



LEAN Enterprise Methods in Healthcare: VA Boston Mental Health

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VA Mental Health – Boston

ESD.62J/16.852J: Integrating the Lean Enterprise

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- Project Overview
- Enterprise Description
- X-Matrix
- Process Waste



Project Overview

Project Approach

- Collect Data
 - 11 individuals interviews
 - Phone and site interviews—Brockton, Bedford, Jamaica Plains
 - Metrics, process and procedure, organizational charts, financial statements
- Conduct Analysis
- Validate Findings
- Formulate Recommendations
- Present Recommendations

Project Goals

- Analyze the VA BMHS through a Lean assessment and suggest strategy for a Lean transformation

Enterprise Description

Mission & Vision

- To serve the veteran through the delivery of timely quality care by staff who demonstrate outstanding customer service, the advancement of health care through research, and the education of tomorrow's health care providers.

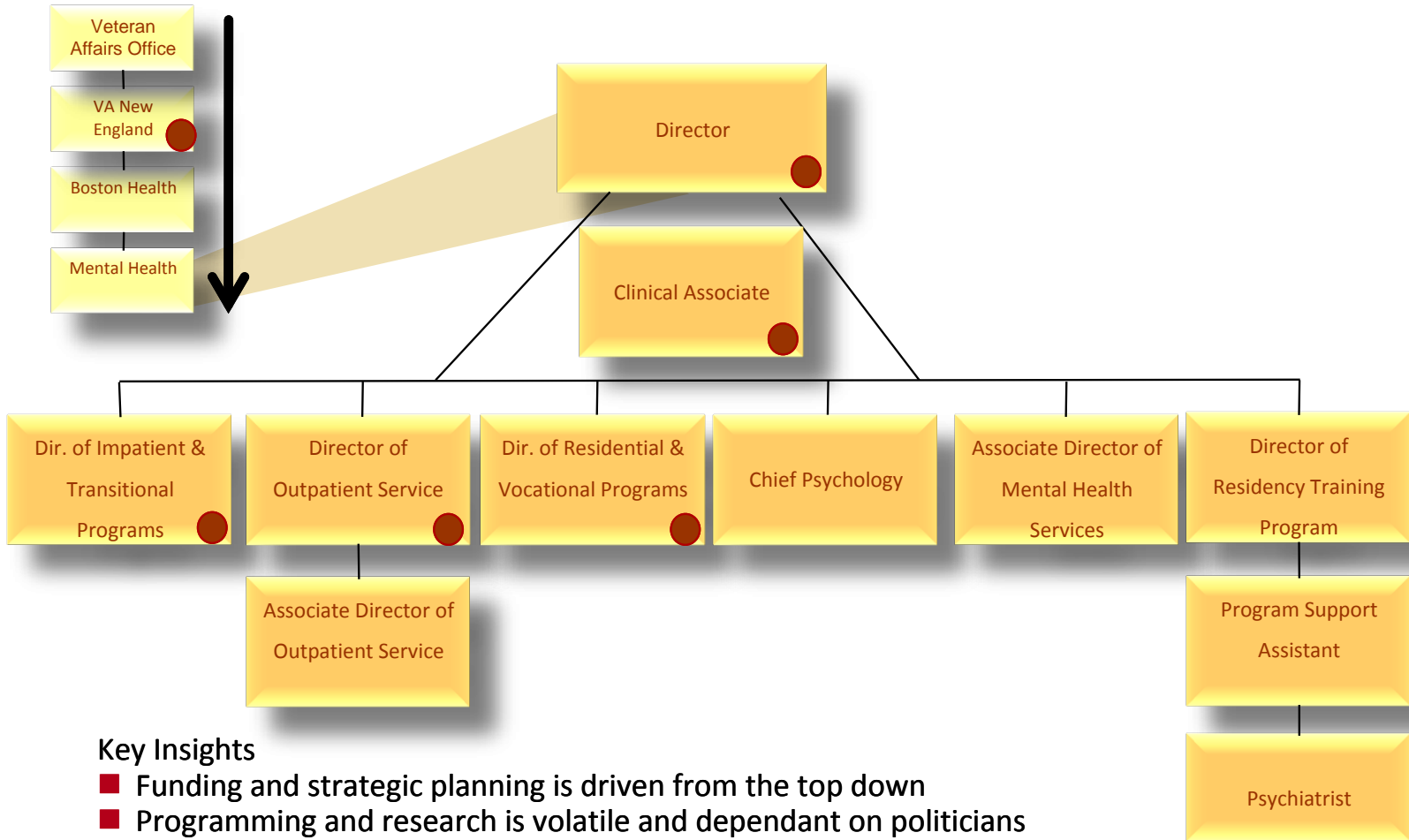
Strategic Goals

- Serve Boston Health Services
- Team-oriented and Integrated Care
- Quality Improvement
- Compliance
- Evidence-based Care through Educational Residencies
- Become World Class Research Hospital System
- Accessible Care

Overview

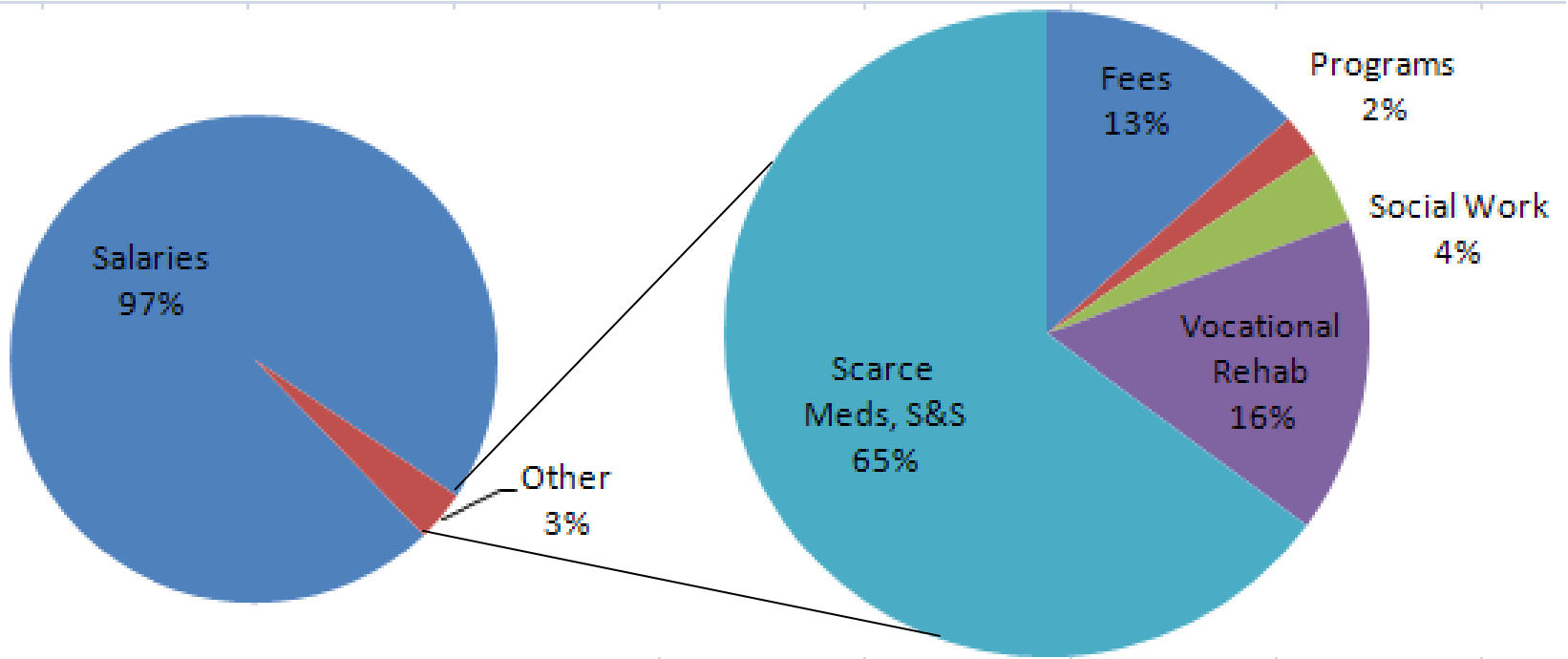
- Boston Mental Health Service is largest within VA New England region
- Locations – Brockton, Jamaica Plains, West Roxbury + CBOCs
- Services – Inpatient, Outpatient, Residential Programs

