# A Fool With A Tool Is Still A Fool…
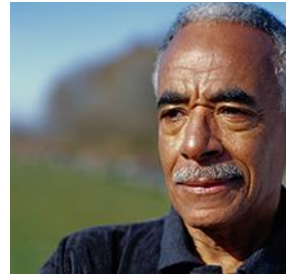
Dr. Paul Tibbits

Deputy CIO for Architecture, Strategy, and Design

Office of Information and Technology

**U.S. Department of Veterans Affairs**

# Objective

- Generate discussion about <u>model-driven techniques</u> in health to improve systems development and software engineering approaches within IT industry

# BLUF

- Thought Leadership & Innovation

- Use Cases

- Relevant Solutions

- Stewardship

3/18/2015
DRAFT Model- driven SW Development: not VA policy

# Product Discovery Cascade
## *Something Like…*

1. What problem needs to be fixed

2. Goals & objectives

3. Use cases

4. Key performance indicators

5. People "~~User~~" experience; (ecosystem?)

6. Features & functions

7. Solution (non-functional) performance

8. Solution architecture

9. Solution support infrastructure

# The Old New Way…
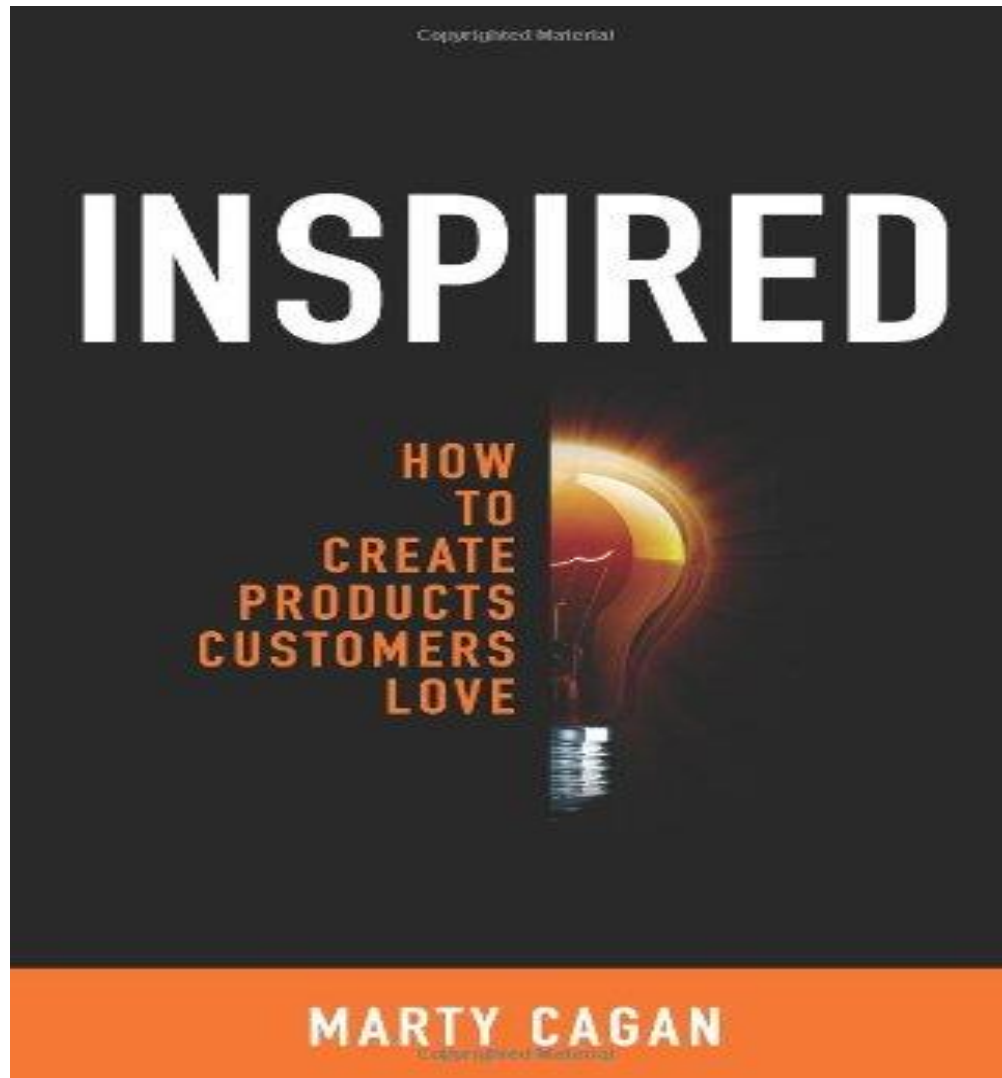
# Product Attributes

- Valuable

- Useable

- Feasible

*- Inspired* Marty Cagan

3/18/2015

DRAFT Model- driven SW Development: not VA policy
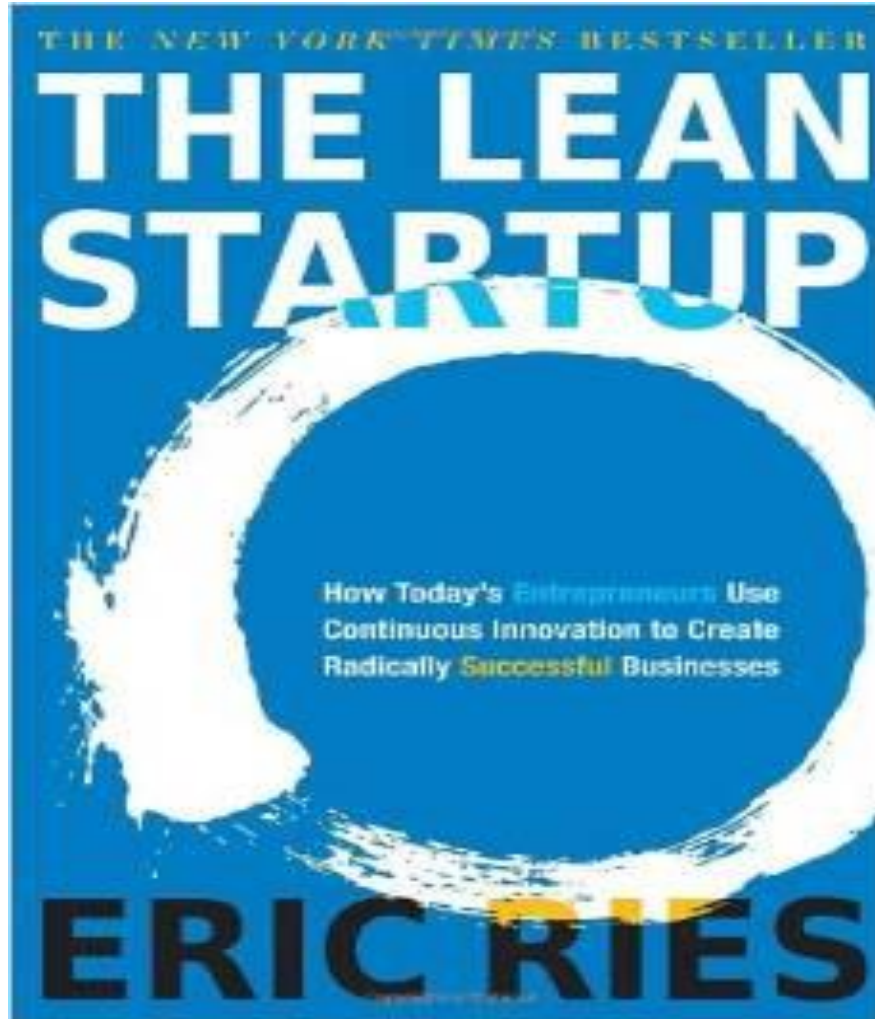
# Considerations And Constraints

- Thought leadership?

- Manage complexity?

- Incremental development and use of meaningful units?

- Accommodate rapid growth in:
  - Health care ("business") concepts?
  - Knowledge management?
  - Patient/citizen empowerment?
  - New technology?

- Design thinking (design from the outside in…)
  - ***The frustrated person…***

# The Same Story…
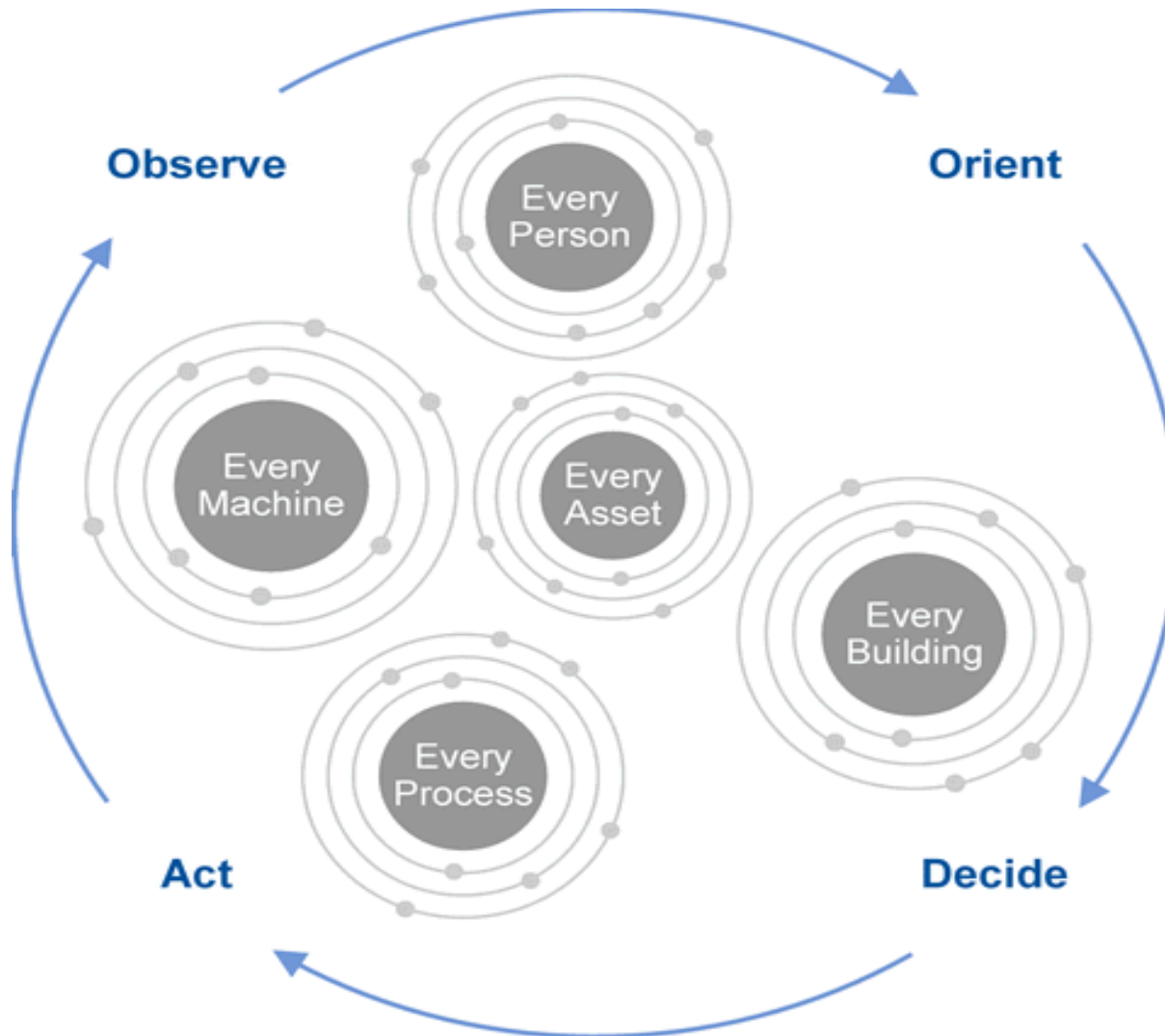
# *Eric's Secrets…*

- Extremely fast cycle time

- Focus on what the customers want **(without asking them)**

- Scientific approach to making decisions

# *Eric Says…*

1. Entrepreneurs are everywhere

2. Entrepreneurship is management

3. Validate learning

4. Build-measure-learn

5. Use innovation accounting

# OODA Loop

DRAFT Model- driven SW Development: not VA policy

# *What Marty and Eric  Miss…*

•	Transform SW development into products that are aligned with customer <u>business improvement objectives</u>

