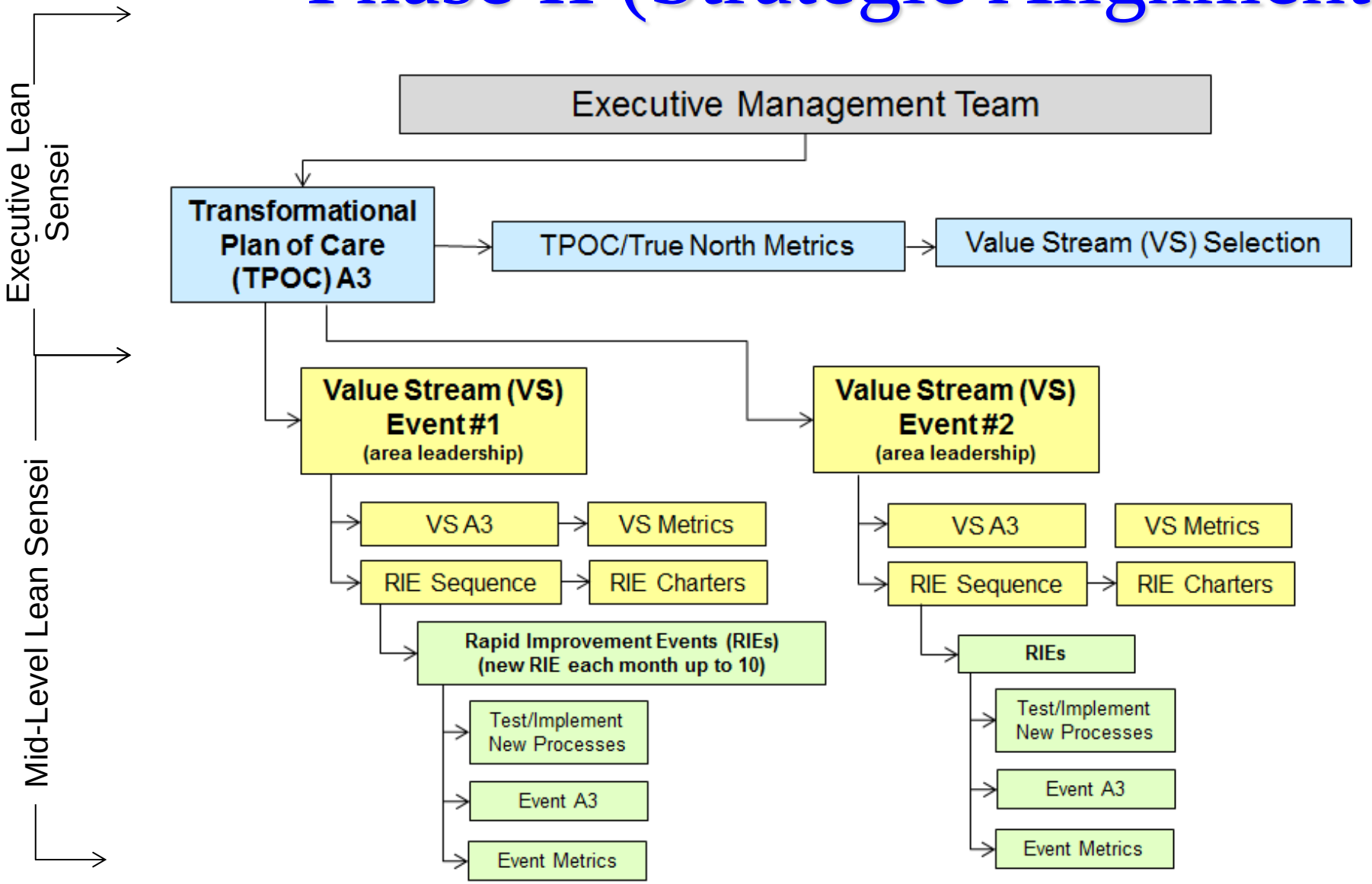
Design of VHA Lean Enterprise Transformation Framework

- Primary consideration: How to overcome the leadership capability barrier?
  - Framework for enterprise-level Lean deployment that integrates transitional phases proactively
  - On-site expert consultant "Lean Sensei" support
  - Develop more resilient and "systems thinking" capable leadership teams that are able to navigate dynamic deployment approaches