Organization Chart



Key Insights

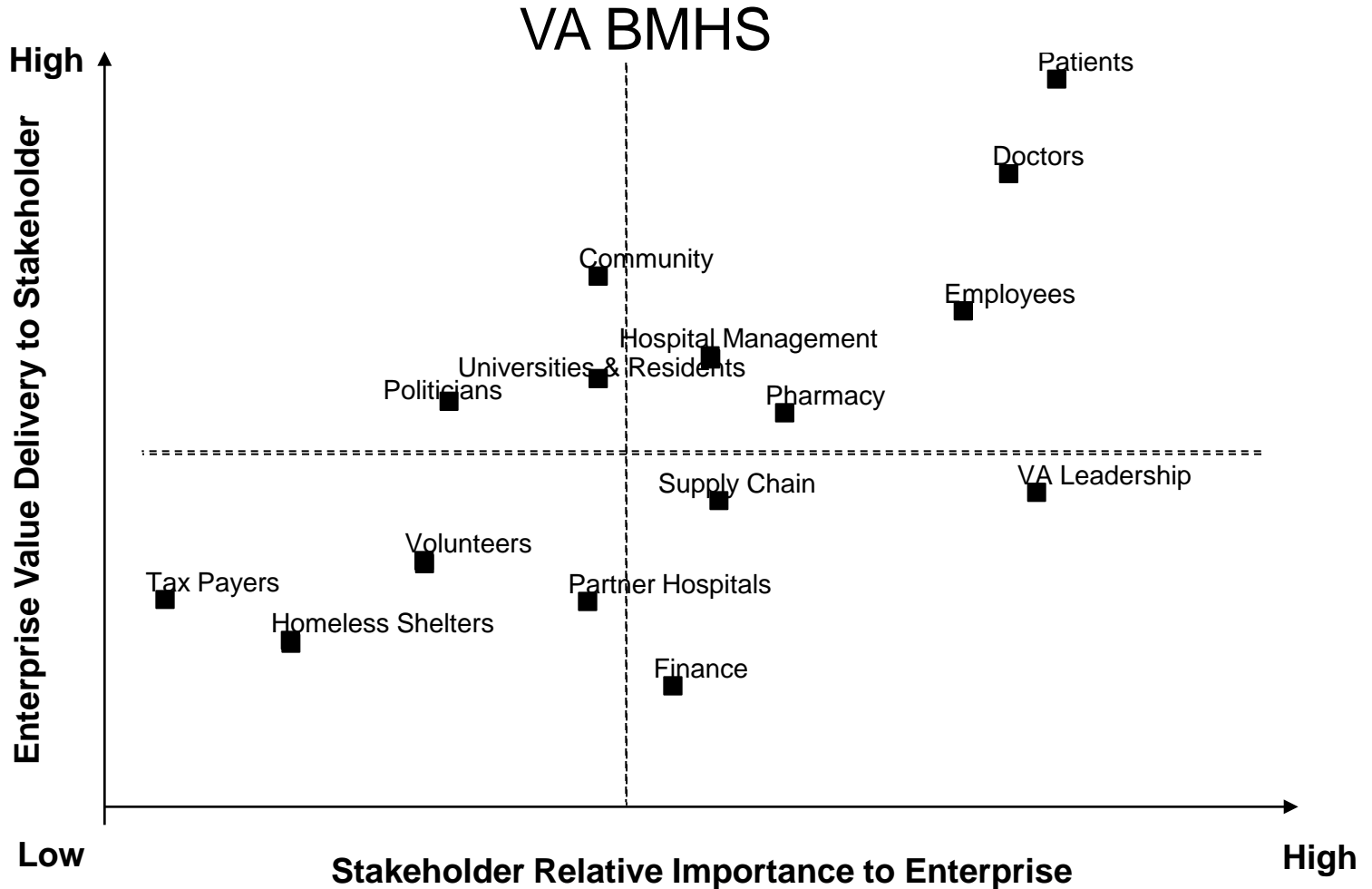
- Funding and strategic planning is driven from the top down
- Programming and research is volatile and dependant on politicians
- Communication channels between each enterprise



Key Insights

- Budgets are based on previous years number of patients and number of complex patients
- Support processes and research is managed by VA Boston Health Services

Stakeholder Value Comparison



Lean Insights

■ Mapping the relationship with stakeholders offers insights for enterprise operations

Customer Value Exchange

Value Expected from the Enterprise	Stakeholders	Value Contributed to the Enterprise
<ul style="list-style-type: none"> • Accurate diagnosis • Eliminate pain/discomfort • Treat condition with correct therapy immediately • Be treated with dignity and respect, compassion and caring • As pleasant an extended stay as possible • Information on managing illness or maintaining health • Safety/security while on premises • To be returned to normal life and normal life activities as quickly as possible 	<p style="text-align: center;"><u>Customers</u></p> <ul style="list-style-type: none"> • Patients 	<ul style="list-style-type: none"> • Co-pay Money for services • Money from health insurance provider • Meeting Congressional Goals

Enterprise Metric	Sub-Category	What is measured	Target Value	Current Value	Trend	Status	Comments
Mental Health Access		MH: CBOC - % MH specialty access	>90%	100%	N/A	g	No trend data
		MH: Homeless Contact access to MH/SUD (form X revised version)	>68%	97%	N/A	g	No trend data
		MH: Homeless Program access to MH/SUD	>87%	94%	N/A	g	No trend data
		MH: Homeless Program access to Eval & Mgmt	>78%	87%	N/A	g	No trend data
		MH: Homeless Program F/u in MH/SUD	>60%	71%	N/A	g	No trend data
MH: SMI - MHICM Capacity		MH: SMI - MHICM Capacity	>65%	79%	N/A	g	No trend data
Waiting Times - Clinic		New Patients (NP): % Seen by acceptable provider within 30 days	>88%	94%	N/A	g	No trend data
		Established Patients (Est Pt): % Scheduled within 30 days of desired date	>92%	98%	N/A	g	No trend data
		Missed Opportunities (Missed Appointments) - No Show and Clinic Cancellations	<16%	15%	N/A	g	No trend data
Mental Health Measure	Substance Use Disorder: % of patients with	Screened for at risk alcohol usage - AUDIT-C with doc responses	>90%	92%	N/A	g	No trend data
		90 Day Continuity of Care	>39%	34%	N/A	y	No trend data
	PTSD: % of patients with	Post Traumatic Stress Disorder Screening annually for 1st five years after most recent separation and then every five years thereafter with doc responses (PC PTSD)	>73%	95%	N/A	g	No trend data
		Major Depressive Disorder: % of patients:	Screening annually with doc responses (PH-Q2)	>90%	92%	N/A	g
		New Dx of Depression - Provider Follow-up	>24%	21%	N/A	y	No trend data
		New Dx of Depression - Medication Coverage	>76%	80%	N/A	g	No trend data
	Tobacco Cessation %	Offered medication to assist with cessation in past year - Nexus - MH Subgp	>55%	81%	N/A	g	No trend data

Metrics vs. Objectives

- Very strong alignment with most metrics on target
- Goals are not formal or documented
- Research is a goal but not measured locally

Values vs. Goals

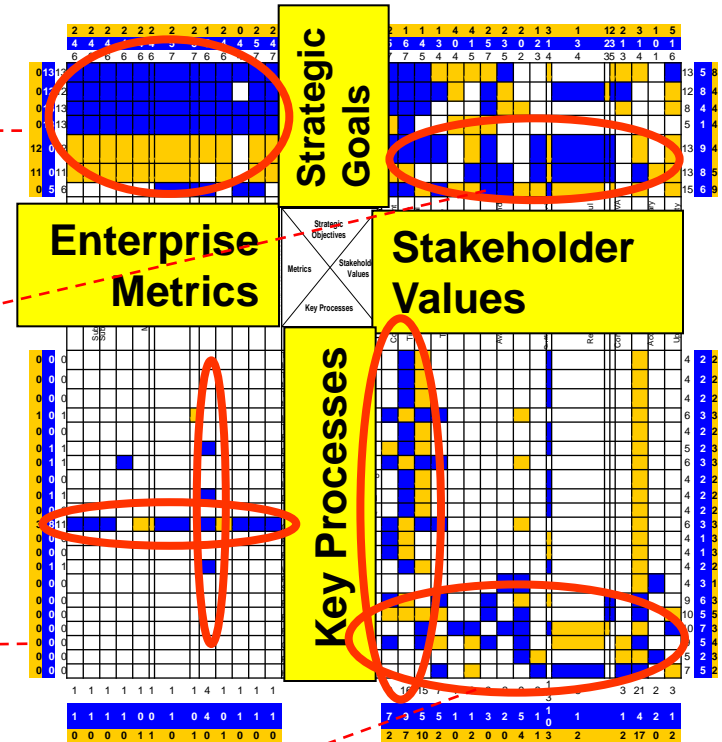
- Strong alignment with areas in service, care, & research
- Gap lies in aligning goals to values such as:
 - Operating within budget
 - Well-documented monetary transactions

Metrics vs. Processes

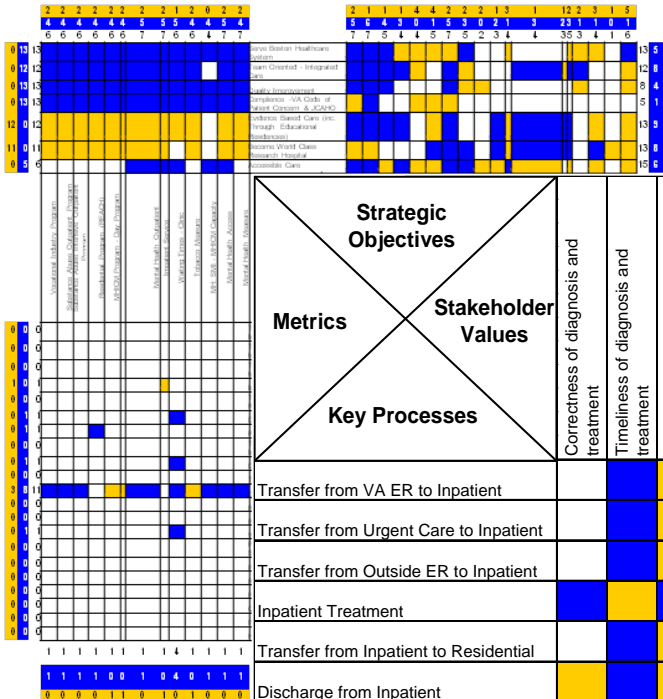
- Strong alignment with outpatient treatment and clinic wait times
- Missing metrics for key processes
 - Transfers to inpatient
 - Program referrals