•	IT industry develops & deploys systems based on hand crafted code; <u>most do not take advantage of modern model-driven SW development processes & tools</u>

### *Why not?*

•	Upper & lower CASE tools were stove-piped environments; business knowledge was not captured in format that was durable & transportable to other development environments

•	BPMN addresses this standard - <u>business knowledge</u> becomes durable, not underlying code

*Gartner*

# Essential Attributes to VA Technology Vision

| | |
|---|---|
| 1 | **Device Freedom** - flexibility to utilize any approved device that may or may not be hardwired into VA's network that can be used as a portal for information for the end user or used by staff to perform their duties. |
| 2 | **Location Freedom** - unencumbered by their physical location in accessing information. |
| 3 | **Temporal Freedom** - access information at any time. |
| 4 | **User Interface (UI) Freedom** - access information unencumbered by device-dependent or proprietary user interfaces and standards. |
| 5 | **Secure Authentication** - Devices and people are authenticated at appropriate points using separate services that are not mutually dependent. |
| 6 | **Data Security** – Information is protected as it traverses the network and is kept in a data store that serves as the "single source of truth." |
| 7 | **Browser Independent Applications** – Enterprise applications are built as dynamic websites that adapt to how browsers need to translate and display information. |
| 8 | **Reusable Shared Services** – Enterprise applications and external partner systems utilize common services to exchange, process and present information. |
| 9 | **Best of Breed Applications** – VA adopts best-of-breed Commercial Off the Shelf (COTS) and Government Off the Shelf (GOTS) solutions vetted through a rigorous "buy or build" governance process. |
| 10 | **Persistent Data** – Shared Enterprise Data approaches combined with Enterprise CRUD (Create, Read, Update, Delete) services provide effective, efficient, and secure exchange and retention of information. |
| 11 | **Utility Computing** – Leverages technologies that allow acquisition & provisioning of capabilities & services enabling adoption of utility/commodity cost model. |
| 12 | **On Demand Capacity** – VA leverages technologies that provide elasticity, scalability, and speed in the acquisition and provisioning of capabilities and services. |

**"…Red Tape…"**

**ASD Mission: Cut Red Tape**

Veteran-Centric:
We Need to Focus on Systems Thinking and
End-To-End Process Re-Engineering



'THE SECRET' EXPOSED: WHAT YOU WON'T SEE ON 'OPRAH'

**Newsweek**

March 5, 2007

Shattered in body and mind, too many veterans are facing poor care and red tape. Why we're

**Failing Our Wounded**

A SPECIAL INVESTIGATION

Specialist Marissa Strock, 21

**"…Red Tape…"**

We Need to Focus on Systems Thinking and End-To-End Process Re-Engineering

Improve Service

Reduce Spend

Increase **Value**: More Service to Veterans for each $1 Spend



'THE SECRET' EXPOSED: WHAT YOU WON'T SEE ON 'OPRAH'

**Newsweek**

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A SPECIAL INVESTIGATION

$4.95

Specialist Marissa Strock, 21

PHOTOGRAPH BY ETHAN HILL

# "Line of Sight": Business Process Improvement with IT Investments



*Moving Toward Capability Based Budgeting*

VA Strategic Plan

KPIs

Segments

VA/VHA Strat. Plan.

**STRATEGY**

Health Care

**BUSINESS**

Medical Care · Medical Research · Medical Education

**BUSINESS FUNCTIONS**

Scheduling Information · Drug Interaction Information

**INFORMATION AND DATA**

Security · Discovery · Transformation/Mediation · Messaging

**SERVICES**

CPRS · Scheduling · Pharmacy · Radiology · Imaging

**APPLICATIONS/SYSTEMS**

Data Center · Firewall · Switches · Storage

App Servers · Email Servers · Web Servers · Audio · Video · Data
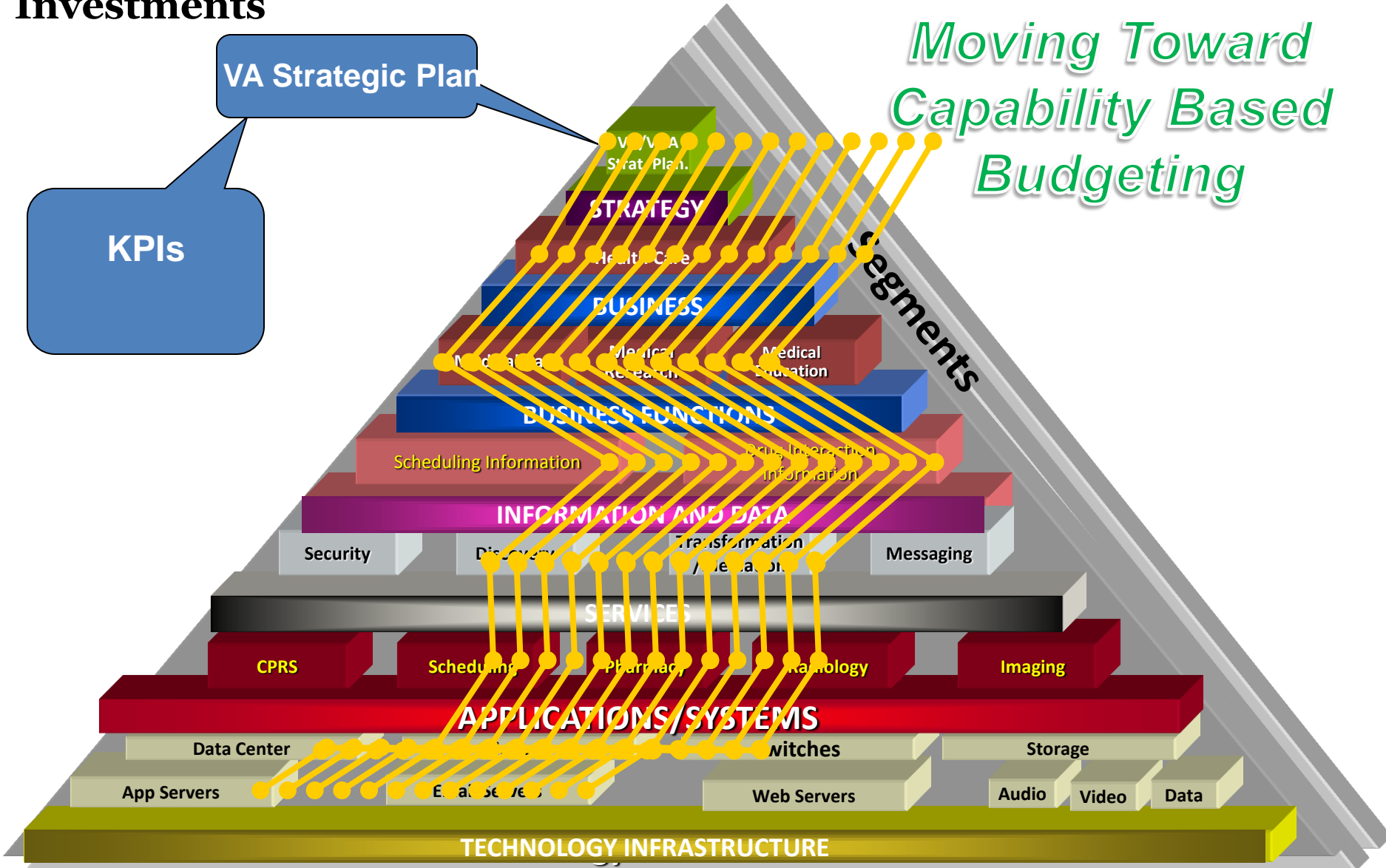
**TECHNOLOGY INFRASTRUCTURE**

# "Line of Sight": Business Process Improvement with IT Investments



**VA Strategic Plan**

**KPIs**

*Moving Toward Capability Based Budgeting*

VA/VHA Strat. Plan.

**STRATEGY**

Health Care

**BUSINESS**

Medical Care    Medical Research    Medical Education

**BUSINESS FUNCTIONS**

Scheduling Information    Drug Interaction Information

**INFORMATION AND DATA**

Security    Discovery    Transformation/Mediation    Messaging

**SERVICES**

CPRS    Scheduling    Pharmacy    Radiology    Imaging

**APPLICATIONS/SYSTEMS**

Data Center    Switches    Storage

App Servers    Email Servers    Web Servers    Audio   Video   Data

**TECHNOLOGY INFRASTRUCTURE**

Segments

# "Line of Sight": Business Process Improvement with IT Investments



**VA Strategic Plan**

**KPIs**

*Efficiency through Shared Services at all levels*

Common Infrastructure Components

Segments

VA/VHA Strat. Plan.

**STRATEGY**

Health Care

**BUSINESS**

Medical Care — Medical Research — Medical Education

**BUSINESS FUNCTIONS**

Scheduling Information — Drug Interaction Information

**INFORMATION AND DATA**

Security — Discovery — Transformation/Mediation — Messaging

**SERVICES**

CPRS — Scheduling — Pharmacy — Radiology — Imaging

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Data Center — Switches — Storage

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**TECHNOLOGY INFRASTRUCTURE**

# "Line of Sight": Business Process Improvement with IT Investments



VA Strategic Plan

KPIs

Efficiency through *Shared Services* at all levels

Common SW Services

VA/VHA Strat Plan.

STRATEGY

Health Care

BUSINESS

Medical Care · Medical Research · Medical Education

BUSINESS FUNCTIONS

Scheduling Information · Drug Interaction Information

INFORMATION AND DATA

Security · Discovery · Transformation/Mediation · Messaging

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TECHNOLOGY INFRASTRUCTURE

Segments

DRAFT Model- driven SW Development: not VA policy

# "Line of Sight": Business Process Improvement with IT Investments



VA Strategic Plan

KPIs

Efficiency through *Shared Services* at all levels

Model-based common data – Corporate Data Governance at VA

VA/VHA Strat. Plan.

STRATEGY

Health Care

BUSINESS

Medical Care | Medical Research | Medical Education

BUSINESS FUNCTIONS

Scheduling Information | Drug Interaction Information

INFORMATION AND DATA

Security | Discovery | Transformation /Mediation | Messaging

SERVICES

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TECHNOLOGY INFRASTRUCTURE

Segments

DRAFT Model- driven SW Development: not VA policy

# "Line of Sight": Business Process Improvement with IT Investments



VA Strategic Plan

KPIs

Efficiency through *Shared Services* at all levels

Standardize business processes to serve Veterans

VA/VHA Strat. Plan.