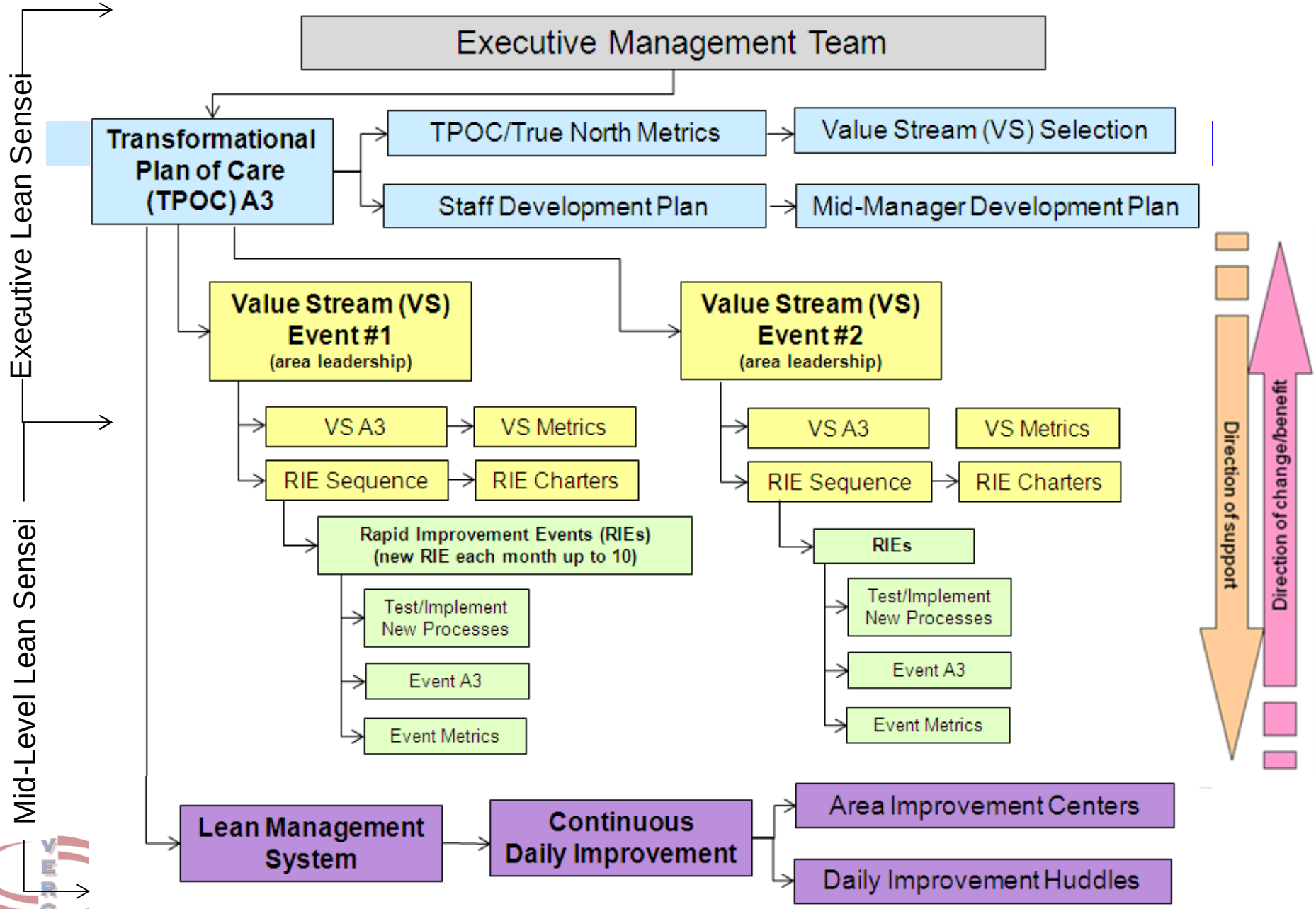
Lean Enterprise Transformation Phase I (Building Capability)



Lean Enterprise Transformation Phase II (Strategic Alignment)



Phase III (Strategic Deployment)



Lean Deployment Evaluation

- Partnered QUERI Evaluation Center
  1. Mixed methods (qualitative and quantitative data collection, analysis)
  2. Multi-level perspective (groups: senior leadership, mid-level leadership, front line staff, SR, VA-CASE sensei) via sampled, targeted interviews
  3. Characterization of LMS elements
  4. Assessment of implementation outcomes

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Lean Transformation Results YR1-3

Evaluation Components	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
# of month of LET Deployment	33	21	21	21	27	17
Executive 'leading the charge' role and background	Director, FACHE	Director, FACHE	Director, RN	Director, MHA	SES/MD and Director MHA	Associate Director, RN
Name of LET initiative	[Site Name] Excellence 2.0	Service Improvement Model (SIM)	Systems Redesign-Lean Program (no branding currently used)	"You are the Key"	Lean	[Site Name] Lean Machine
# of Value Streams Opened	7	3	8	5	4	3
# of RPIW/RIEs conducted	93	15	44	9	32	14