Processes vs. Values

- Strong alignment in areas of service, research, & quality
- Processes addressing the least stakeholder values are primarily patient movement



X-Matrix

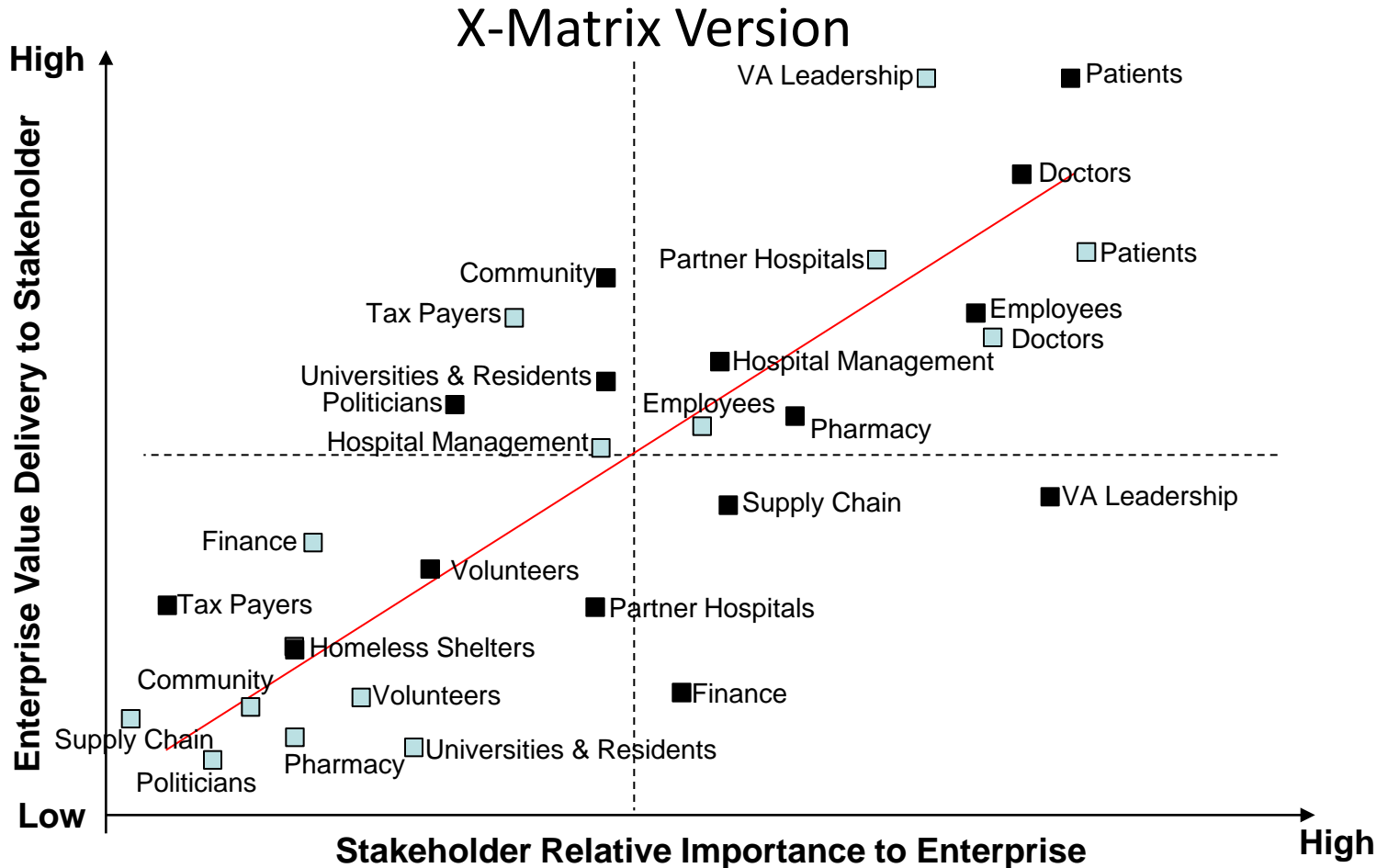


Strategic Objectives	Metrics	Stakeholder Values	Key Processes	Correctness of diagnosis and treatment	Timeliness of diagnosis and treatment	Quality of patient experience (minimal discomfort, respectful, etc.)	Timely and accurate information flow	Safety/Security of premises	Clean, High Quality Facility	Accurate Patient Records	Availability of medications, supplies, and equipment	Operating within budget	Fair Wages for services	Sufficient Inpatient and Outpatient Capacity	Reasonable expectations and respectful treatment of employees	Research Advancement	Knowledge Transfer	Communication and Implementation of VA culture and values	Efficient Resource Management	Accurate and well-documented monetary transactions	Upstanding member of local community	
				Transfer from VA ER to Inpatient																		
Transfer from Urgent Care to Inpatient																						
Transfer from Outside ER to Inpatient																						
Inpatient Treatment																						
Transfer from Inpatient to Residential																						
Discharge from Inpatient																						
Residential Treatment																						
Transfer from Residential to Inpatient																						
Discharge from Residential																						
Transfer to Outside Facility																						
Outpatient Treatment																						
Referral to Inpatient																						
Referral to Residential																						
Walk-in to Outpatient																						
Purchasing (Supplies & Services)																						
Patient Data Management																						
Research																						
Facilities and Maintenance																						
Quality Assurance																						
Payroll																						
Human Resources																						

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2	7	10	2	0	2	0	0	4	1	3	2											

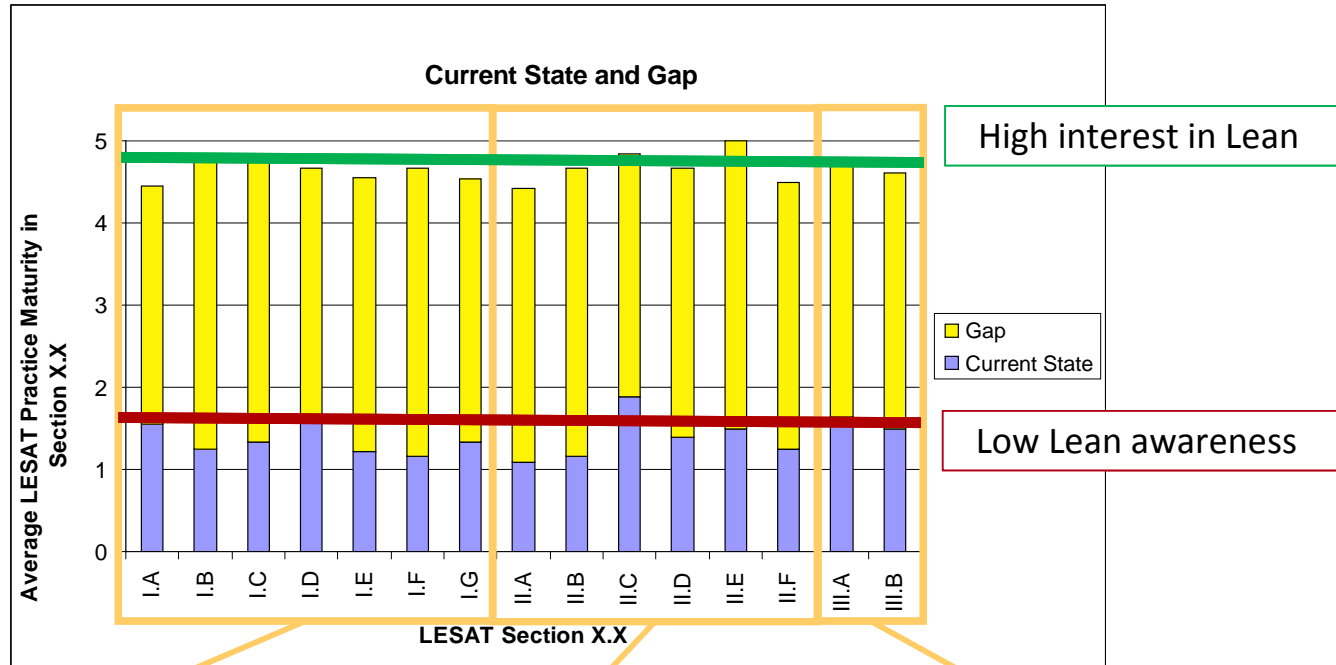
Stakeholder Value Comparison



Methodology

- Inferred Stakeholder Importance from Strategic Objects & Value Delivery from the Key Processes
- Used weighting algorithm to calculate positions
- More research & data needed on weights, and to validate results.