STRATEGY

Health Care

BUSINESS

Medical Care · Medical Research · Medical Education

BUSINESS FUNCTIONS

Scheduling Information · Drug Interaction Information

INFORMATION AND DATA

Security · Discovery · Transformation/Mediation · Messaging

SERVICES

CPRS · Scheduling · Pharmacy · Radiology · Imaging

APPLICATIONS/SYSTEMS

Data Center · Switches · Storage

App Servers · Email Servers · Web Servers · Audio · Video · Data

TECHNOLOGY INFRASTRUCTURE

Segments

# Tying IT Spend to Mission Performance

### VA Strategic Plan
VA Goals, Objectives, APGs

**VHA Operational Plans**

**Key Performance Indicators (KPIs)**

Veteran Health Outcomes

What needs to be done ...

**Service Level Agreements (SLAs) & Benchmarks**

OI&T Commitments to effectiveness and efficiency

**VBA Operational Plans**

**Key Performance Indicators (KPIs)**

Veteran Benefits Outcomes

What needs to be done ...

**Service Level Agreements (SLAs) & Benchmarks**

OI&T Commitments to effectiveness and efficiency

**NCA Operational Plans**

**Key Performance Indicators (KPIs)**

Veteran Memorials Outcomes

What needs to be done ...

**Service Level Agreements (SLAs) & Benchmarks**

OI&T Commitments to effectiveness and efficiency

**Other VA Operational Plans**

**Key Performance Indicators (KPIs)**

Veteran Corporate Outcomes

What needs to be done ...

**Service Level Agreements (SLAs) & Benchmarks**

OI&T Commitments to effectiveness and efficiency

**How OI&T will fulfill mission support to VA Transformation Programs**

- **Service Delivery**
- **Product Delivery**
- **Information Security**
- **Fiscal Management**
- **Operational Metrics**

**IT Funds aligned to Healthcare Delivery**

+

**IT Funds aligned to Benefits Delivery**

**IT Funds aligned to Memorials Delivery**

+

**IT Funds aligned to Corporate Initiatives**

≈

**Total VA IT Budget**

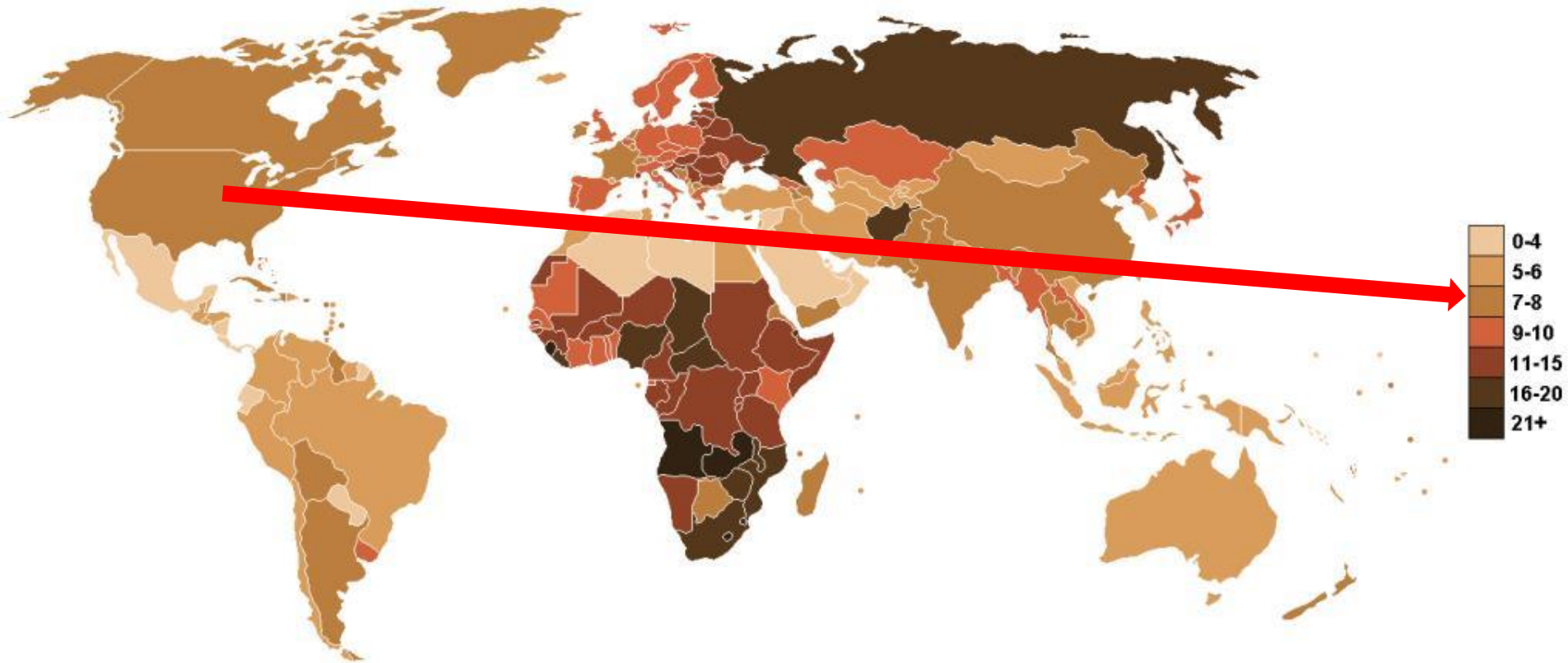# The "Medical-Industrial" Complex…
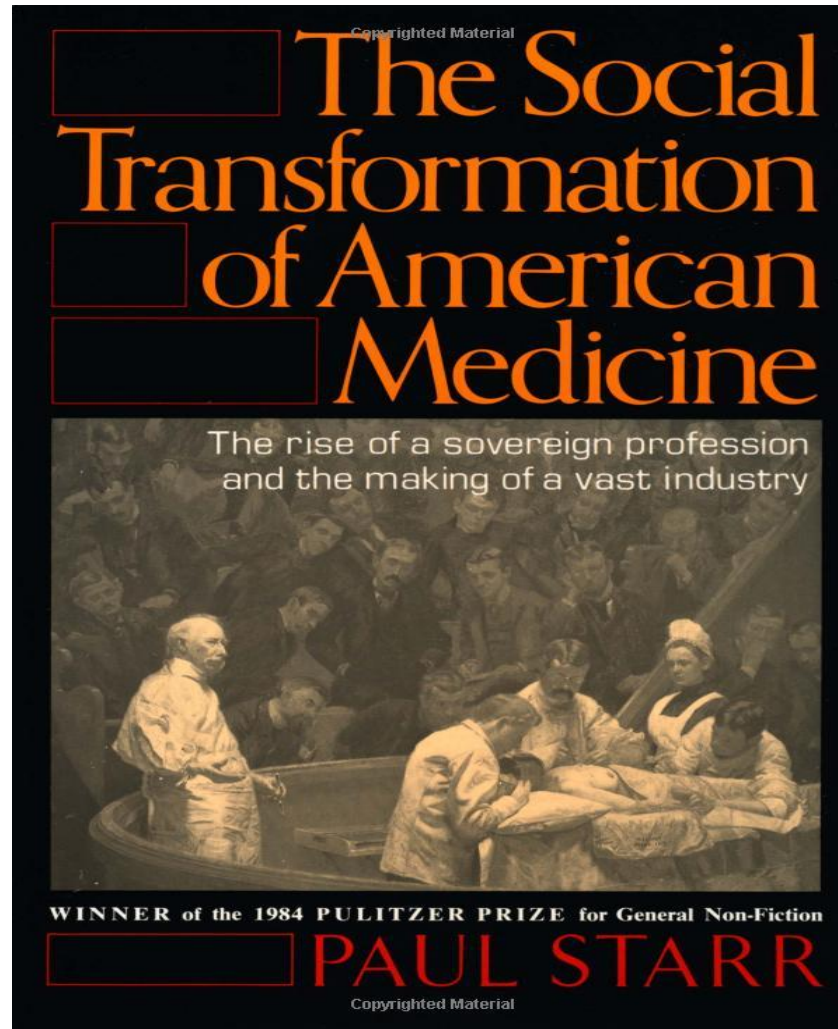
# Healthcare Spending as % GDP
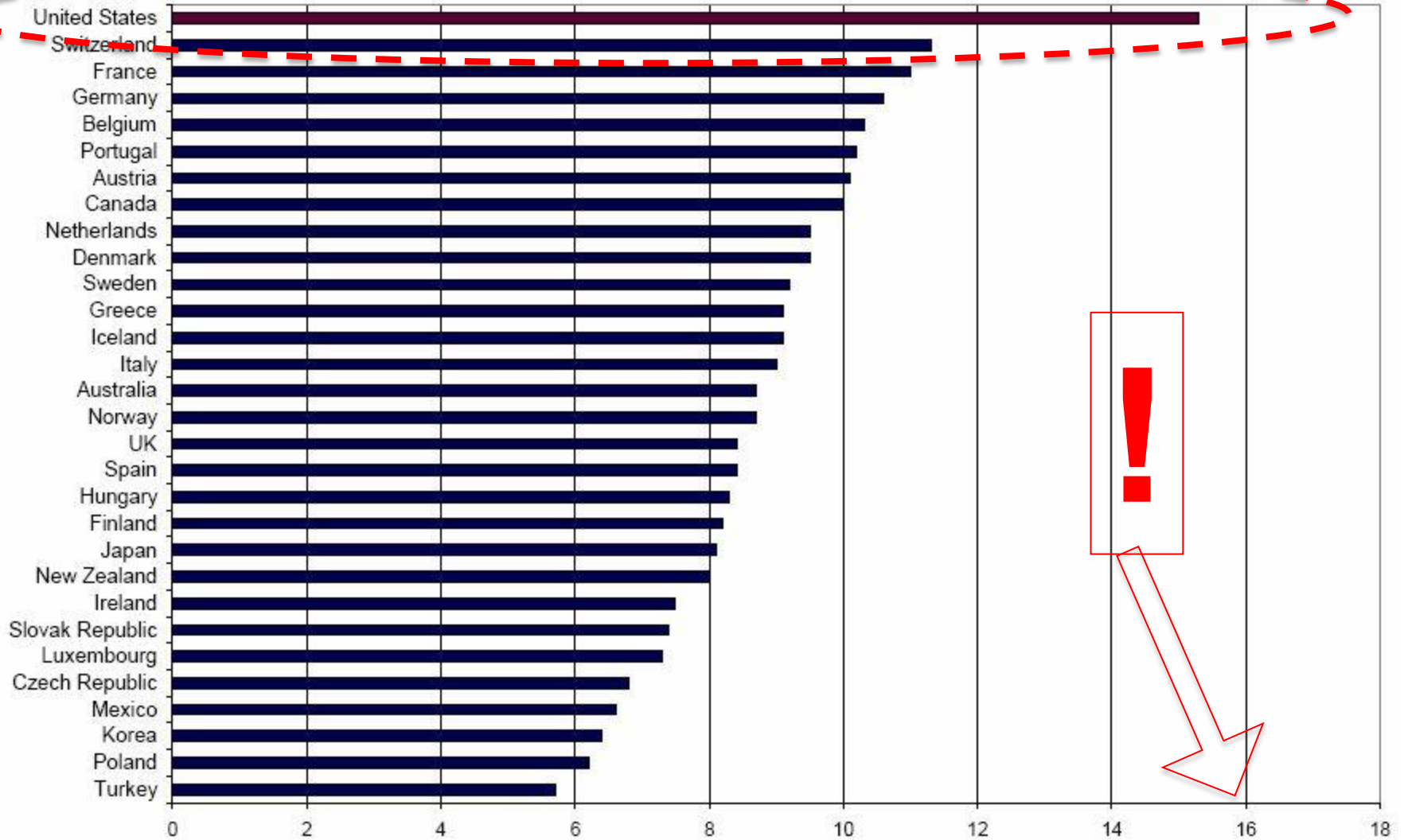


Source: Organization for Economic Cooperation and Development, OECD Health Data, 2008 (Paris: OECD, 2008).
Note: For countries not reporting 2006 data, data from previous years is substituted.