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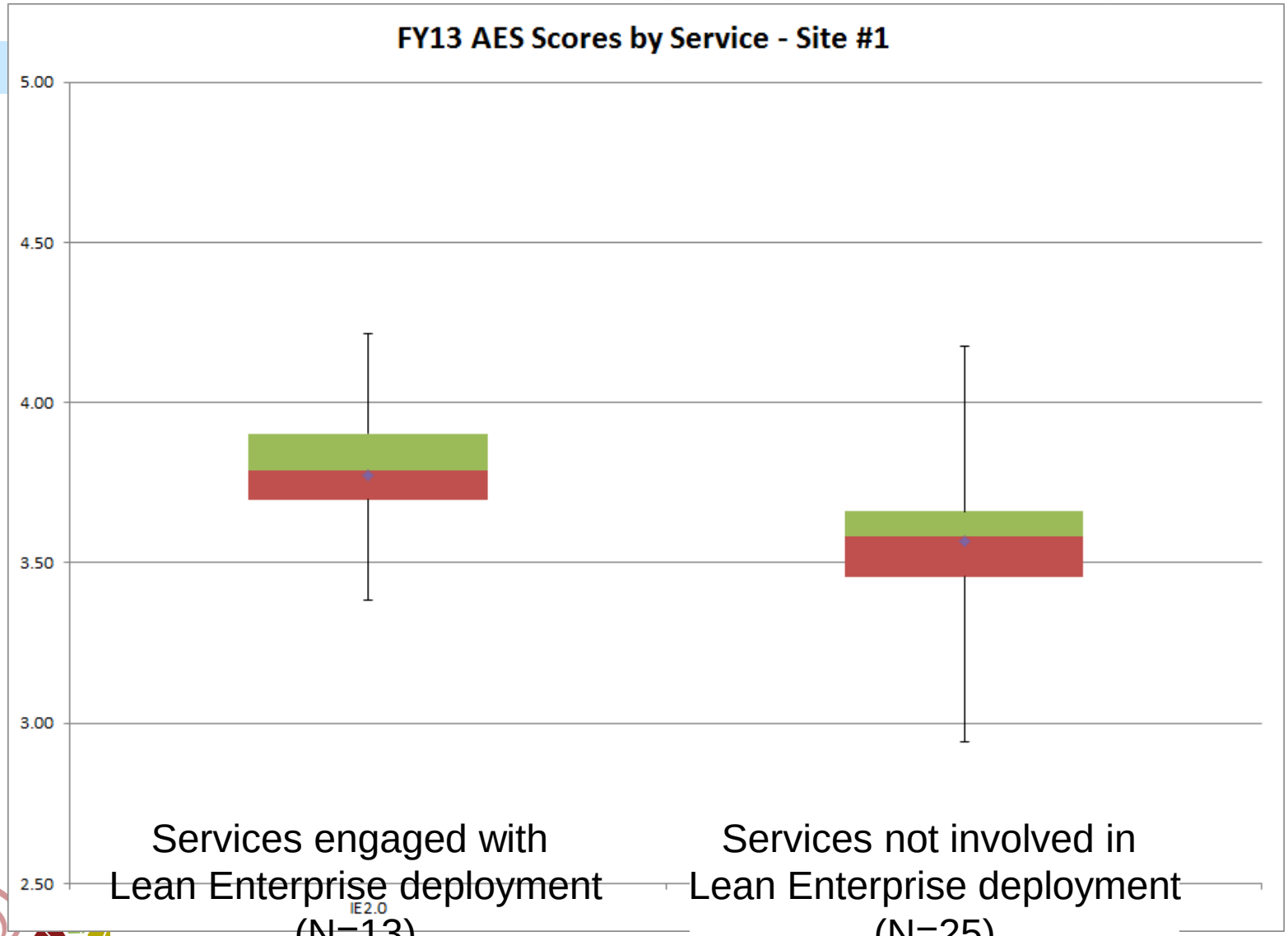
Lean Transformation Results YR1-3

Evaluation Components	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
# of unique staff participating on RPIWs	770	334*	351	325	381	329
# of unique executives participating on RPIWs	3	5	2	0	5	0
# of unique mid-managers participating on RPIWs	56	20	37	11	67	15
# of Lean Management System/Continuous Daily Improvement areas initiated	56	30	0	21	27	5
# of improvement implemented via Lean Management System (Continous Daily Improvement)	2065	No Data	No data	250	52	6
# of unit based initiatives (A3s)	35	74	11	5	29	5

All Employee Survey FY13 – Site #1
Average AES Score by Service

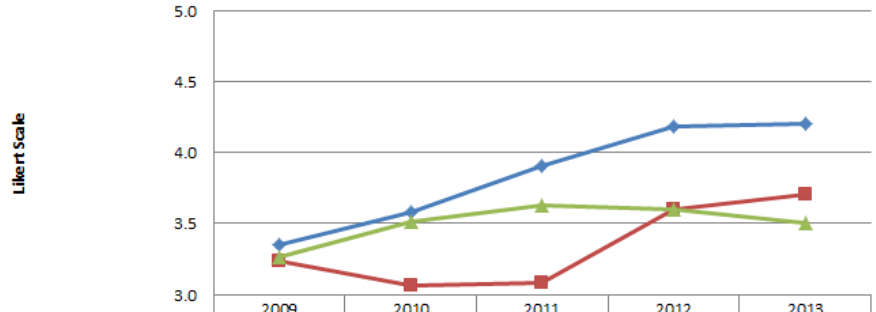


Services engaged with Lean Enterprise deployment (N=13)

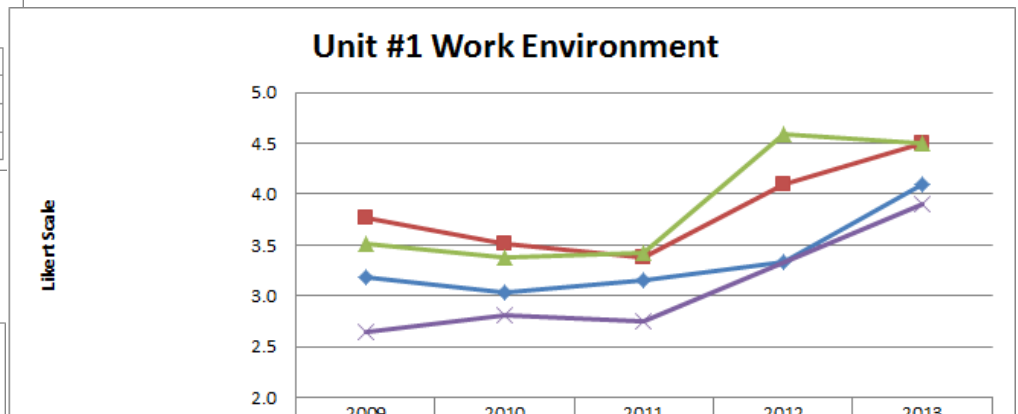
Services not involved in Lean Enterprise deployment (N=25)