LESAT Gap Analysis



Lean Transformation Leadership

Highest Scores

- Developing Lean structure and behavior
- Adopting Lean paradigm & value stream focus

Lowest Scores

- Creating & implementing Lean initiatives plan
- Enterprise strategic planning

Life Cycle Processes

High Scores

- Developing product & process
- Producing the product

Low Scores

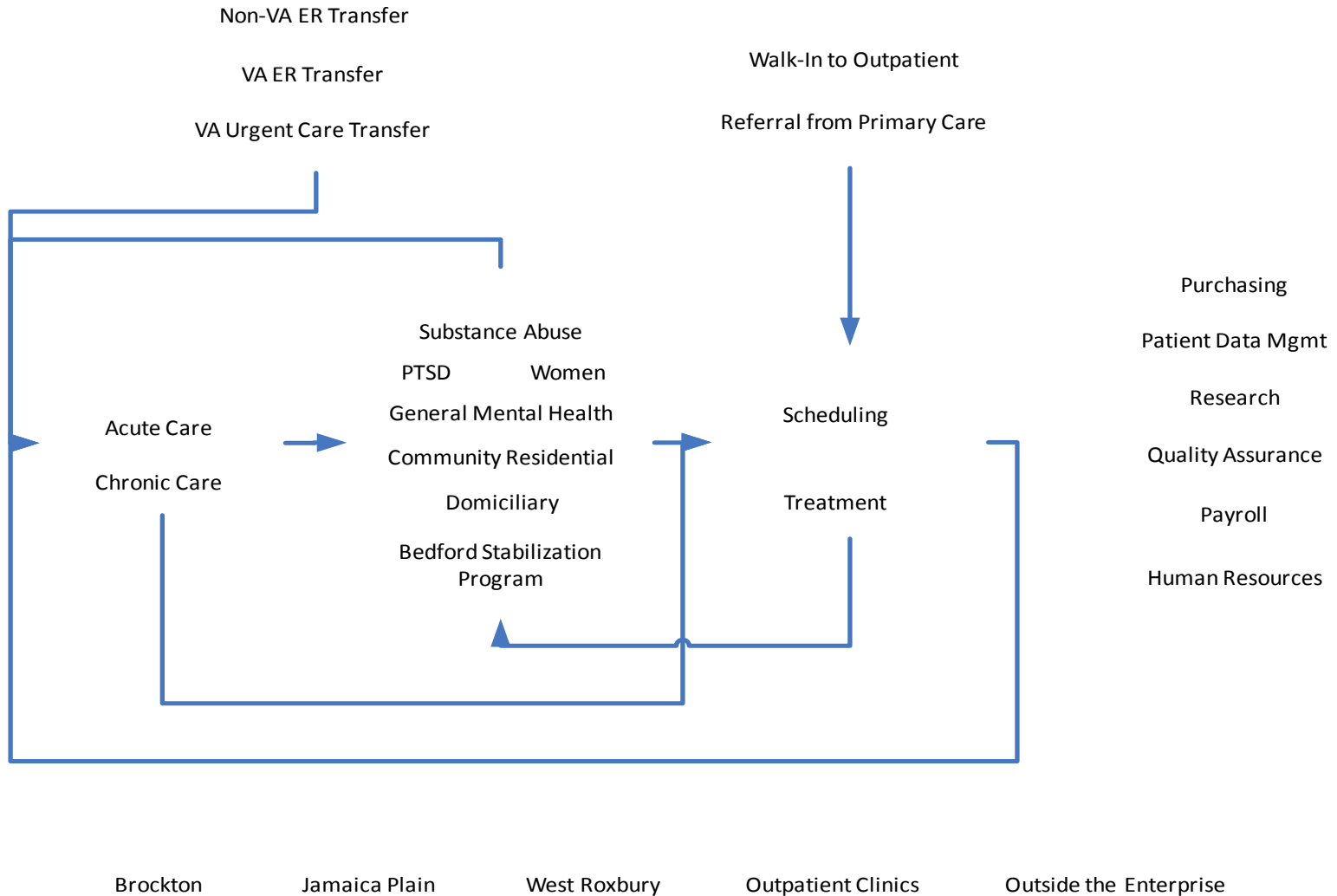
- Business acquisition and program management
- Business acquisition and program management

Enabling Infrastructure

Equal Scores

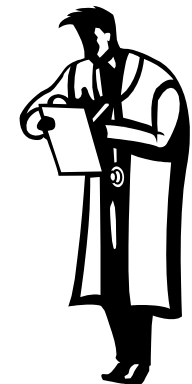
- Lean organizational enablers
- Lean process enablers

Enterprise Processes



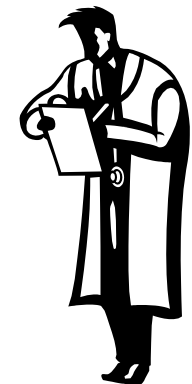
Enterprise Waste

Processes	<ul style="list-style-type: none"> ■ Long wait times in admitting, transferring, and discharging processes ■ Need more knowledge sharing among programs and departments
People	<ul style="list-style-type: none"> ■ Need to spread knowledge of service lines among staff and overcome training siloing ■ Opportunity for improvement with patient teams
Infrastructure	<ul style="list-style-type: none"> ■ Inefficiencies in resources by providing treatments at multiple sites ■ Transportation waste: moving people among sites
Information Flow	<ul style="list-style-type: none"> ■ Little accesses to patient records from the Department of Defense ■ Lack of documentation from transfers and referrals
Supplier	<ul style="list-style-type: none"> ■ Emergency and non-emergency hospitals sending ineligible veterans to Mental Health



<p>Customer</p>	<p>Veterans</p> <ul style="list-style-type: none"> ■ Patient opting not to conform to treatment and developing dependency on system for support and shelter ■ Multiple visits for complete evaluation ■ Commuting home to site and site to site ■ Resource limitations with beds and program capacity <p>Physicians</p> <ul style="list-style-type: none"> ■ Redundant testing from patients who are referred from the military and other institutions ■ Resource limitations with beds and program capacity ■ Commuting home to site and site to site
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<p>Leadership</p>	<ul style="list-style-type: none"> ■ Strategic goal and objectives are not published ■ Strategic goals not fully aligned among parent-child enterprises ■ Inadequate communication channels between VA New England and VA Boston Mental Health Services and between VA BMHS and VA BHS
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Enterprise Architecting

Veteran Affairs Boston Mental Health

Enterprise Architecting
May 13, 2009

Team:
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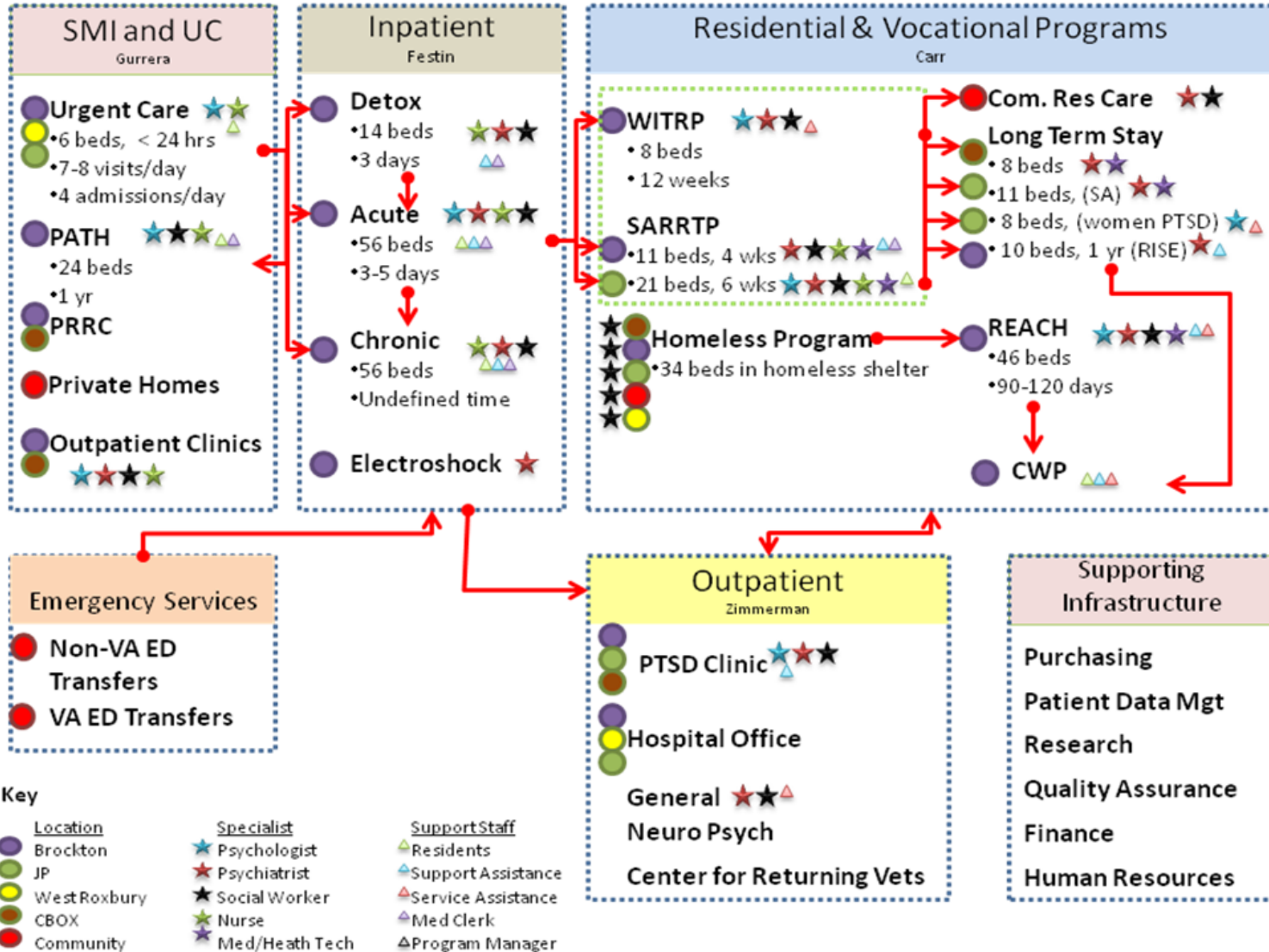
Agenda



- **Current Architecture**
- **Enterprise Vision**
- **Candidate Architectures**
- **Architecture Evaluation**
- **Transformation Plan**

Current Architecture

Current Architecture





LEAN ADVANCEMENT INITIATIVE™

View Interrelations

Needs more integrated understanding of the process flow; Build artifacts of standard processes and documentation across all sites

Policy / External Factors

Main driver of business strategy and services; Government and policy driven; Public Relations plays a factor as well.