# Death Rate World Map CIA 2009
## *Are We Getting Our Money's Worth…?*



| | |
|---|---|
| 0-4 | |
| 5-6 | |
| 7-8 | |
| 9-10 | |
| 11-15 | |
| 16-20 | |
| 21+ | |

"Death rate world map CIA 2009" by Death_rate_world_map.PNG: Rokederivative work: Nankai (talk) - Death_rate_world_map.PNG. Licensed under CC BY-SA 3.0 via Wikimedia Commons - http://commons.wikimedia.org/wiki/File:Death_rate_world_map_CIA_2009.PNG#mediaviewer/File:Death_rate_world_map_CIA_2009.PNG

# Are We Getting Full Value From The Knowledgebase Of Medicine?

- Much healthcare research is…wasted because its findings are unusable.  Published reports of intervention trials often focus on results & fail to describe interventions adequately. EG, review of 80 studies selected from *Evidence Based Medicine* as both valid & important for clinical practice found that clinicians could replicate intervention in only <u>half</u> of studies.  Interventions may be used incorrectly or not at all if there is inadequate detail in trial protocol, on conduct of trial, in systematic reviews & guidelines, & finally during implementation. This is unnecessary but <u>remediable</u> waste…(Glasziou http://www.bmj.com/content/341/bmj.c3852)

# Do We Need Textbooks Of Medicine?

A. Thrombolytic Therapy

Odds Ratio (Log Scale)

| Year | Cumulative RCTs | Pts | | Routine | Specific | Rare/Never | Experimental | Not Mentioned |
|------|------|------|------|------|------|------|------|------|
| 1960 | 1 | 23 | | | | | | |
| | 2 | 65 | | | | | | |
| 1965 | 3 | 149 | | | | | | 21 |
| | | | | | | | | 5 |
| 1970 | 4 | 316 | | | | | 1 | 10 |
| | 7 | 1793 | | | | | 1 | 2 |
| | 10 | 2544 | P<.01 | | | | 2 | 8 |
| | 11 | 2651 | | | | | | 7 |
| 1975 | 15 | 3311 | | | | | | 8 |
| | 17 | 3929 | | | | | | |
| | 22 | 5452 | | | 1 | | | 12 |
| | 23 | 5767 | | | 1 | | 8 | 4 |
| 1980 | | | | | 1 | | 7 | 3 |
| | 27 | 6125 | P<.001 | 5 | 2 | | 2 | 1 |
| | 30 | 6346 | | | | | | |
| 1985 | 33 | 6571 | | 15 | 8 | | | 1 |
| | 43 | 21059 | P<.00001 | | | | | |
| | 54 | 22051 | | 6 | 1 | | | |
| | 65 | 47185 | | | | | | |
| | 67 | 47531 | | | | | | |
| 1990 | 70 | 48154 | | | | | | |
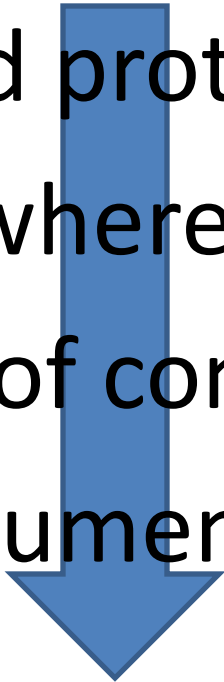
Favors Treatment    Favors Control
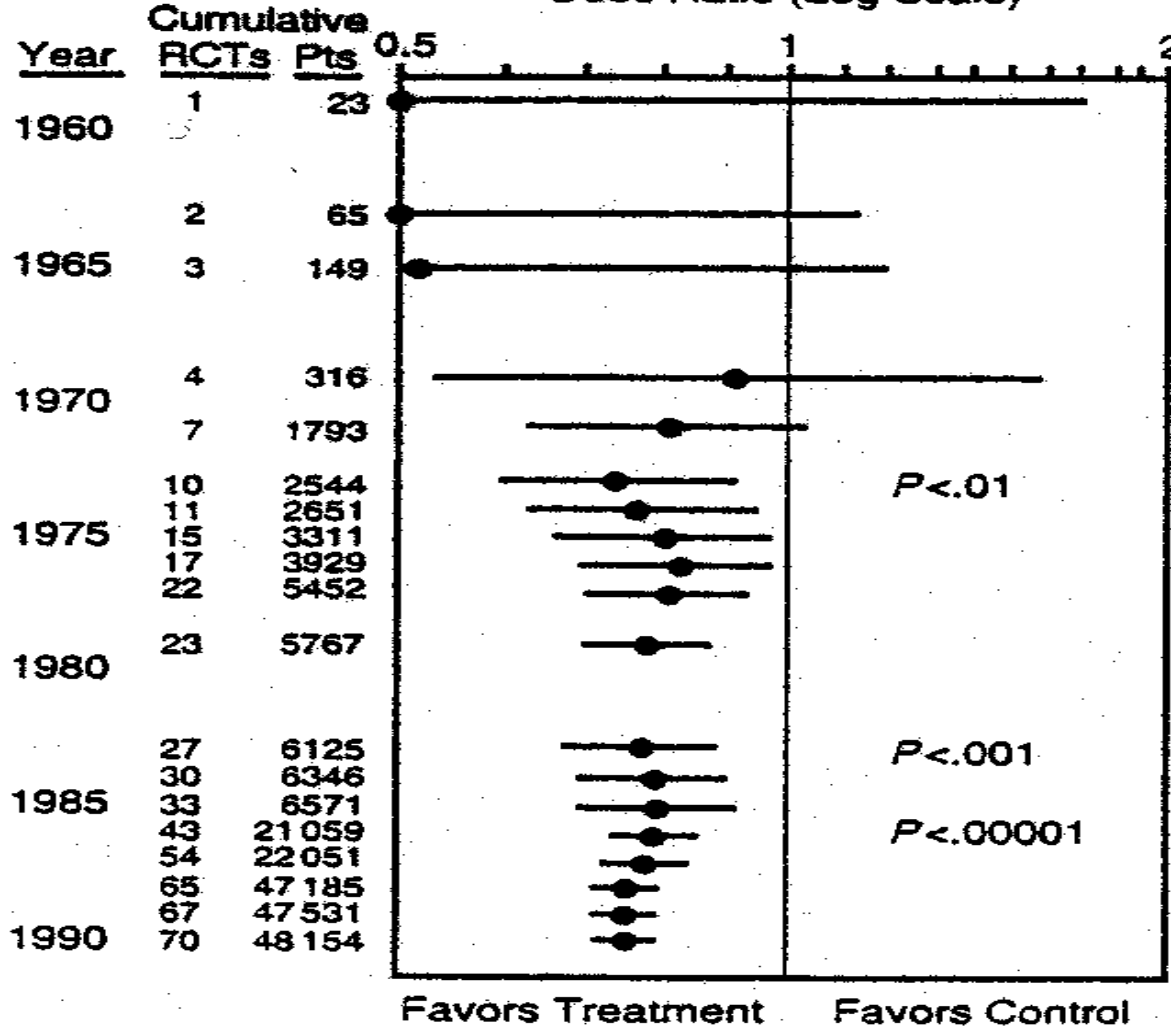
Textbook/Review Recommendations

# Product Development
## *"…The Nexus of Forces…"*

- Cloud &rarr; rapid prototype…
- Mobile &rarr; anywhere…
- Social &rarr; lots of contributors…
- Big data &rarr; instrument everything…

# Product Development
## *"…The Nexus of Forces…"*

- Cloud       →    rapid prototype?

- Mobile     →    anywhere?

- Social      →    lots of contributors?

- Big data    →    instrument everything?

| |
|---|
| • Valuable |
| • Useable |
| • Feasible |

# VA Strategic Imperatives
## *Don't Let Smoke Get In Your Eyes…*

- Improve Veteran <u>Access</u>

- Provide <u>Personalized</u> & Proactive Health Care

- Achieve Veteran <u>"Ownership"</u> of Their Health

- Provide Veteran Full Spectrum of Health Care Information
  - Enable Veteran to find Best Clinician or Diagnostic Organization

- Optimize Commercialization of Health Care Delivery through
  - New Supply Chains and expanded Delivery Ecosystem

- Provide <u>Access Control</u> Between Providers and Clinicians

- Architect and Implement Next Generation <u>Primary Care</u>

- Improve <u>Integration</u> of Health Care and Social Services

- Improve <u>Agility</u> in Health Care Delivery

- Add <u>Game Changing Innovation</u> to Drive Efficiencies in Health Care

3/18/2015
DRAFT Model- driven SW Development: not VA policy

# VistA Evolution Key Performance Indicators

- ❑ **Key Performance Indicator (KPI)** is high level indicator to demonstrate how effectively initiative is achieving key strategic goals, like (1) Improvement in veteran health, (2) Improvement in veteran access, (3) Reduction in cost of healthcare services.

- ❑ **Metric** is specific measure under KPI level that portrays <u>actual</u> characteristics of indicator versus <u>expected</u> values.

**VHA Strategic Goals**
What are the short and long term objectives to achieve the strategy?

**VistA Evolution Program Plan**
What are the important execution initiatives and drivers to meet the goals?

**Key Performance Indicators**
What measures of success are tied to the VistA Evolutions drivers?

Outcomes  Process  Output

**Supporting Metrics**
What are the detailed measures that affect and augment the selected KPIs?

**Product**
What are the modules in the Product Roadmap to support the change?

**Data**
What is the data used to measure the metrics?

Top-Down

Bottom-Up

In development of KPIs, we
1. **Derive KPIs** from **VA strategic Goals** and main objectives
2. Use KPIs to **identify needed capabilities** in (e.g.) VistA Evolution program and associated system design
3. **Develop metrics** that address needed capabilities in VE program as defined in Product **Roadmap**
4. Develop **measurement plan** to determine that KPIs are actually being accomplished