Lean Enterprise AES Results YR1-2,

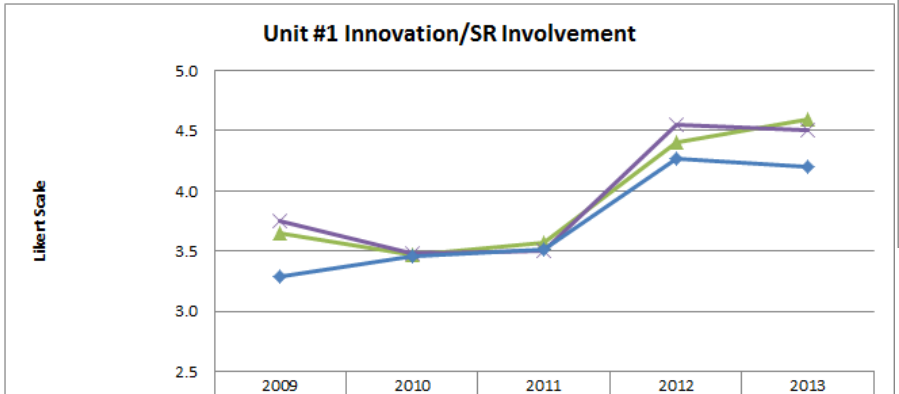
Site #1 Unit #1



	2009	2010	2011	2012	2013
Senior Management	3.2	3.1	3.1	3.6	3.7
Supervision	3.4	3.6	3.9	4.2	4.2
Supervisory Support	3.3	3.5	3.6	3.6	3.5



	2009	2010	2011	2012	2013
Psychological Safety	3.2	3.0	3.2	3.3	4.1
Employee Development	3.8	3.5	3.4	4.1	4.5
Rewards	3.5	3.4	3.4	4.6	4.5
Job Control	2.6	2.8	2.8		3.9



	2009	2010	2011	2012	2013
Innovation	3.6	3.5	3.6	4.4	4.6
Systems Redesign	3.8	3.5	3.5	4.5	4.5
Goal Alignment	3.3	3.5	3.5	4.3	4.2

Polling Question

In your opinion, what are the key barriers within VA to adoption of Continuous Improvement principles from Lean or other frameworks?

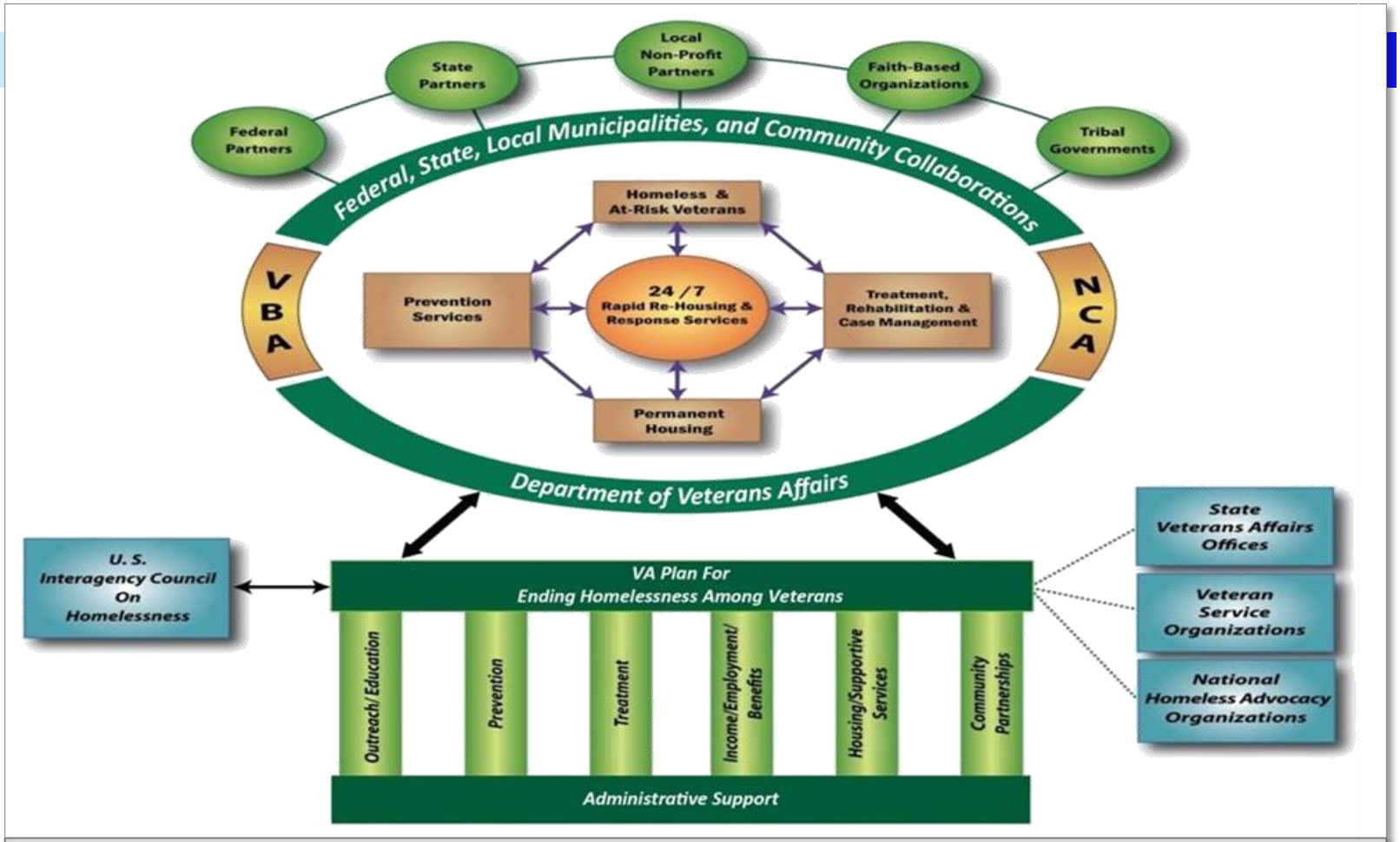
- Identifying priorities for improvement
- Engaging employees
- Fostering collaboration among stakeholders
- Finding the right tools
- Other