Lacks strategy within the organization, only top levels have input to strategy.

Process

Main focus of the enterprise as its mission is servicing the veterans and their needs

Strategy

Organization

Products / Services

Lacks clear organizational direction from leadership; Needs an employee feedback loop and more collaboration between sites, departments, and networks

Knowledge

IT/Infrastructure

Clear knowledge exchange is needed; Meetings and emails are primarily communications; Not enough knowledge sharing between leadership within VISN

IT system that links VA documentation and procedures across the enterprise (IT ahead in national health care); Infrastructure has various locations

Ability to adapt to changes & process requirements

Ability for a system to readily expand capacity

Meeting VA national & accreditation board requirements

Standard Compliance

Agility

Scalability

Ability to reduce defect & optimize service

Survivability

Ability to measure performance

Demonstrability

Veteran's ability to access & afford services

Accessibility

The Ilities

Ability to treat a patient based on their particular needs

Customizability

Ability to quickly respond to changes or needs in the system

Responsiveness

Ability to treat a patient based on their particular needs

Serviceability

Safety

Ability to reduce defect & optimize service

Quality

Enterprise Future Vision



Strategic View

- Strategy driven by all levels of the organization, through continuous improvement methods
- Create and maintain strategy document that delineates the actionable strategic goals at all levels of the organization
- Increase strategy visibility and awareness through meetings between professionals



Process View

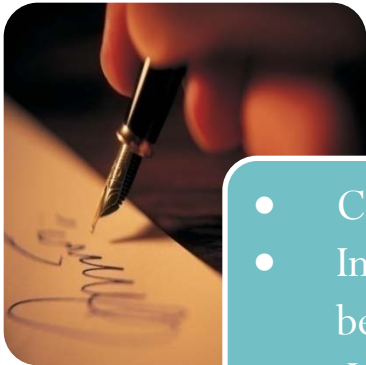
- Integrate understanding of the process flow through standard processes and documentation across all sites
- Obtain process measurements that directly align to strategic goals
- Transparency throughout the organization of processes and performance
- Continuous process improvement; Yearly goal to meet, incentivizing improvements, educate and give resources for improvement.

Future Vision

Organizational View



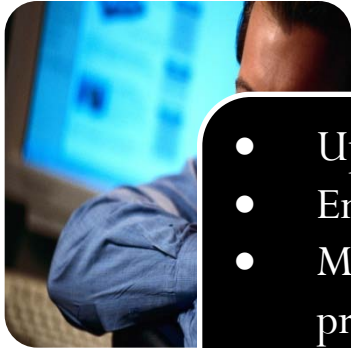
- Clear organizational direction from leadership on all levels to proactively push agendas
- Increase collaboration between sites, departments, and networks
- Incentivize employees to take ownership of patient services
- Create an employee feedback loop to communicate needs, best practices, and change
- Lean Six Sigma department throughout VA to drive quality and continuous improvement initiatives



Knowledge View

- Clear knowledge exchange between employees, programs, and sites
- Incorporate knowledge exchange programs with other VA campuses to share best practices
- Increase leadership communication amongst VISN, departments, and networks

Future Vision



IT View

- Upgrades given to all sites within the same time frame
- Ensuring there is a sufficient IT budget each year
- Making sure practitioners are able to make changes to the system to facility processes/procedures
- Ability to communicate efficiently with all campuses
- Proficiency and acceptance from all staff
- Expansion of utility to customers to reduce costs from excess or forgotten appointments



Policy View

- Making sure practitioners are able to make changes to the system to facility Being active in driving policy and program initiatives
- Increase agility in responding to policy changes
- Ability to buffer themselves from extreme political changes
- Understand the needs and expectations of veterans, families, and community

Future Vision



Service/Product View

- Improve service efficiency
- Expand services to fit all incoming customer needs
- Measure services more carefully
- Re-design services for continuum of care approach
- Insulate services from outside factors
- Make service offerings clearer to potential patients
- Integrate services and improve ability to customize based on patient

Candidate Architectures

Candidate Architectures

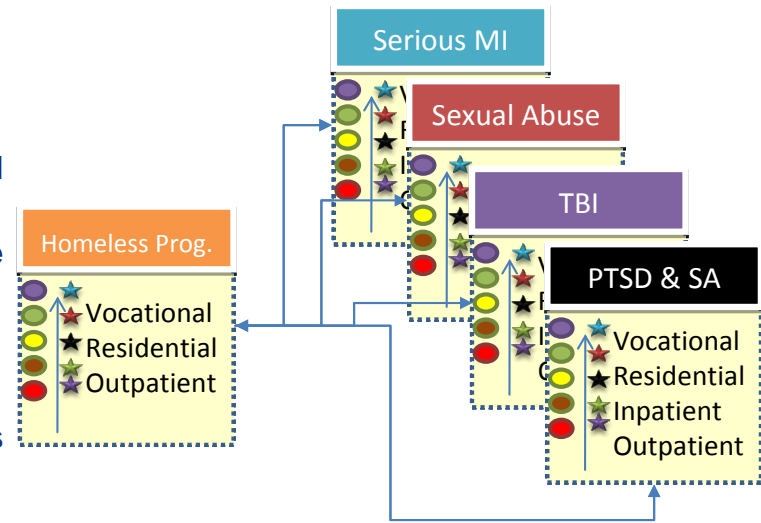
Illness Based

Pros:

- Continuous care in a given category can be easily tracked and traced
- Flexible if new mental disorders, programs, or illnesses arise in the future

Cons:

- Many patients fall into more than one category
- Wasted resources on programs that have low volume or excess capacity



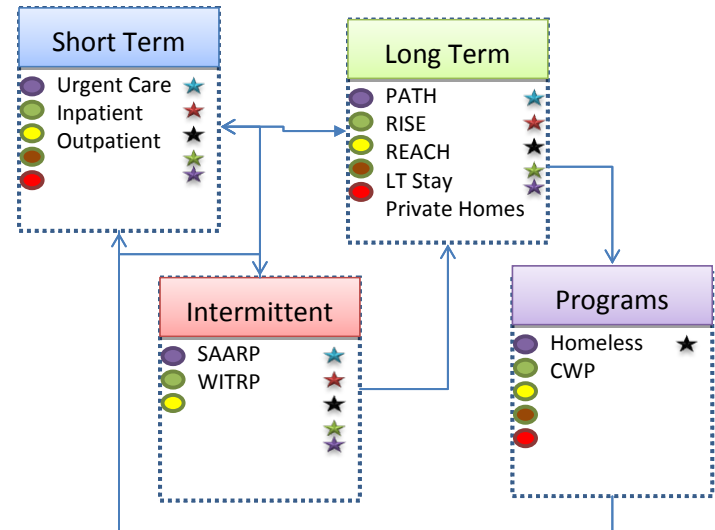
Patient Length of Stay

Pros:

- Resources can be maximized through each department

Cons:

- Unbalanced system with excess capacity in some units and overflow in others
- Patients currently transition between some or all of the programs
- Metrics will be focused on local maximization rather than focusing on optimal flow across the organization



Candidate Architectures

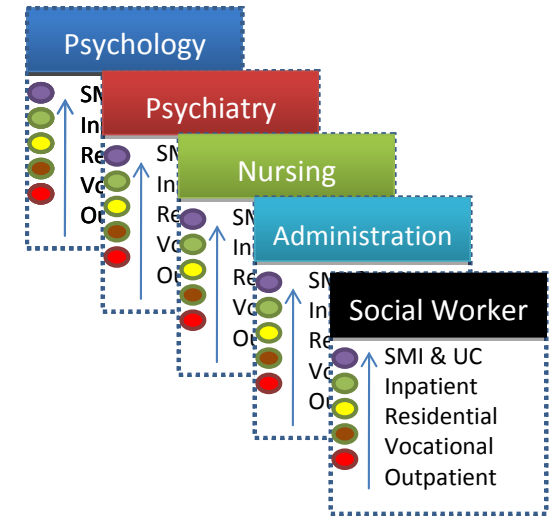
Profession Expertise

Pros:

- Allows medical staff to create optimal treatment plans by working within their specialty
- There is a direct connection with leadership team and employees

Cons:

- Difficult to collaborate with other specialties
- Supervisors will not be capable of treating specific illnesses



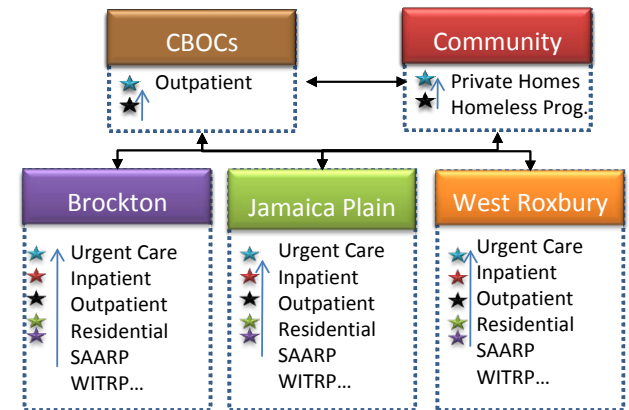
Area Based

Pros:

- Leadership oversight is more direct and site specific
- Initiating change in each location is more manageable

Cons:

- Scalability of any one location is limited to capacity constraints
- Quality of treatment programs may vary across locations



Candidate Architectures

		Design Parameters			
		VA BMH	Patient Identification & Community Relations	Treatment Programs	Patient Re-Integration
Functional Requirements	Maximize Veteran Quality of Life	X			
	Identify Patients with Mental Illness		X		
	Treat Cause and Effect of Mental Illness			X	
	Integrate Patient Back into Community			X	X

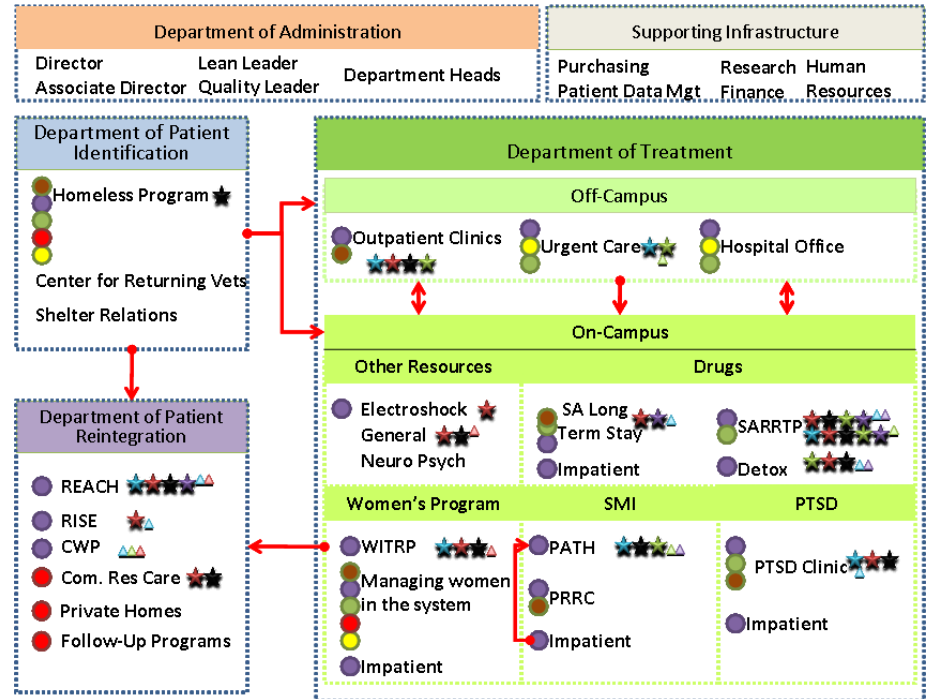
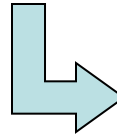
Axiomatic

Pros:

- Director responsibilities are clear and aligned
- Connection between leadership and treatment professionals are more transparent

Cons:

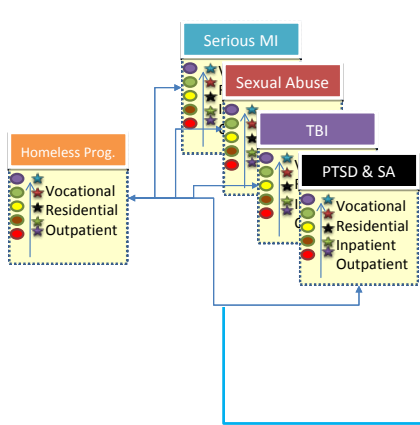
- Departmental imbalance due to program sizes and patient needs
- Requires significant re-organization of the enterprise



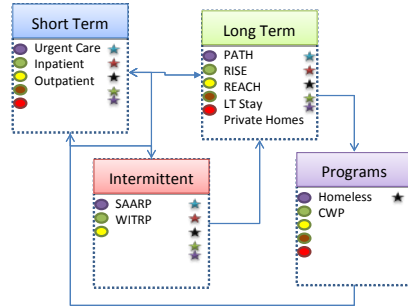
Architecture Evaluation

Architectures at a Glance

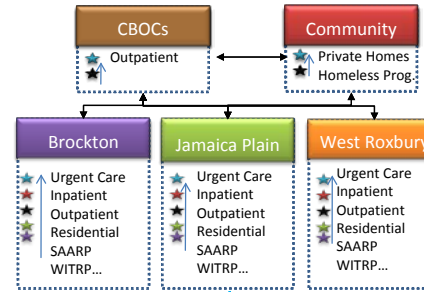
Illness Based



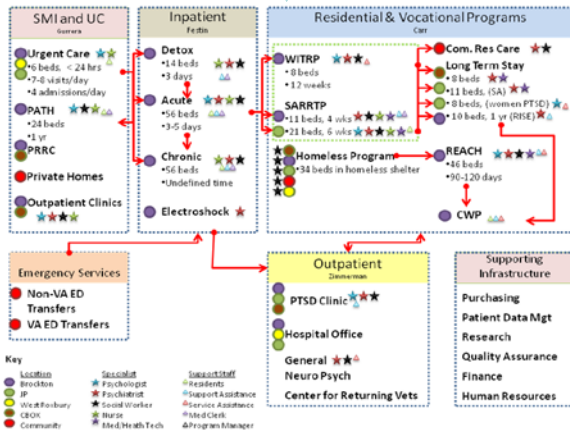
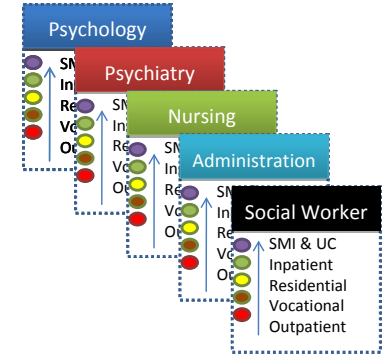
LOS



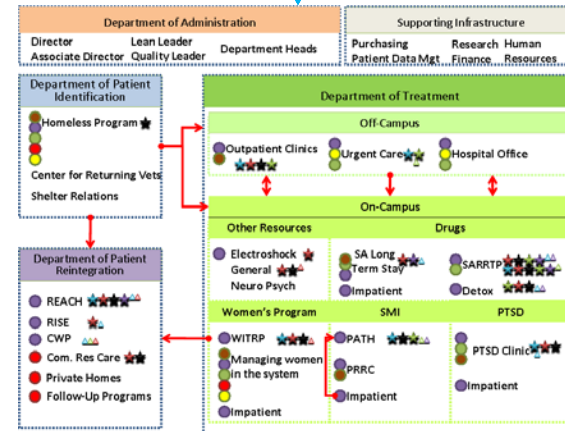
Area Based



Professional



Current State



Axiomatic

Ranking Metrics

	Definition	Ranking	Weight
Agility	Ability to adapt to changes in service and process requirements	2	9.00%
Scalability	Ability for system to readily expand capacity	1	3.25%
Quality	Ability to reduce defect and optimize services	3	15.00%
Accessibility	Veteran's ability to access and afford services	2	9.00%
Standards Compliance	Meeting VA National and accreditation board requirements	1	3.25%
Customizability	Ability to treat a patient based on their particular needs	3	15.00%
Demonstrability	Ability to measure performance	3	15.00%
Safety	Ensure wellbeing of patient & employees	1	3.25%
Responsiveness	Ability to quickly respond to changes or needs in the system	3	15.00%
Serviceability	Ability to provide resources required for employee performance	2	9.00%
Survivability	Ensure sustainability throughout political transitions	1	3.25%