31

# KPI Characteristics

## SMART

- **S = Specific**

- **M = Measurable**

- **A = Attainable**

- **R = Realistic**

- **T = Time-bound**

# Outcomes

- Measure value proposition in <u>terms meaningful to veterans, their families, and taxpayers</u>
  - Expected vs Actual
- Use value in investment prioritization versus affordability alone
- Create continuity across legislative cycles and changes in Administrations
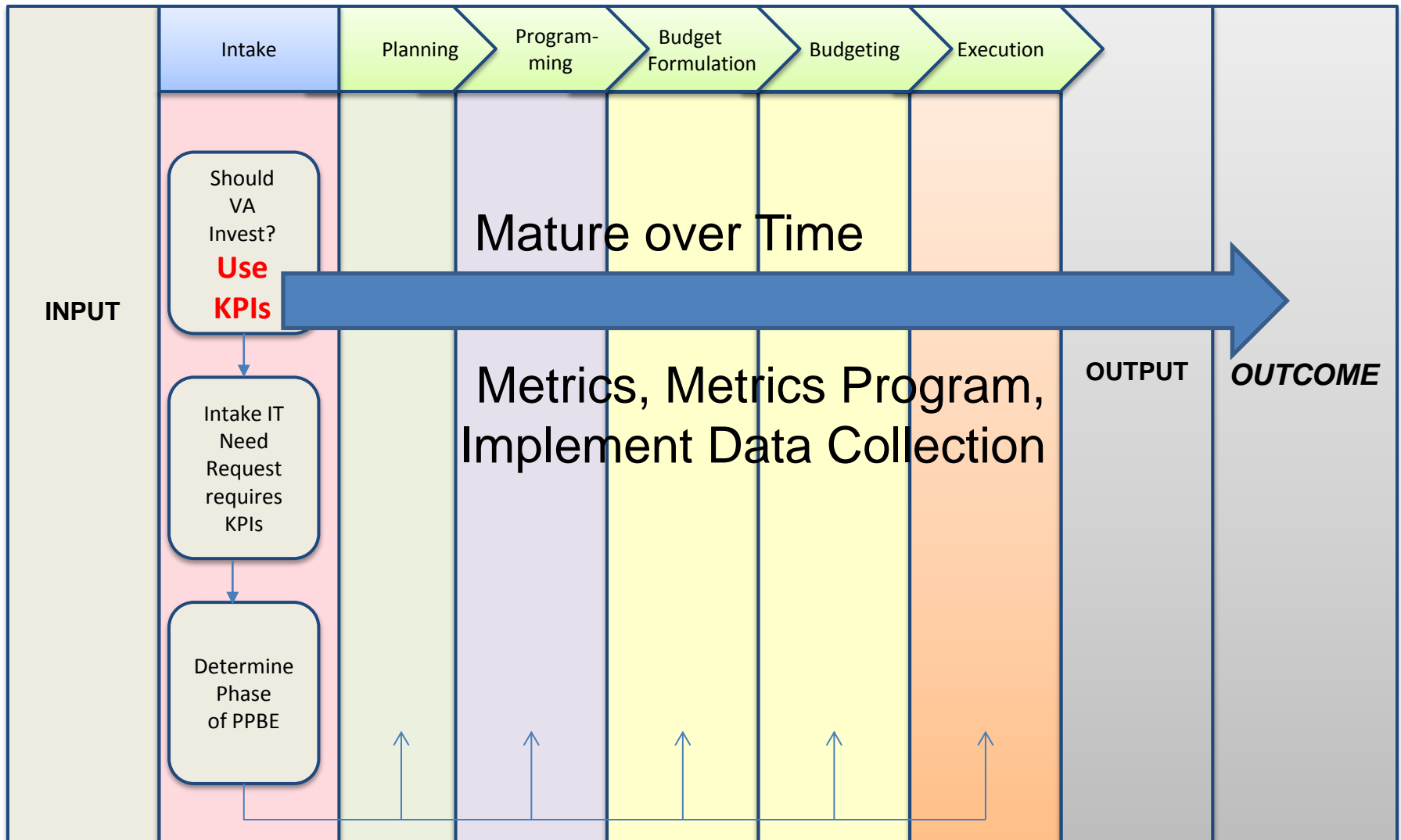- Use KPIs in Milestone decisions prior to nationwide roll-out

# Risks & Mitigations

- Scarce knowledge, skills and abilities
  - Mitigations
    - OI&T assist (ASD & Customer Advocates)
    - Hire outside consultants
    - Invest in training VA staff
    - Identify government best practices
    - Use research contracts (Gartner; CEB; Forrester, etc…)
- Reluctant to measure baseline to not show "dirty laundry"
  - Mitigations
    - Senior leadership buy in
    - Establish VA policy
- Reluctant to accept accountability for outcomes
  - Mitigations
    - Include in relevant SES performance evaluations (as OI&T has done)
- Potential to shut down projects for failure to meet KPI targets
  - Mitigations
    - Senior leadership buy in
    - Establish policy

# Real Stewardship…

# Process Steps Template



| Intake | Planning | Program-ming | Budget Formulation | Budgeting | Execution |

**INPUT**

Should VA Invest?
**Use KPIs**

Intake IT Need Request requires KPIs

Determine Phase of PPBE

Mature over Time

Metrics, Metrics Program, Implement Data Collection

**OUTPUT**
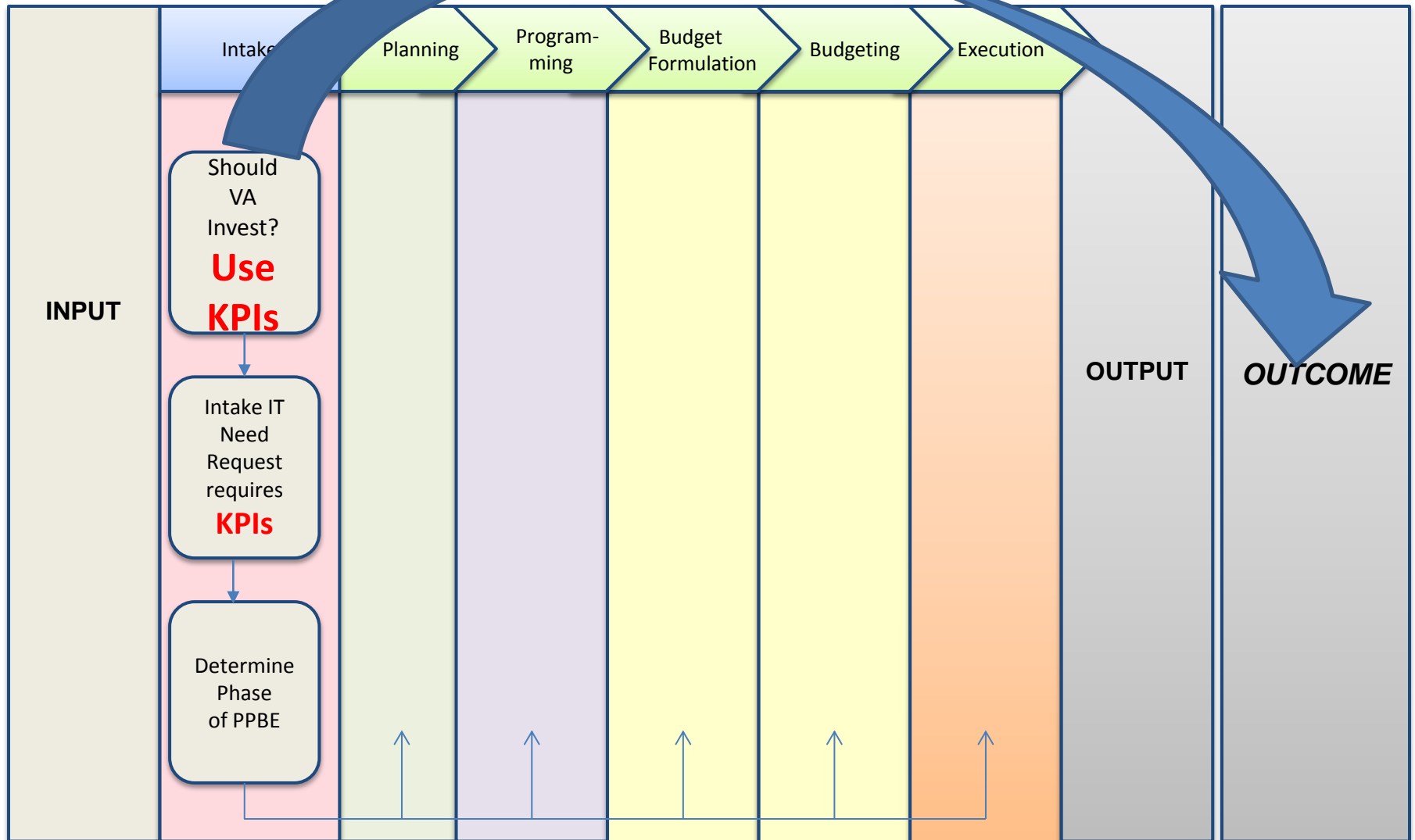
*OUTCOME*

# KPI Implementation
## *It's Not Easy…*

- Use change management
  - Doctrine:                                    yes
  - Organization:                            yes
  - Training:                                    yes
  - Material solutions (tools):yes
  - Leadership:                               yes
  - Personnel:                                yes
  - Facilities:                                   yes

# VistA Evolution Key Performance Indicators

Following the mentioned methodology, we have identified the following KPIs:

**KPI 1** Improve Access to Care

**KPI 2** Improve Care Coordination

**KPI 3** Improve Resource Utilization within the VA Care Delivery Cycle

**KPI 4** Improve Patient Outcomes through improved medication list accuracy

**KPI 5** Improve clinical decision making

**KPI 6** Increase  Quality and Quantity of Medical History Data Available to Support Clinical Decision Making

**KPI 7** Improve Resource Utilization Metrics in Patients who receive care Outside the VA

**KPI 8** Increased health of populations through appropriate utilization of population health data

**KPI 9** Shorten Time to Delivery of New HIT Functionality

**KPI 10** Improve User Satisfaction with the Electronic Health Record

- o **A: Through Improved Clinical Features**
- o **B: Through Improved  IT Performance**

# VistA Evolution KPIs

**KPI 1**   **Access to Care** – Shortening the wait times for Veterans and providing Veterans with new cost efficient alternatives and means of health care.

**KPI 2**   **Improve Care Coordination** – A model of healthcare delivery in which teams of clinicians and patients collaboratively improve the health of the Veteran, according to clear patient-driven goals .

**KPI 3**   **Improve Resource Utilization within the VA Care Delivery Cycle** – Ensuring that VA clinicians have proper resources in place at the Right Time & Right Place.

**KPI 4**   **Improve Patient Outcomes through improved medication list accuracy** – Decreasing the likelihood of ADE's during the transition of care of Veterans.

**KPI 5**   **Improve clinical decision making –** Providing the clinicians with tools to increase the access of clinical data and to improve the speed and accuracy at which they can use the data to make better clinical decisions for the Veterans.

**KPI 6**   **Increase  Quality and Quantity of Medical History Data Available to Support Clinical Decision Making** Transitioning from an antiquated information system to a robust, customizable and flexible environment that is tailored to the needs of the VA clinicians and patients.

**KPI 7**   **Improve Resource Utilization Metrics in Patients who receive care Outside the VA**  - Decreasing the amount of duplicative and unnecessary tests and procedures that are performed outside of the VA.

**KPI 8**   **Increase health of populations through appropriate utilization of population health data –** Managing the health patterns, risks, and outcomes of a  cohort of Veterans to identify early interventions of cost effective care.

**KPI 9**   **Shorten Time to Delivery of New HIT Functionality**  - Reducing the risks, time, and cost associated with delivering and deploying New HIT Functionality.

**KPI 10**   **Improve User Satisfaction with the Electronic Health Record**  - Providing the clinicians with features that will enhanced system adoption and increase productivity.

# Vista Evolution Key Performance Indicators Linked To VistA Roadmap

**VistA 4 Roadmap**

VA | U.S. Department of Veterans Affairs

VistA 4 Roadmap
November 19, 2014
Version 3.03

DRAFT
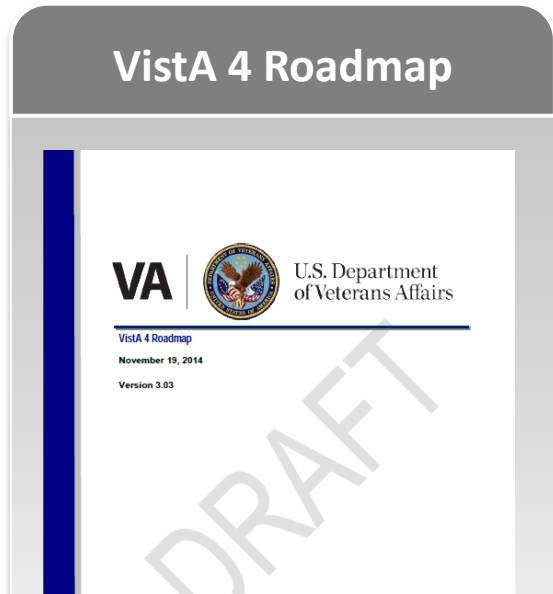
VistA 4 Product Roadmap provides u**pdate on capabilities** that have been **delivered** in **Feature Set 1**, and provides more detail on **future deliveries** in **Feature Sets 2, 3, and 4**.