INTEGRATING CONTINUOUS IMPROVEMENT: INTEGRATED OPERATIONAL PLANNING (IOP) IN VHA HOMELESS PROGRAMS OPERATIONS

VHA Homeless Programs: Integrated Operational Planning (IOP)

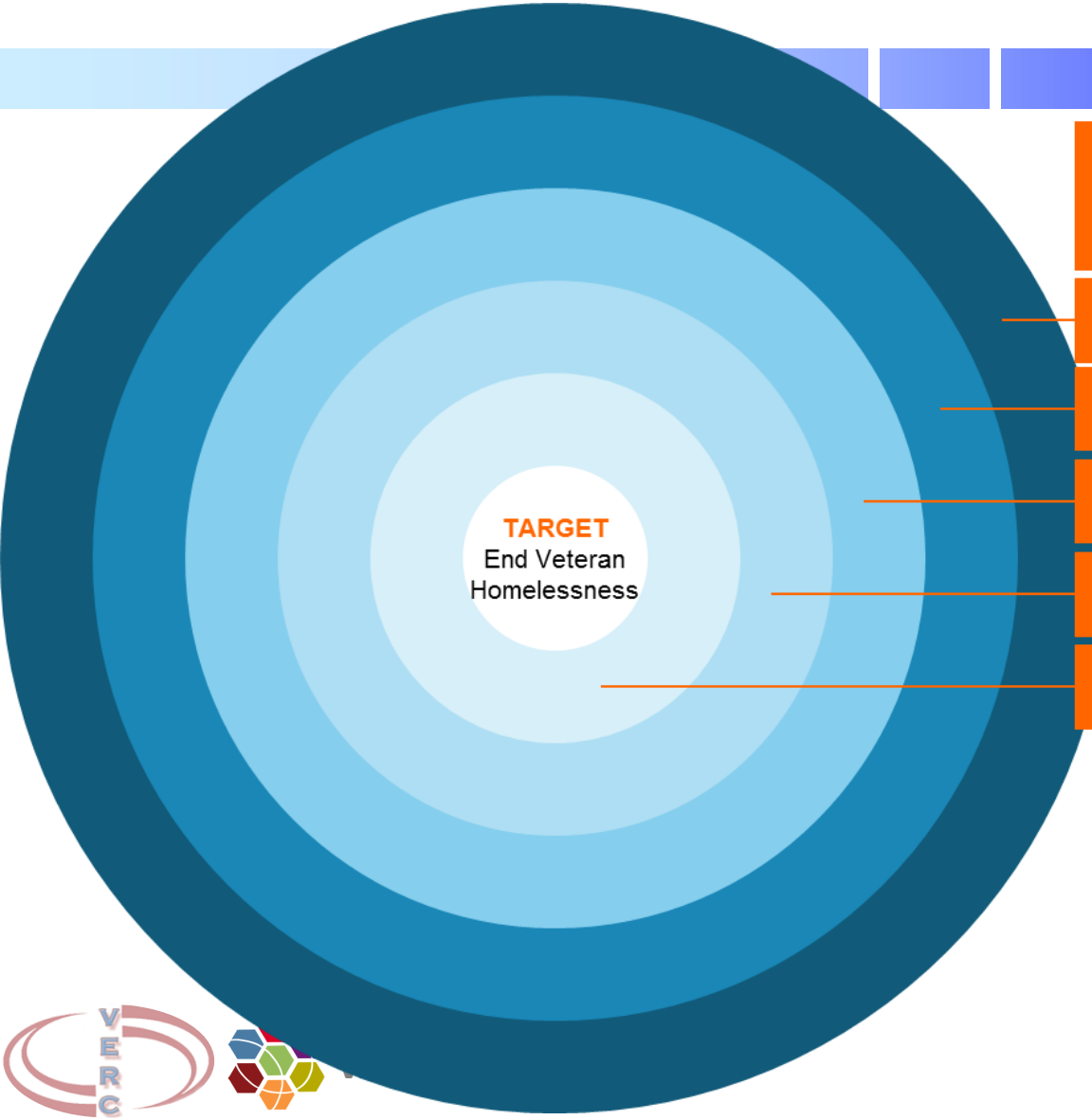
- An integrated, continuous improvement approach to operations management adopted nationally by the VHA Homeless Programs in FY14
- Utilizes principles from successful frameworks including Lean which were selected for
  - Organizational fit
  - Adoption speed
  - Ability to scale
- Deployed at scale and enhanced continuously by VHA Homeless Programs National Office and the VA-Center for Applied Systems Engineering (VA-CASE)

Overview of Programs and Services for Homeless Veterans



VHA Homeless Programs is a complex adaptive system that shares a common purpose

VHA Homeless Programs: IOP Objectives



Integrated Operational Planning (IOP) is engineered to achieve five key objectives towards ending Veteran homelessness

1. Anticipate Veteran need for various homeless programs and services
2. Employ all existing VA assets across the full range of programs to meet need and identify any remaining gaps
3. Perform strategically targeted operational improvements to close gaps
4. Optimally allocate additional VA assets to close gaps
5. Leverage local, state and federal partnerships to close gaps and improve understanding of Veterans' needs.