Ranking	Definition	Weight
1	Low	3.25%
2	Medium	9%
3	High	15%

Concept Scoring Matrix

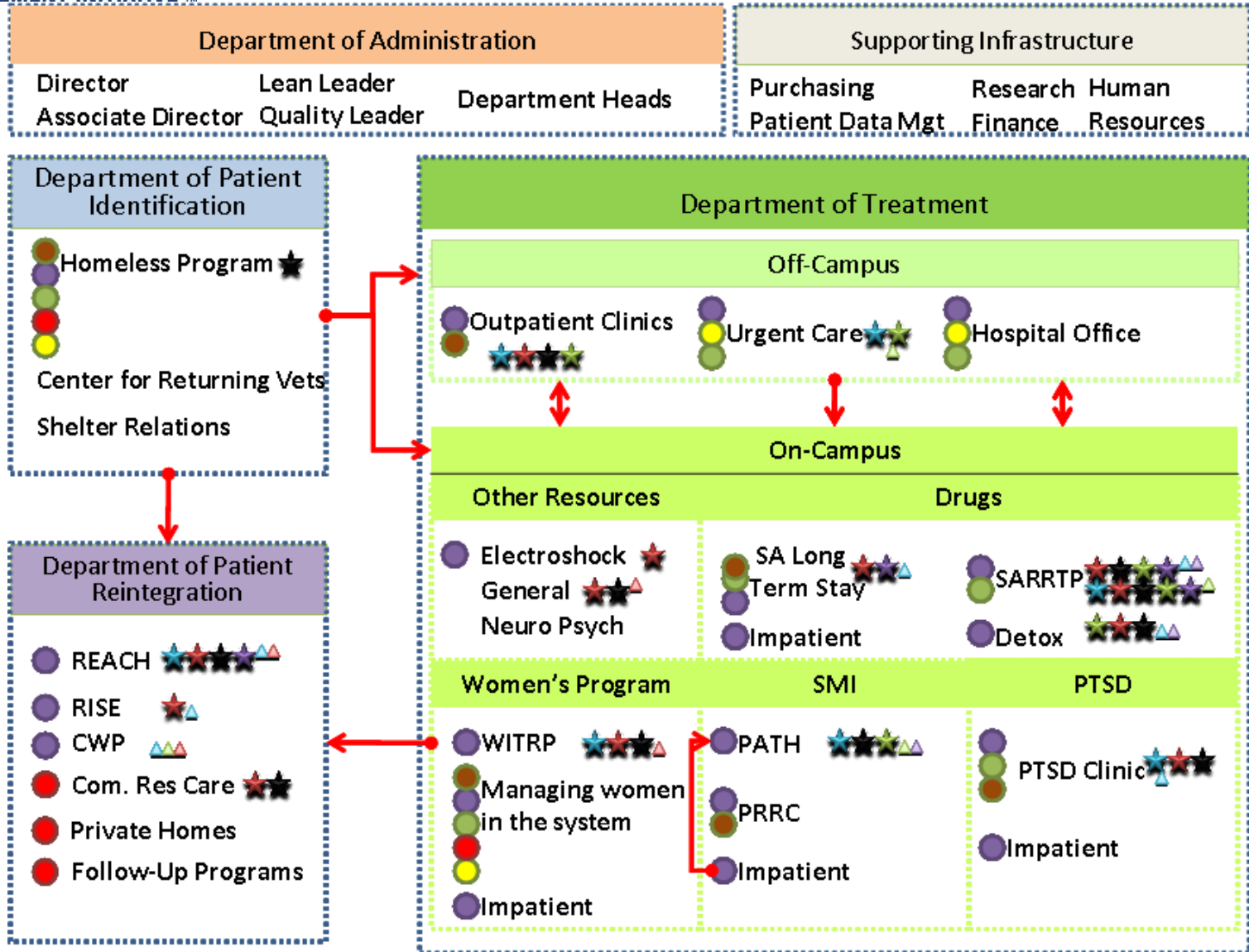
Architecture Evaluation

		Enterprise Architecture Concepts										
		Current State		Wellness		Illness		Area		Axiom		
Selection Criteria	Weights	Rating	Weighted Score	Rating	Weighted Score	Rating	Weighted Score	Rating	Weighted Score	Rating	Weighted Score	
Agility	9.00%	3	0.27	3	0.27	1	0.09	3	0.27	5	0.45	
Scalability	3.25%	3	0.10	2	0.07	2	0.07	1	0.03	3	0.10	
Quality	15.00%	3	0.45	3	0.45	2	0.30	4	0.60	2	0.30	
Accessibility	9.00%	3	0.27	3	0.27	3	0.27	3	0.27	4	0.36	
Standards Compliance	3.25%	3	0.10	3	0.10	3	0.10	3	0.10	3	0.10	
Customizability	15.00%	3	0.45	2	0.30	2	0.30	2	0.30	1	0.15	
Demonstrability	15.00%	3	0.45	1	0.15	3	0.45	3	0.45	2	0.30	
Safety	3.25%	3	0.10	2	0.07	3	0.10	4	0.13	3	0.10	
Responsiveness	15.00%	3	0.45	1	0.15	2	0.30	2	0.30	3	0.45	
Serviceability	9.00%	3	0.27	4	0.36	3	0.27	3	0.27	1	0.09	
Survivability	3.25%	3	0.10	5	0.16	2	0.07	1	0.03	4	0.13	
Total Score		3.00		2.16		2.40		2.61		2.28		3.96
Rank		2		6		4		3		5		1
Continue		No		No		No		No		No		Develop

Used Current State as benchmark

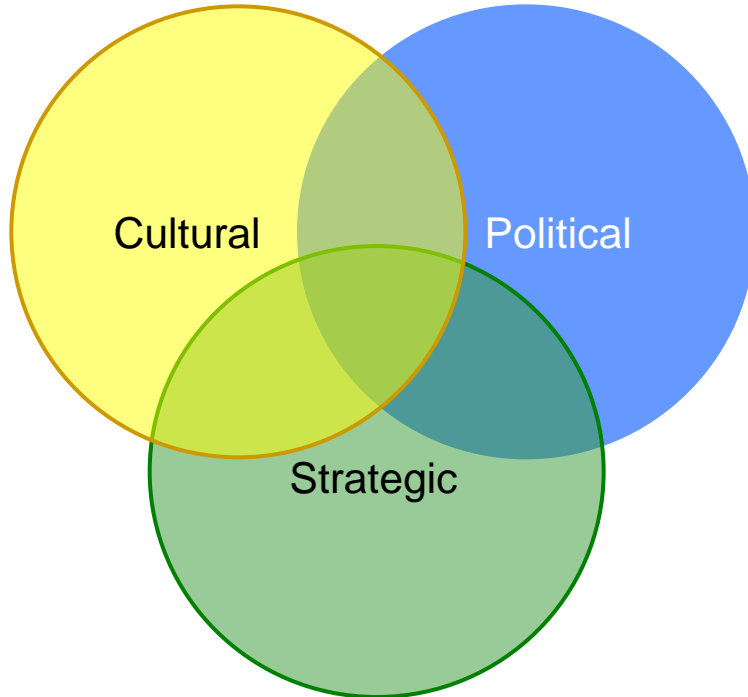
1-5 Success Ranking for Architectures
5=high, 1 = low

Proposed Architecture



Transformation Plan

Three Lens Evaluation



Cultural Lens

- Represents implicit aspects of the architecture such as organizational norms, behaviors, actions, and processes

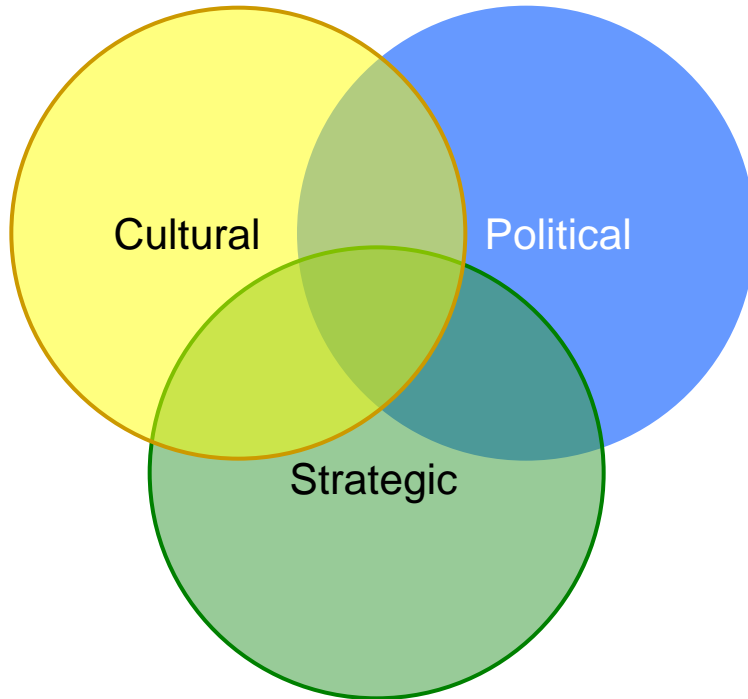
Political Lens

- Symbolizes the power struggle and interactions within a changing architecture

Strategic Lens

- Provides insight into the logical interactions that drive decisions for the enterprise

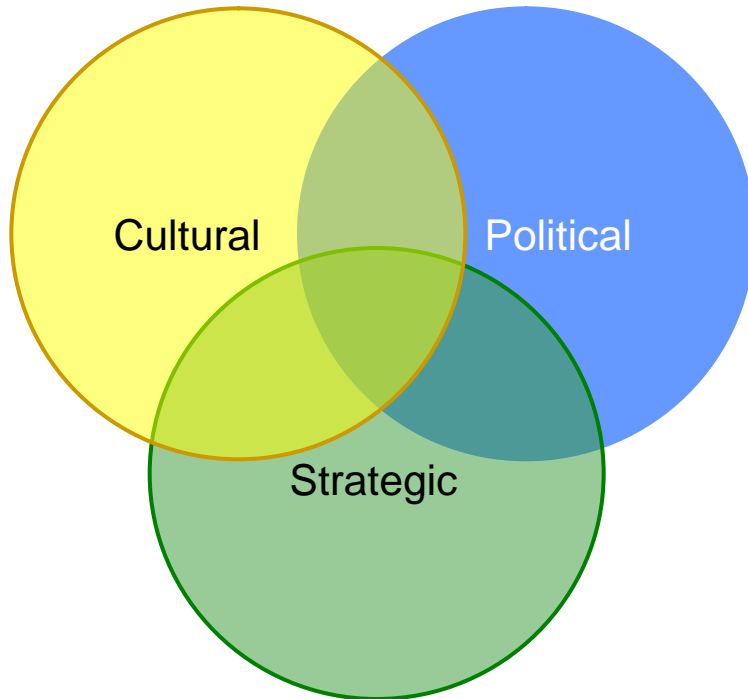
Three Lens Evaluation



Cultural Lens

- **Current State**
 - **Limited** communication and **Knowledge Transfer** between teams, functions, and programs
 - **Employees do not feel Empowered** to influence change
- **Future State**
 - **Interminable Transparency** and effective **Feedback Loop** between teams, functions, and programs and
 - **Employees Empowered** to make meaningful changes within the enterprise