KPI 1
KPI 2
KPI 3
KPI 4
KPI 5
KPI 6
KPI 7
KPI 8
KPI 9
KPI 10
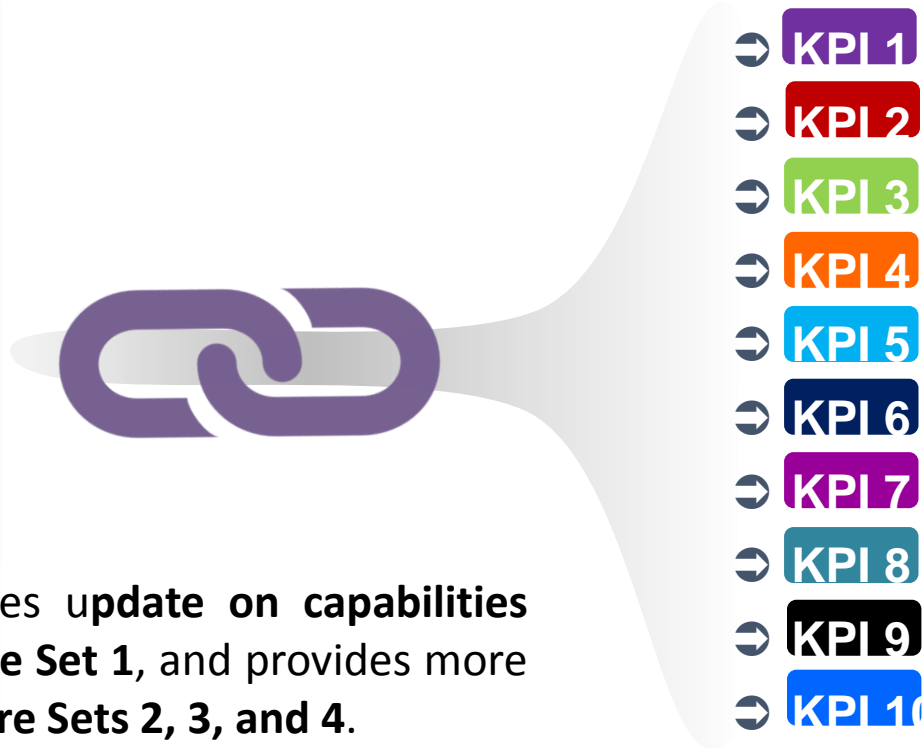
# KPI #1:  Improve Access to Care – Roadmap Crosswalk

## Executive Summary

**A. Executive Summary**

*Each Veteran will have a single, approved longitudinal care plan that is coordinated and comprehensive*

## 2.2 Vista 4 Vision

**B. Introduction and Vision**

*Management of activities that improve human and material resource utilization and clarify plans of care for all members of the team including the patient*

## 2.2 Vista 4 Vision

*Explicit incorporation of patient goals in the care plan, to support patient-defined terms of success*

## 7. Feature Set 4

**C. Feature Sets**

*7.1.1: Single Queue of Request Lists*

*7.1.2: Aggregated View of Clinic Profile Scheduling Grids*

**KPI 1**

**Improve Access to Care**

DRAFT Model- driven SW Development: not VA policy

# VA Business Case for Sharing Data with Private Sector Providers

## *79% of Veterans see private health care providers?[1]*

### *External Health Information Exchange*

**Enables** clinicians to make more informed decisions

**Reduces** the need for patients to carry paper records between health care providers

**Provides** immediate access to additional health care information during an emergency

**Supports** Population Health Management

**Helps** others meet Meaningful Use criteria

### *External Health Information Exchange Can Ultimately Equal*

**Improved** patient care and health outcomes

**Fewer** duplicate tests

**Increased** patient safety (e.g., medication reconciliation)

**Improved** care coordination

**Reduced** phone calls to follow-up and track referrals

**Timely** access to critical information

**Saved** time, money, and other resources for Veterans and VA staff

**Expedited** results notifications

**Enhanced** security and privacy

**79%**
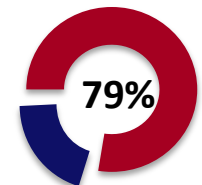
# Data Exchange vs. Data Interoperability

Data may be exchanged between different systems, but it must also be standardized for both systems to know if data has the same meaning
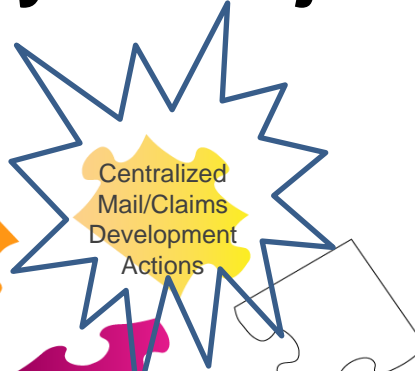
| Data from DoD system | |
|---|---|
| Temp | 98.6 |
| Pulse | 68 |
| **A1c** | 4% |
| **FPG** | 90 mg/dL |

*Today, different names in VA and DOD systems make it hard to determine if data is equivalent*

| Data from VA system | |
|---|---|
| Temp | 98.2 |
| Pulse | 72 |
| **GlycHemg** | 8% |
| **Plasma Glucose** | 143 mg/dL |

| DoD Name | Mapped to Standard Codes | VA Name |
|---|---|---|
| A1c | 55454-3 | GlycHemg |
| FPG | 10450-5 | Plasma Glucose |

## Standardized, Interoperable Data
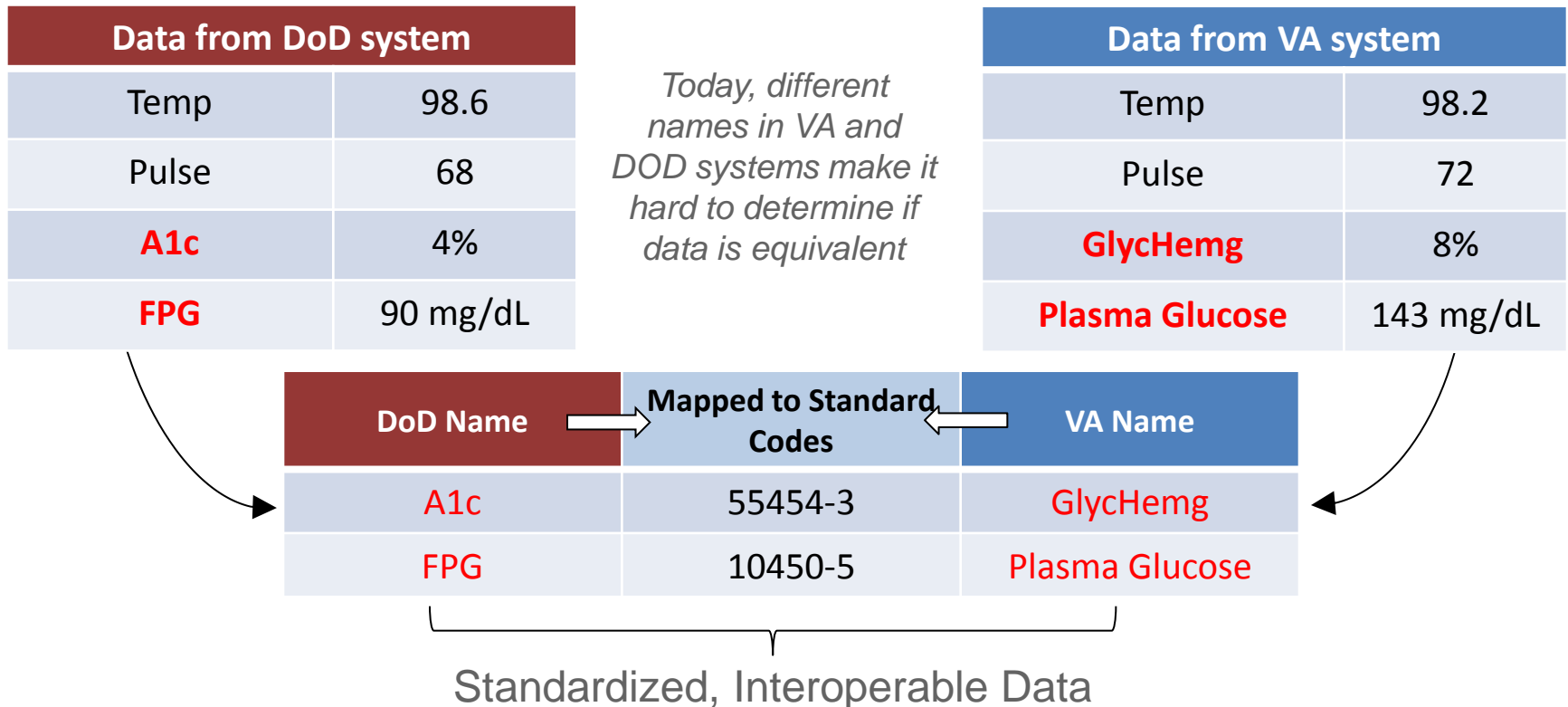
*When mapped to National Standards for terminology, both systems can reliably determine if data is equivalent. Standardized data is then computable for trending and clinical decision support.*

# VBMS Summary of Projects

**National Work Queue (NWQ):**

*Enable Veteran priority claims to be processed more quickly through a national strategy*

**NWQ**

**Centralized Mail/Claims Development Actions**

**Centralized Mail/Claims Development Actions:**

*Act on Veteran-submitted information more quickly*

**Exam Integration**

**VRM**

**STRs**

**Compensation Exam Integration:**

*Request and receive Veteran exams more quickly and more accurately*

**Service Treatment Records (STRs):**

*Receive Veteran STRs more quickly*

**VRM:**

*Provide better Veteran customer service through more detailed claims status and access to submitted information*

# Centralized Mail/ Claims Development Actions

*Act on Veteran-submitted information more quickly*

**Centralized Mail/Claims Development Actions As-Is**
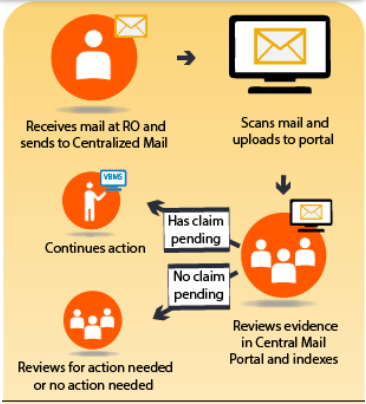
**Centralized Mail/Claims Development Actions To-Be**



**LOE: $12.3 million**   | Plan |

| Add barcode/QR code to outgoing mail | Auto-associate document to Veteran's record/claims process | Automate progression of gathering evidence |
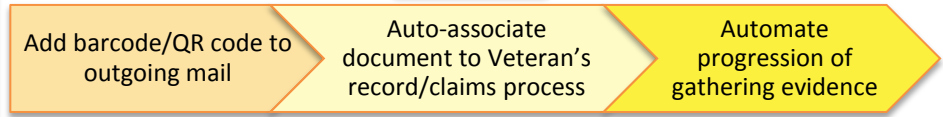
### Completed Requirements