An integrated approach across the Enterprise

Deployed at scale using a suite of tools

- Excel based tools for prototyping and rapid development
- Web based tools to reach scale and support continuous deployment
- Advanced tools such as simulation applications to target specific high value problems

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Key Integrated Operational Planning (IOP) capabilities that enable scale

Gap Analysis Tool

Continuously updated model used every quarter to complete Gap Analysis

Identify gaps in PH placements needed to end Veteran homelessness

Identify strategies to close gaps

Develop monthly facility targets for PH Placements

Op Plan Tool

A planning tool used every month to turn strategies into action

Develop and update plans to maintain or improve Scorecard measures & resource utilization

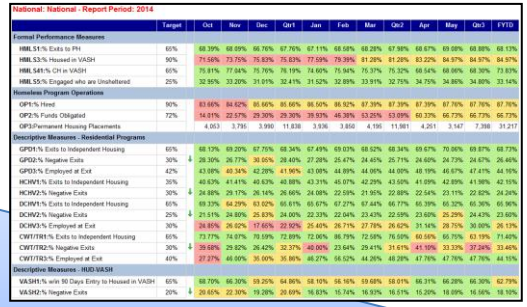
Develop and update plans to implement strategies

Develop and update plans to meet monthly PH Placement Targets

Homeless Scorecard

A metrics dashboard reviewed every month to track progress

Measure and compare operational metrics to national targets



National: National - Report Period: 2014

	Target	Oct	Nov	Dec	Qtr1	Jan	Feb	Mar	Qtr2	Apr	May	Qtr3	FYTD
Formal Performance Measures													
HML S1:% Exits to PH	65%	68.39%	68.09%	66.76%	67.76%	67.11%	68.58%	68.28%	67.98%	68.67%	69.08%	68.88%	68.13%
HML S3:% Housed in VASH	90%	71.56%	73.75%	75.83%	75.83%	77.59%	79.39%	81.26%	81.26%	83.22%	84.97%	84.97%	84.97%
HML S4:% CH in VASH	65%	75.81%	77.84%	75.76%	76.19%	74.60%	75.94%	75.37%	75.32%	68.54%	68.06%	68.30%	73.83%
HML S5:% Engaged who are Unsheltered	25%	32.95%	33.20%	31.01%	32.41%	31.52%	32.89%	33.91%	32.75%	34.75%	34.86%	34.80%	33.14%
Homeless Program Operations													
OP1:% Hired	90%	83.66%	84.62%	85.66%	85.66%	86.50%	86.92%	87.39%	87.39%	87.39%	87.76%	87.76%	87.76%
OP2:% Funds Obligated	72%	14.01%	22.57%	29.30%	29.30%	39.93%	46.36%	53.25%	53.09%	60.33%	66.73%	66.73%	66.73%
OP3:Permanent Housing Placements		4,053	3,735	3,990	11,838	3,936	3,856	4,195	11,981	4,261	3,147	7,398	31,217
Descriptive Measures - Residential Programs													
GPD1:% Exits to Independent Housing	65%	68.13%	69.20%	67.75%	68.34%	67.49%	69.03%	68.52%	68.34%	69.67%	70.86%	69.87%	68.73%
GPD2:% Negative Exits	30%	28.30%	26.77%	30.05%	28.40%	27.28%	25.47%	24.65%	25.71%	24.60%	24.73%	24.67%	26.46%
GPD3:% Employed at Exit	42%	43.08%	40.34%	42.28%	41.96%	43.08%	44.89%	44.06%	44.00%	48.19%	46.67%	47.41%	44.16%
HCHV1:% Exits to Independent Housing	35%	40.63%	41.41%	40.83%	40.88%	43.31%	45.07%	42.29%	43.50%	41.09%	42.89%	41.98%	42.15%
HCHV2:% Negative Exits	30%	24.88%	29.17%	26.14%	26.66%	24.08%	22.59%	21.95%	22.88%	22.54%	23.11%	22.82%	24.24%
DCHV1:% Exits to Independent Housing	65%	69.33%	64.29%	63.02%	65.61%	65.67%	67.27%	67.44%	66.77%	65.39%	65.32%	65.36%	65.96%
DCHV2:% Negative Exits	25%	21.51%	24.80%	25.63%	24.00%	22.33%	22.04%	23.43%	22.59%	23.60%	25.29%	24.43%	23.60%
DCHV3:% Employed at Exit	30%	26.85%	26.02%	17.65%	22.92%	25.40%	26.71%	27.78%	26.62%	31.34%	29.75%	30.00%	26.13%
CWT/TR1:% Exits to Independent Housing	65%	73.77%	74.07%	70.19%	72.09%	72.06%	86.79%	72.58%	76.59%	60.56%	65.75%	63.19%	71.40%
CWT/TR2:% Negative Exits	30%	39.68%	29.82%	26.42%	32.37%	40.00%	23.64%	29.41%	31.61%	41.10%	33.33%	37.24%	33.46%
CWT/TR3:% Employed at Exit	40%	27.27%	46.00%	36.00%	35.86%	46.27%	56.52%	44.26%	48.28%	47.76%	47.76%	47.76%	44.15%
Descriptive Measures - HUD VASH													
VASH1:% win 90 Days Entry to Housed in VASH	65%	68.70%	66.30%	59.25%	64.86%	58.10%	56.16%	59.68%	58.01%	66.21%	66.28%	66.30%	62.79%
VASH2:% Negative Exits	20%	20.65%	22.30%	19.28%	20.69%	16.63%	15.74%	16.93%	16.51%	15.20%	18.09%	16.56%	18.10%