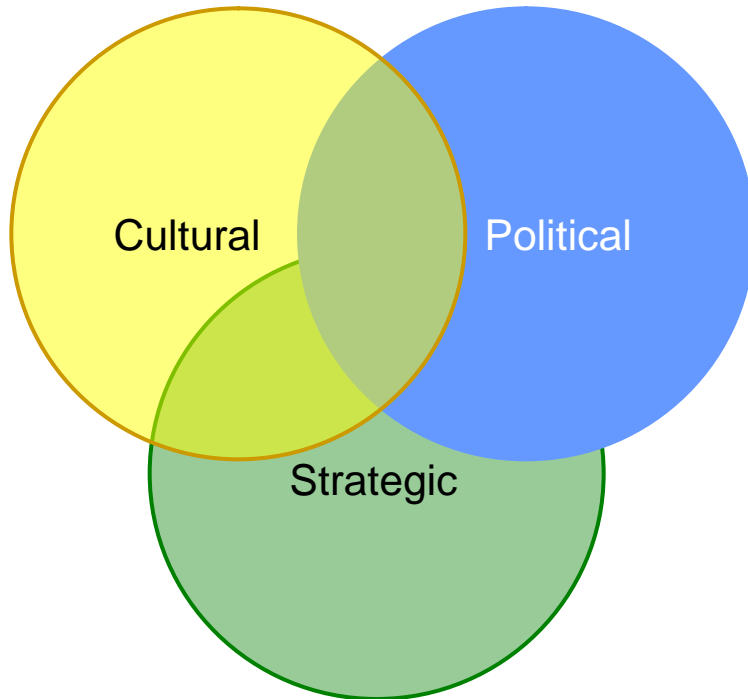
Three Lens Evaluation



Political Lens

- **Current**
 - Federal government mandates enterprise **Program Initiatives**
 - Teams work in **Functional Silos** and are unable to share knowledge for optimal patient care
- **Future**
 - **Drive Policies** and program initiative to influence policy makers
 - Enterprise is **Patient Centric** and knowledge of patient continuum of care is shared

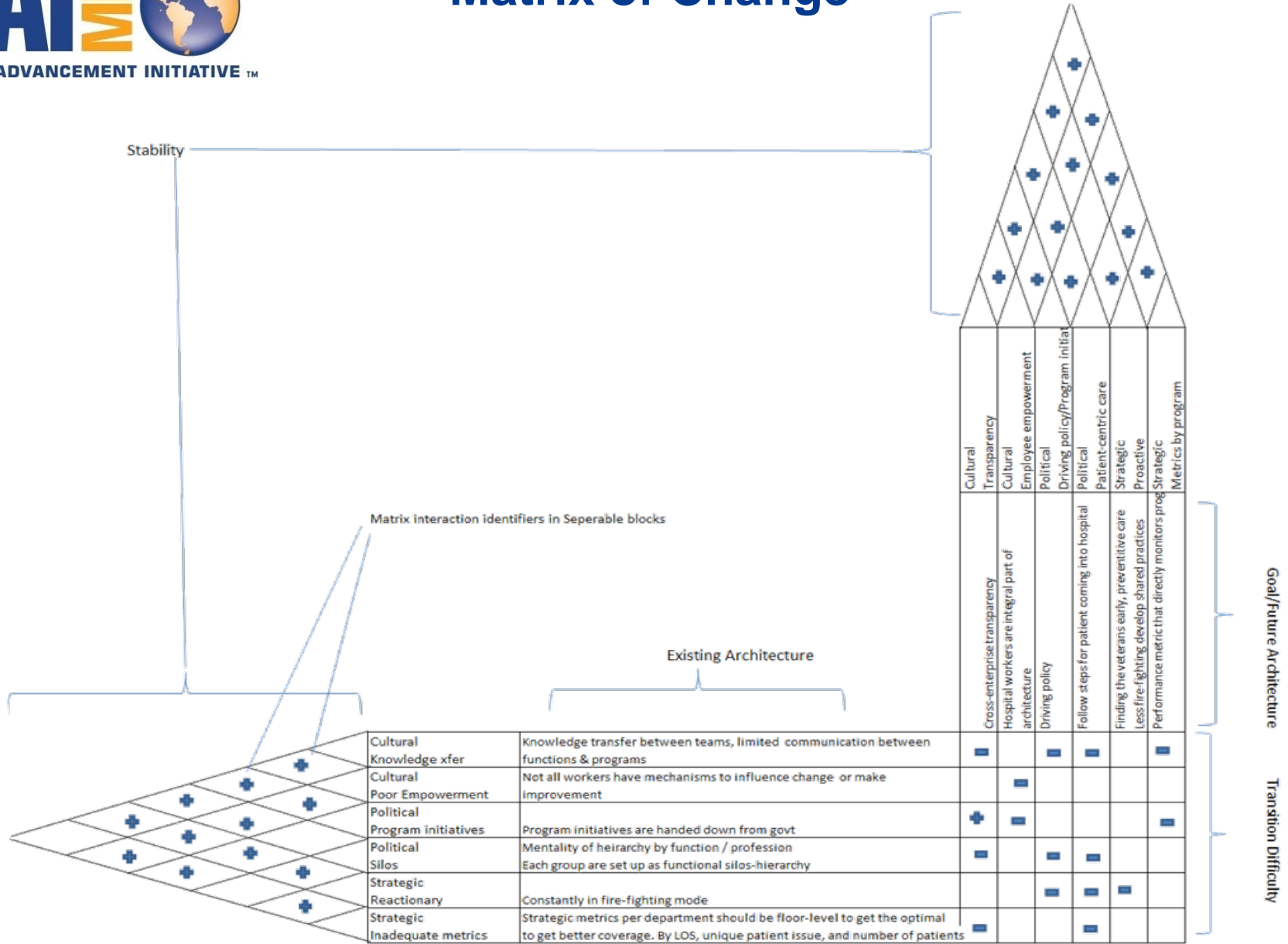
Three Lens Evaluation



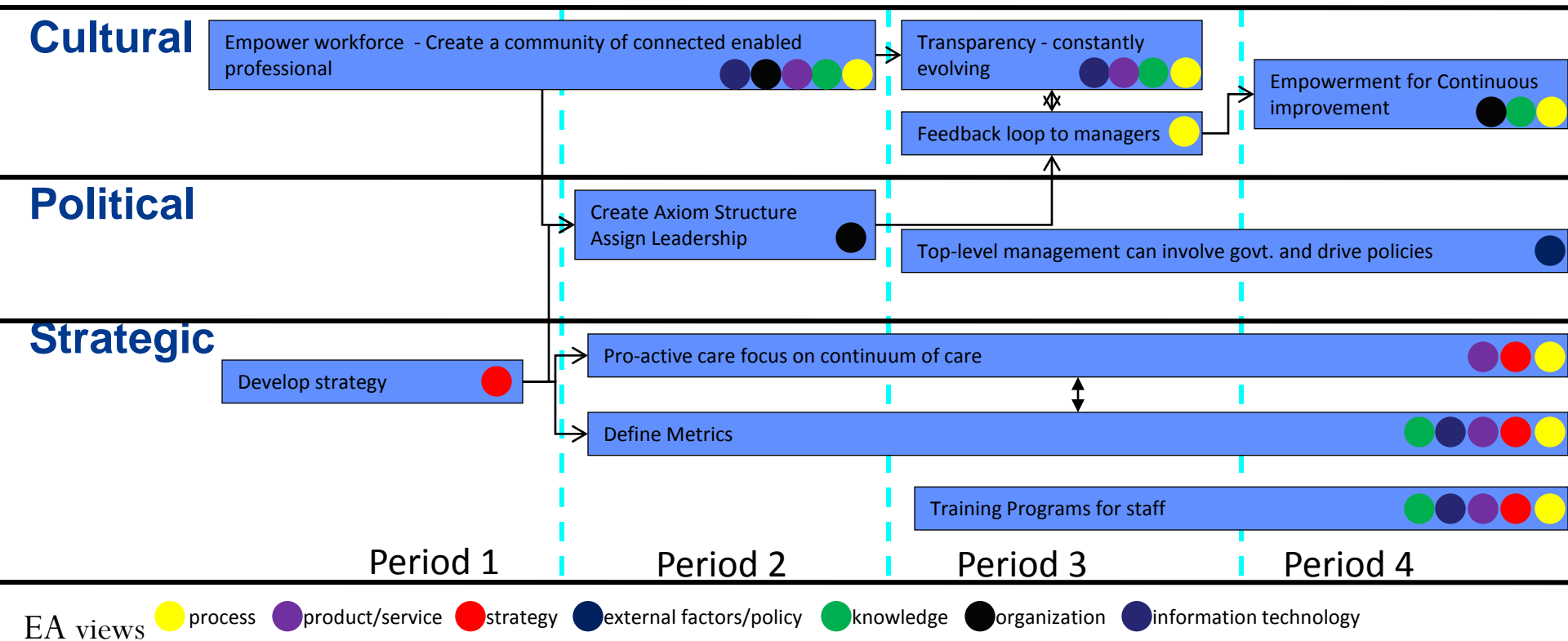
Strategic Lens

- **Current**
 - Employees are constantly 'fire fighting' and **Reactionary** to issues
 - Current **Metrics** that are in place are **Insufficient** to provide optimal patient care
- **Future**
 - System can mitigate unplanned events through **Proactive Care** programs
 - **Performance Metrics** directly monitor localized initiatives for optimal patient care coverage

Matrix of Change



Transformation Plan



Closing Remarks