UC170 – Handling New Mail with No Claim Pending
UC166 – Generate Electronically Identifiable Correspondence
BSD042 – Automating Closure of Tracked Items Upon Receipt of 3rd Party Letter Response
BSD093 – Automatically Close Tracked Item from Associated Document Type

### Benefits

**_Act on Veteran-submitted information more quickly_**

- Drive National Workload strategy
- Enable claims processors to focus their expertise
- Automate electronic filing of documents to Veteran's records
- Make Veteran documents available for action more quickly
- Improve traceability between mail received or that is solicited
- Display accurate claim status to Veteran

3/18/2015

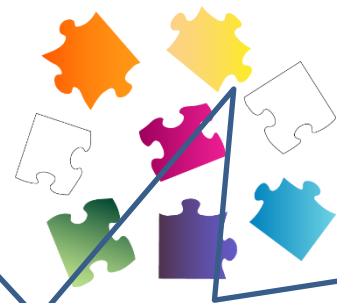As of December 2014

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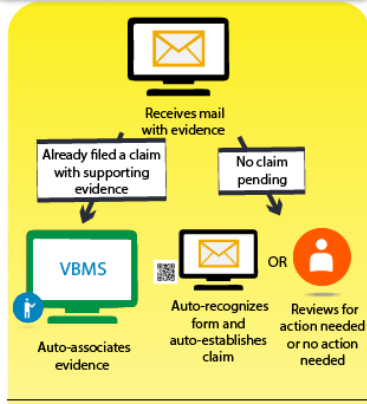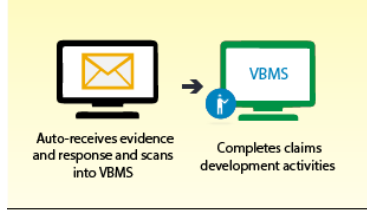
# Metrics

## National Work Queue (NWQ):

*Enable Veteran priority claims to be processed more quickly through a national strategy*

## VRM:

*Provide better Veteran <u>customer service</u> through more detailed claims status and access to submitted information*

## Service Treatment Records (STRs):

*Receive Veteran STRs more quickly*

| Monthly Lift | Claims Impact | NWQ Synergy | Annual Lift |
|---|---|---|---|
| 851 | MEDIUM: 250,000 and 300,000 original claims | LOW | 10,000 |

## Centralized Mail/Claims Development Actions:

*Act on Veteran-submitted information more quickly*

| Monthly Lift | Claims Impact | NWQ Synergy | Annual Lift |
|---|---|---|---|
| 2,204 | HIGH: 6,700,000 pieces of mail | HIGH | 26,000 |

## Compensation Exam Integration:

*Request and receive Veteran exams more quickly and more accurately*

| Monthly Lift | Claims Impact | NWQ Synergy | Annual Lift |
|---|---|---|---|
| 3,096 | HIGH: 1,000,000 exam requests and 2,300,000 DBQs | HIGH | 37,000 |

| Term | Definition |
|---|---|
| Monthly Lift | The number of additional rating claims processed per month |
| Claims Impact | The level of impact on the rating claims process based on the number of claims (high, medium, low) |
| NWQ Synergy | The level of integration with NWQ (high, medium, low) |
| Annual Lift | The number of additional rating claims processed per year |

As of December 2014

# *Before We Get To Tools…Gartner Says…*

- **Social BPM: S**ocial collaboration integral to business process improvement & to adaptable processes; collective emergence of innovation.

- **Extreme Collaboration (XC): I**ntense collaboration used in war rooms, mission-control centers, & emergency rooms; open, flexible, inclusive, trusting & human-centered; willing to cross traditional economic, political & social boundaries; pool collective skills & resources to solve problems

- **Organizational Liquidity: A**nticipating & responding to emerging change; supports change-aware culture; shifts intervention from project-level to organizational capability that is always on, constantly monitoring patterns &seeking progress.

- **Hybrid Thinking:  I**ntegration of design thinking to produce successful outcomes to difficult problems by co-creating more meaningful, human-centered experiences.

# Strategic Assumptions (Gartner…)

- By 2017, 60% of Global 1000 organizations will execute on at least one revolutionary and currently unimaginable business transformation effort.

- By 2015, having Six Sigma on a resume will be a **liability** rather than an asset in 50% of all BPI hiring decisions.

- By 2017, digital business transformation programs with demonstrated faster payback will compress cycle time of insight to innovation from days to minutes.

- By 2017, organizations using predictive business performance metrics will increase their profitability by 20%.

- By 2015, CEOs will redirect 30% of BPI project funding to transformation projects as digital process reinvention becomes a top-three business priority.

# To Respond To Opportunities & Threats Of Digital Business, Business Process Owners & Senior IT Managers Should…

- Recognize that starting point is not process, nor information, people or technology. Instead, supporting real business transformation starts with <u>understanding what future business needs are</u>, based on business strategy, including its business models, capabilities & business outcomes.

- Help leaders understand that <u>enabling digital business transformation is not something they can buy</u>; requires business focus, planning, discipline, investment, courage, adaptability & resiliency, to change course in case of new threats & opportunities. Requires new skills for BPM professionals aspiring to be business transformation agents, including:
  - Vision & leadership on new & potential business models
  - Understanding disruptive trends that may impact their organizations
  - Broader integrative skills with new information sources, & processes

# *Move Before You Are Ready…*

- Exploiting business moments at scale
  - Use technologies to enable fluidic change: 4 best practices for using 2 promising platform technologies to exploit business moments: operational intelligence (OI) platforms and intelligent business process management suites (iBPMSs). The 4 best practices are:
  1. Exploit business moments with business processes that support non-routine work.
  2. Tighten OODA loop to make better, faster operational decisions, to act on each business moment.
  3. Exploit exceptions as potential paths to business moment innovation.
  4. Use OI platform to integrate process intelligence across existing operations, & iBPMS to both integrate and act on process intelligence in new or re-engineered solutions.

- Business outcome owners & solution architects can use these technologies & best practices to ensure that their digital business technology choices support fluidic nature of big change
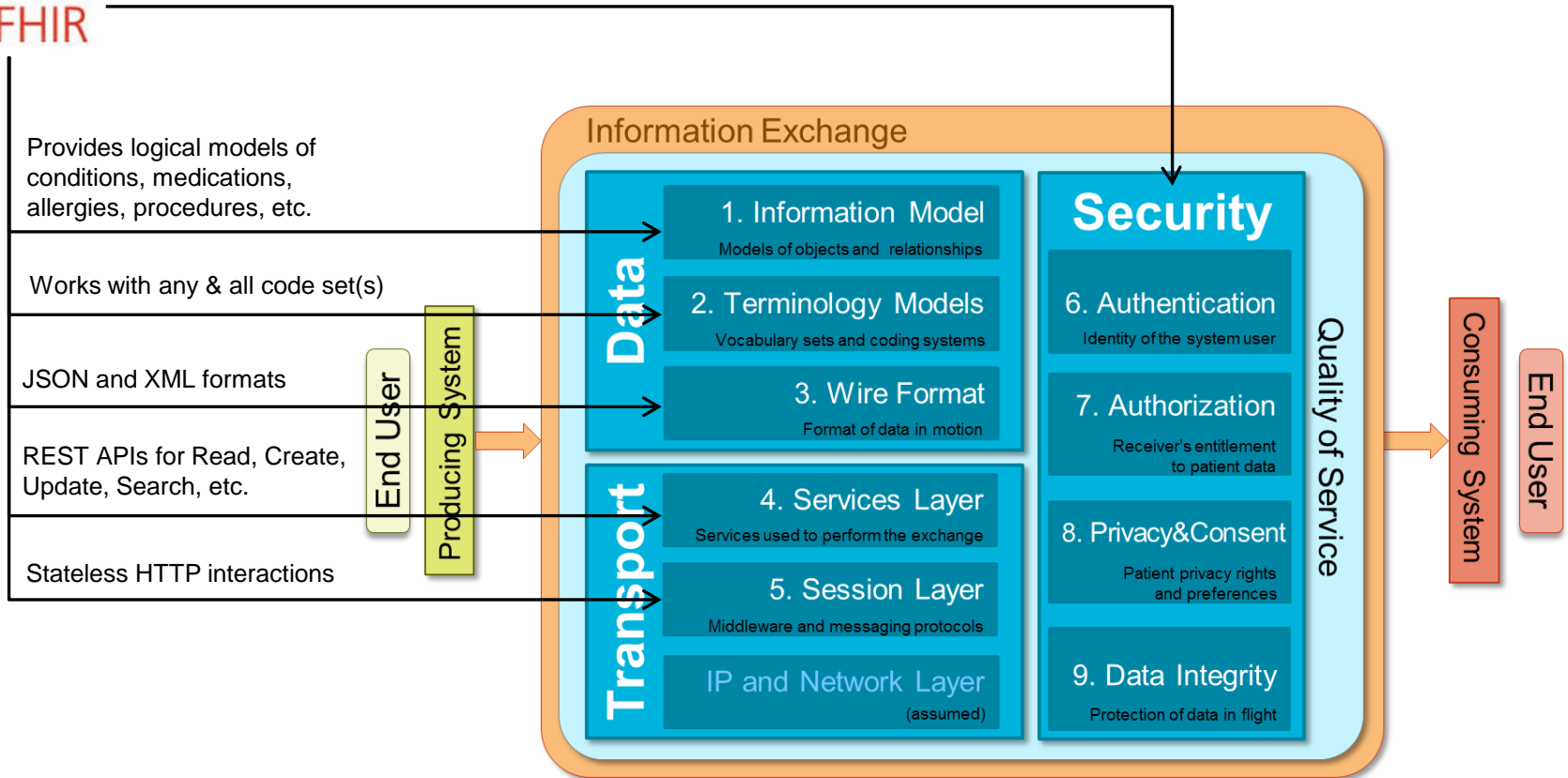
# To Exploit Business Moments At Scale, Select OI And iBPMS Platforms With These Features…

- Adapters to collect event data from applications through files, representational state transfer (REST) interfaces, message-oriented middleware (MOM), Web services and popular DBMSs.

- Adapters for physical sensors or historian databases that hold data (for example, supervisory control and data acquisition [SCADA] data) from physical devices.

- Event logic to filter the incoming data, compute KPIs and detect patterns that represent threats and opportunities (including exceptions or anomalies). Some products have generalized event processing engines capable of CEP, including event correlation, high throughput, low latency and the ability to detect intricate temporal or spatial patterns.

- Other types of engines have lower performance and fewer correlation capabilities, and are therefore limited in the kinds of KPIs, patterns and applications that they can support.

- Decision management capabilities, implemented in scripting languages, rule engines or similar tools, to specify the appropriate response. Some include predictive analytics and the capability to dynamically alter scoring equations and other decision models.

- Interactive dashboards with graphics, text, maps, schematic diagrams and tables of numbers running on browsers and mobile devices.

- Alerting facilities for sending email, text-message or other alerts.

- Action capabilities, including interfaces to trigger automated responses in applications or devices.

- Workflow or process orchestration engines to direct complicated response processes.