Operational Planning Hub

Organize iterative analysis and planning activities

Share strategies and best practices with other VA Medical Centers

Gain situational awareness of community partnerships and operational improvements

Gap Analysis Tool Capabilities

Each VAMC uses the Gap Analysis Tool on a quarterly basis to assess gaps and develop strategies to close gaps. The tool provides calculators and is pre-populated with available data.

Estimate Current and Future Needs

Identify Assets to Meet Need

Assess Gaps

Close Gaps: Operational Improvements

Close Gaps: Community Partnerships

Gap Analysis Activities

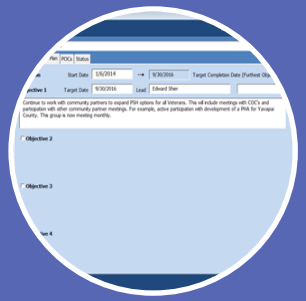
1. Each VAMC is provided with a customized Gap Analysis Tool which includes several calculators pre-populated with the VAMC's need and asset data
2. VAMCs
   - Validate asset and need data in partnership with HUD Continuums of Care (CoCs)
   - Assess gaps overall and in each need category
   - Work closely with Community Partners on strategies to close gaps
   - Develop Operational Improvement strategies to close gaps

Op Plan Tool Capabilities

Each VAMC use the Op Plan Tool monthly to develop, track and continuously update plans to maximally leverage VA assets and community partnerships towards ending Veteran homelessness.

Strategies

Goals



Timelines

Teams

Status Updates

Operational Planning Activities

1. Each VAMC develops plans to implement operational improvement and community partnership strategies identified in the Gap Analysis

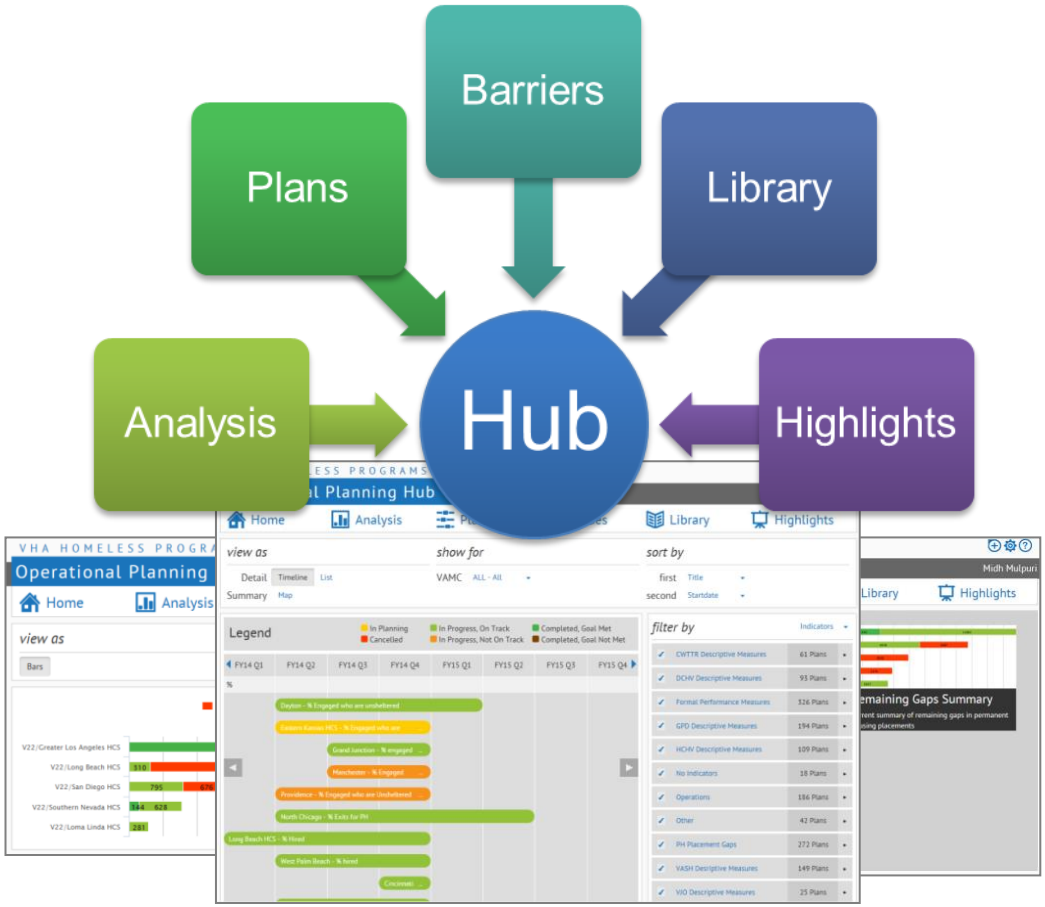
2. Plans are shared across all VAMCs through the Operational Planning Hub to promote spread of innovation and strong practices

3. VAMCs update plans monthly to reflect actual implementation progress and respond to changes in situation on the ground

4. VACO, VISN and VAMCs conduct joint quarterly reviews of efforts and VACO responds to cross-cutting issues identified by VAMCs

Operational Planning Hub

- Organizes and relates capabilities across all elements of Integrated Operational Planning
- One stop shop for access to data, directives, tools and other important artifacts.
- Encourages adoption, learning and dissemination of best practices across the system



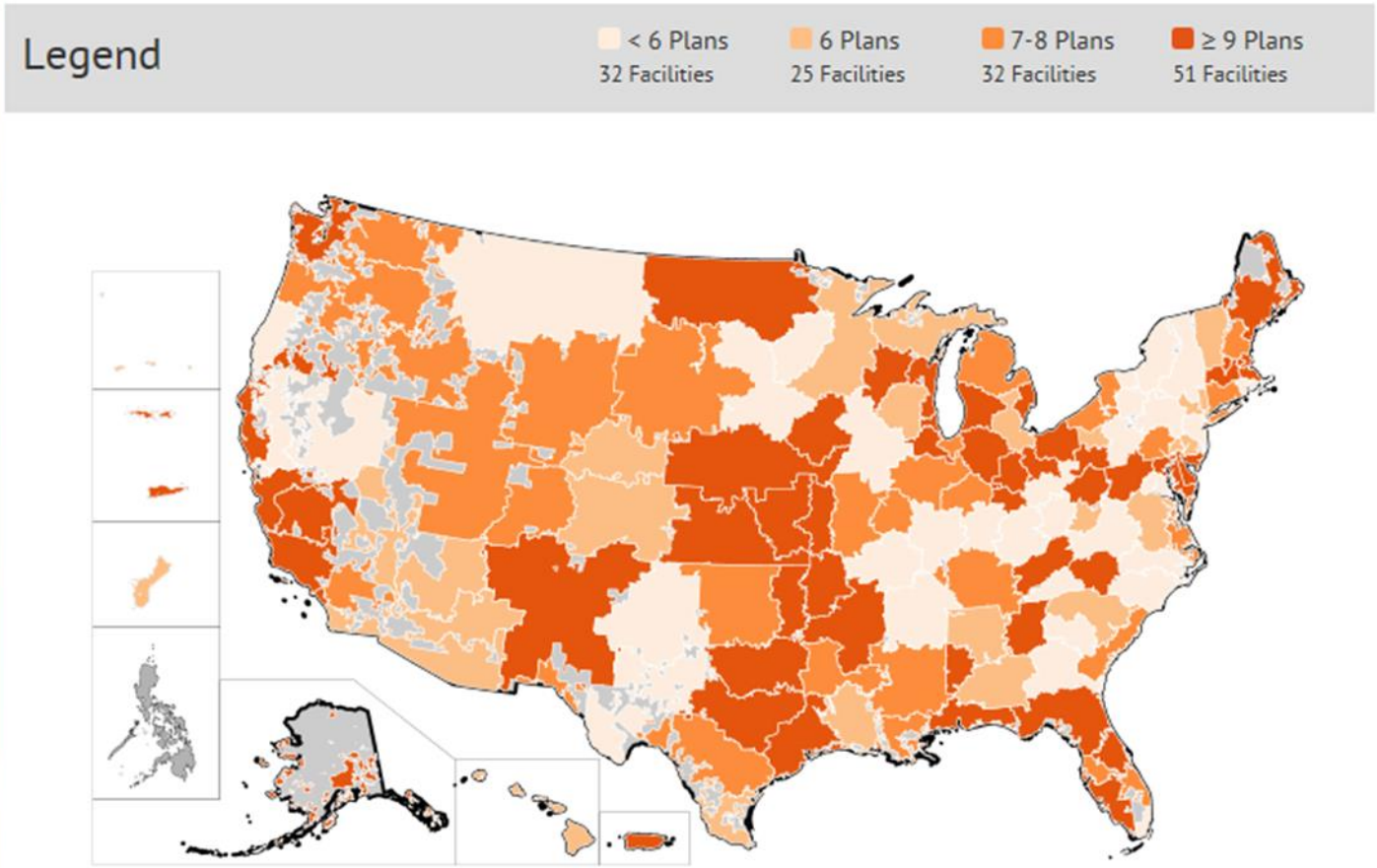
VHA Homeless Programs: First Year with Integrated Operational Planning

Every VA Medical Center has efforts underway to maximally leverage VA assets and close gaps through operational improvements and community partnerships

1,100
Efforts

Making **17,000** new PH placements possible by the end of 2015 *

Plans updated monthly



VHA Homeless Programs: First Year with Integrated Operational Planning

12 Monthly Planning Iterations

4 Quarterly Gap Analysis Iterations

2 Quarterly VACO-VISN-VAMC Joint Review

300 VAMC Planning Leads

1300 VA and Community Strategies

1100 Structured Operational Plans

17,000

Potential Permanent Housing Placements generated by the end of 2015 through operational improvement and community partnership strategies

VA-CASE

Road Ahead

- Enhancing and supporting IOP capabilities for VHA Homeless Programs
- Refactoring IOP tool suite to support Lean Deployment
- Seeking partnerships with other national Program Offices interested in deploying similar frameworks at scale

VA-Center for Applied Systems Engineering

Questions?

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