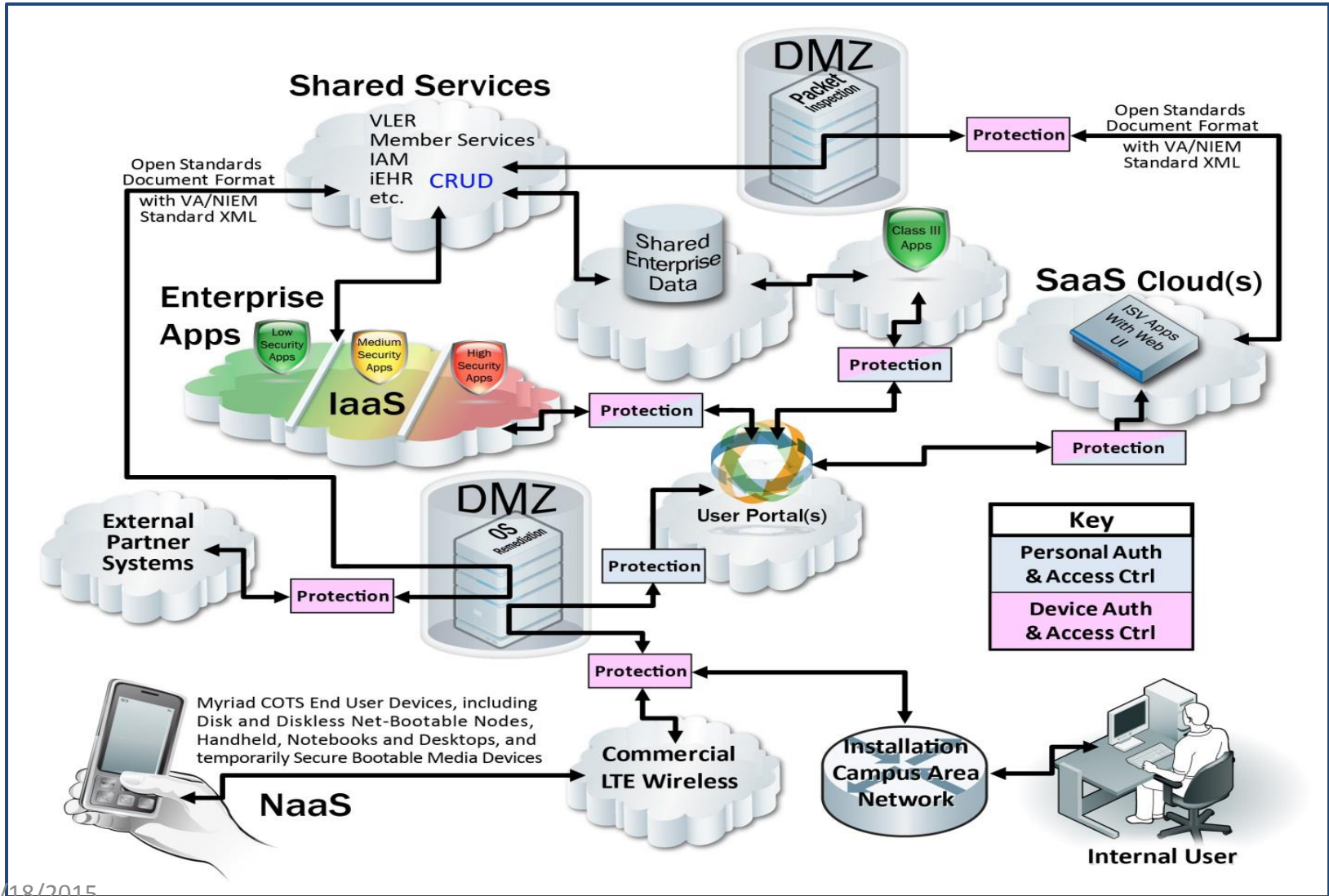- Application development and administration features.

# How FHIR Fits Into The Information Alignment Framework



FHIR

Many security methods can be used, e.g. OpenID, OAuth 2, TLS, etc.

Provides logical models of conditions, medications, allergies, procedures, etc.

Works with any & all code set(s)

JSON and XML formats

REST APIs for Read, Create, Update, Search, etc.

Stateless HTTP interactions

**Information Exchange**

**Data**

1. Information Model
Models of objects and relationships

2. Terminology Models
Vocabulary sets and coding systems

3. Wire Format
Format of data in motion

**Transport**

4. Services Layer
Services used to perform the exchange

5. Session Layer
Middleware and messaging protocols

IP and Network Layer
(assumed)

**Security**

6. Authentication
Identity of the system user

7. Authorization
Receiver's entitlement to patient data

8. Privacy & Consent
Patient privacy rights and preferences

9. Data Integrity
Protection of data in flight

Quality of Service

End User

Producing System

Consuming System

End User

# FY16-20 IT Plan

# Tools: Definitions

- bpmPaaS refers to delivery of BPM capabilities as service
- BPM platform minimally includes
  - Graphical business process or rule modeling capability
  - Process (rule) registry/repository to handle modeling metadata
  - Process execution & either state management engine or rule engine
  - Other BPM-enabling technologies, such as automated business process discovery (ABPD), business activity monitoring (BAM), business intelligence (BI), analytics, <u>complex-event processing (CEP) and simulation</u>, may also be included

*Gartner*

# Justification

- bpmPaaS is "middleware as service" that <u>customers</u> use to
  - Build, run, manage & improve business processes
  - Construct flexible applications that accommodate process variations without code changes
- Refers to delivery of business process management (BPM) platform functionality as service by cloud service provider
- Can be
  - Application platform as a service (aPaaS)
  - Integration platform as a service (iPaaS) for integrating processes, services and applications
  - Both aPaaS and iPaaS simultaneously

*Gartner*

DRAFT Model- driven SW Development: not VA policy

# Justification (cont'd)

- bpmPaaS treat business processes as actual work of single organization or multiple organizations rather than ideal sequence of activities.

- To deliver cloud services, a bpmPaaS may use very sophisticated BPM technologies (such as an intelligent business process management suite [iBPMS]) or very simple tools targeting citizen developers

- bpmPaaS has rapidly progressed from pre-peak to post-peak position and moved from adolescent to early mainstream adoption. New entrants to BPM market offer bpmPaaS, although they may not offer a corresponding on-premises product, indicating strategic turn to cloud services in BPM technology market

*Gartner*

# Justification (cont'd)

- bpmPaaS accelerates time to benefit for solutions involving BPM-enabling technology (BPMT) in following ways
  - Streamline previously manual processes, improve efficiency and traceability of unstructured ad hoc and collaborative processes, and free up resources to grow — not just run — business.
  - Sophisticated bpmPaaS, which supports intelligent business operations (IBO), help organizations reinvent & digitalize their processes so they can capitalize on business moments. (Business moments are specific transient opportunities that illustrate how people, businesses and the Internet of Things (IoT) interact. Each business moment is, in essence, unique set of business operations, which is reinvented on fly and personalized for each customer or situation)
  - Enabling technology both for CSB and for hybrid IT: Provides end-user organizations and service providers with mechanism for ensuring that appropriate end-to-end business outcomes are delivered from solutions involving multiple cloud services, outsourced services and on-premises systems
  - IBO capabilities support real-time visibility and dynamic adjustments to business processes.
- Both CSB and hybrid IT are here now: Gartner end-user surveys show that 60% of end-user organizations plan significant investments in CSB by end of 2015 and that hybrid IT is fast becoming new operating model for IT

# MDA



DRAFT Model- driven SW Development: not VA policy
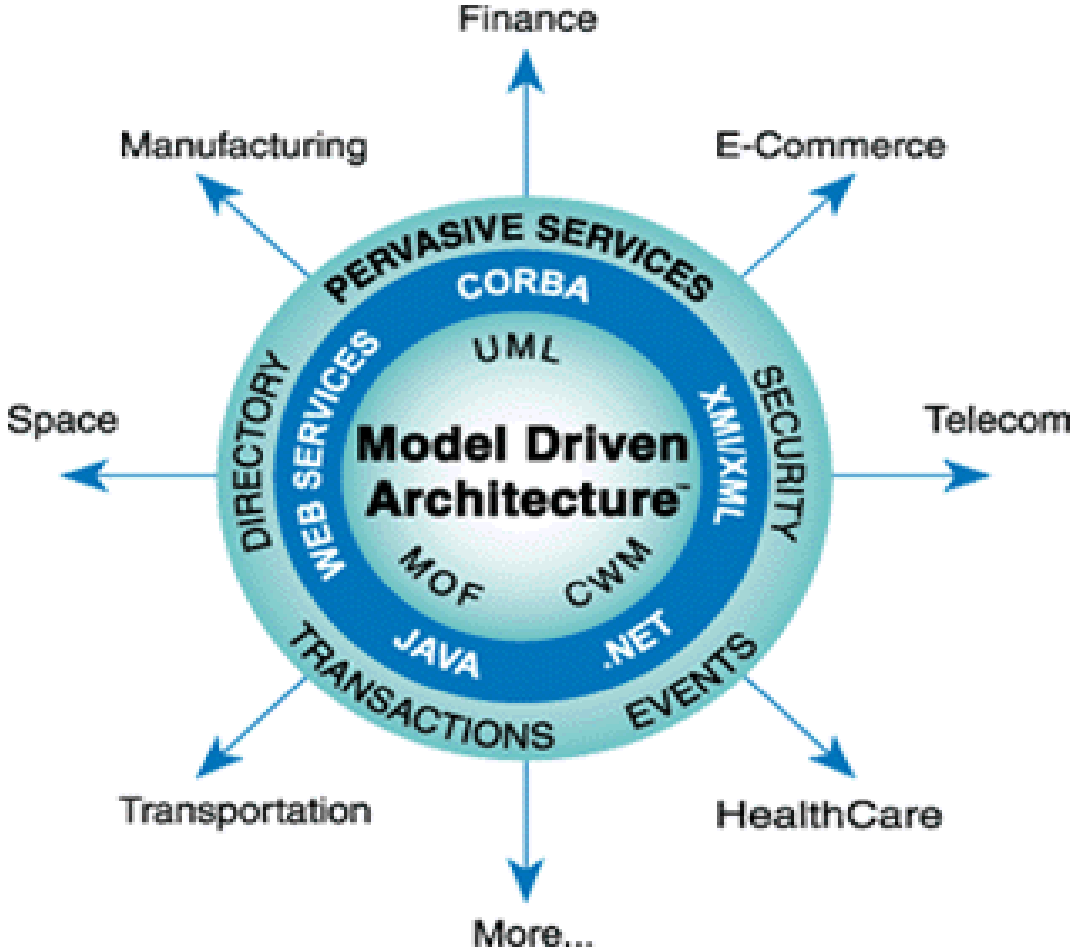
# How Systems Will Be Built

OMG's Model Driven Architecture ® (MDA ®) provides an open, vendor-neutral approach to the challenge of business and technology change. Based on OMG's established standards, the MDA separates business and application logic from underlying platform technology. Platform-independent models of an application or integrated system's business functionality and behavior, built using UML and the other associated OMG modeling standards, can be realized through the MDA on virtually any platform, open or proprietary, including Web Services, .NET, CORBA®, J2EE, and others. These platform-independent models document the business functionality and behavior of an application separate from the technology-specific code that implements it, insulating the core of the application from technology and its relentless churn cycle while enabling interoperability both within and across platform boundaries. No longer tied to each other, the business and technical aspects of an application or integrated system can each evolve at its own pace - business logic responding to business need, and technology taking advantage of new developments - as the business requires.

# One VA Enterprise Technology Strategic Plan

- **OneVA Enterprise Technology Strategic Plan (ETSP) describes future state of VA IT infrastructure environment**

  —Provides "To Be" view of Enterprise Technical Architecture (ETA) layer of overarching OneVA Enterprise Architecture

  —Organized around Technical Reference Model (TRM), existing framework to analyze emerging technologies and their impacts on VA

  —ETSP was published on April 1, 2014 as part of OneVA EA

- **ASD internet website --- www.asd.oit.va.gov**

  - **EA Internet link --- http://www.ea.oit.va.gov/**