The Motivation for creating an innovation ecosystem

✓ Engaging employees with innovation allows them to see + solve problems at the source to better serve your customers

✓ Better take advantage of our existing capacity and brainpower

✓ Employee retention: we need to find new ways to keep employees engaged, learn new skills, and grow in their careers
Creating an Innovation Ecosystem

1. The Approach
   - Be intentional with your innovation intent + strategy

2. Create a Competency
   - Create an internal competency to lead and support the program

3. The Structure
   - Create a structure for unstructured time

4. Training & Support
   - Provide training and other enabling support to help employees grow in their careers

5. Create a Network
   - Develop partnerships internally and externally to ensure projects can be spread and sustained

6. Recognize & Celebrate
   - Celebrate and recognize employees in a public way

7. Measure Impact
   - Measure what is meaningful and share

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1. The Approach – Be intentional with your innovation intent

Frame the way you want to change the world, and make it about the customer.

Adapted from: https://www.fastcodesign.com/1672718/6-ways-to-create-a-culture-of-innovation
2. Create a Competency

Key stakeholder leadership groups championing + enabling innovation

“Franchise” node of VA Innovators Network

Performance Engine (i.e. Existing VA Organization)

Shared staff
• Medical Center
• O&T
• GC
• Contracting
• HR

Partnership

Dedicated team
Site Innovation Specialist

VACI

The Other Side of Innovation, Dividend = Trickle

3. The Structure

Innovation needs time to develop. Leaders need to encourage employees by creating that time, and providing funding to support innovation efforts.

Examples from VA’s Innovation Ecosystem:
• Accelerator Programs
• Pitch Workshops
• Innovation Office Hours
• Competitions (e.g. Shark Tank Competition)
• Hackathons
• Funding Opportunities (e.g. Spark-Seed-Spread)
4. Training & Support

Two Important Considerations for Training

Types of training:
- Human Centered Design
- Entrepreneurship, Business models/value creation
- Informatics
- Making
- And more based on local site interests

Levels of training:
- Novice
- Advanced Beginning
- Intermediate
- Expert
- And more based on local site interests

Harnessing the creative juices of front line clinical teams in a healthcare-focused DIY (Do It Yourself) Movement.

What is making?

Examples of Making from VA’s Innovation Ecosystem:

- Customize materials for individual patients, such as using a laser cutter to meticulously cut down wound dressings to fit a newborn
- Upgrade an existing medical device, like adding a sensor to a take-home pill bottle to monitor whether or not the patient takes their meds as prescribed
- Prototype and experiment with designing a brand new medical device to address problems from the hospital floor
- Develop a solution to expedite administrative processes, such as an EHR-integrated software for pre-appointment clinical and social screenings
- Streamline a reporting process, like developing a computer-based tool to report employee flu vaccinations
5. Create a Network

Develop partnerships internally and externally to ensure projects can be spread and sustained.

Role of internal partnerships

6. Recognize & Celebrate

Hold events and distribute awards to recognize and celebrate the efforts, successes, and lessons your innovators learn from “failure.”

Examples from VA’s Innovation Ecosystem:

- Week of Improvement and Innovation
- VA Innovation Demo Day 2016
7. Measure Impact

Measure what is meaningful, and share it.

Some examples:

- Customer satisfaction and experience
- Clinical outcomes
- Financial benefits (cost avoidance/revenue)
- Operational value (time saved, efficiency)
- Employee experience (hiring + retention rates)
- Societal value

Innovation Continuum at VA

VACI

1. Concept Phase
   - Generate research
   - Rapid ideation
   - Socialization & Development
   - Identify organizational partners & sponsors

2. Feasibility Phase
   - Validate need & audience
   - Build low-fidelity prototype
   - Business Case
   - Initial user testing

3. Pilot Phase
   - Build high-fidelity prototype
   - Product testing
   - Test market product
   - Collect user feedback
   - Design product enhancements
   - Draft product feedback
   - 1-5 test sites

4. Initial Diffusion
   - Scale-up project
   - Transfer ownership to VA
   - Early Adoption
   - 15-20 sites

5. National Diffusion
   - Product is live nationwide
   - Fully tested
   - Change management for widespread implementation
   - 100+ sites

Innovators Network

Diffusion of Excellence
Prior state of the culture of innovation...

Current State of Innovation

Experience at the VA

Prior state of the culture of innovation...

All Employee Survey results consistent with our Human Centered Design discovery phase findings

The VA Innovators Network, developed by employees for Veterans, is a safe space for VA employees to test new ideas, and join forces with stakeholders across the Veteran community to improve the way VA serves Veterans.
Building Innovation Capacity by Engaging Employees in the Field

VA Innovators Network is currently at 22 VA Medical Centers across the US

Goal 1
Teach + train VA employees on innovation-related competencies to build the innovation muscle of the VA, such as trainings including human-centered design and entrepreneurship

FEVS Innovation scores increased at rate 2.5x more than average VA Medical Centers
Trained over 1,100 employees in innovation-related competencies across 22 facilities

Goal 2
Create an innovation development pathway through the Innovators Network Accelerator to help generate new ways of serving Veterans utilizing three tiers of evidence-based funding through the Spark-Seed-Spread program

134,877 Veterans impacted from VA Innovators Network projects in 1 year
VA Innovators Network projects saved more than $3.3M, which more than pays for the program itself
Sample VA Innovators Network projects improved access to care to allow for 100% of veterans to be seen within 14 days

Goal 3
Support the Diffusion of Excellence initiative by fueling more promising practice identification and implementation at Innovators Network sites

29 and 26 promising practice projects are in the process of being imported and exported across sites, respectively
VA Innovators Network Accelerator

An Effective Platform to Develop Leadership’s Strategic Modernization Priority Areas with a Demonstrated ROI

IN FY16 $1,551,929 WAS AWARDED TO 38 PROJECTS

Spark 24
Spark to Seed
- ED Mental Health Triage
- The Universal Symbol for Mental Health

Seed 9
Seed to Spread
- Smartphone Cardiac Rehab
- Creative Expressions Studio

Spread 5
Spread to Spread
- Technology Based Eye Care Services

We created an innovation development pathway employing private sector techniques to help generate new ways of serving Veterans tied to strategic priorities utilizing three tiers of evidence-based investments through the Spark-Seed-Spread program.

Role of the Innovation Specialist

- Local leaders creating a culture of innovation at VAMCs
- Serve as mentors and coaches on innovation projects
- Help investees navigate the innovation process
- Teach and train employees on innovation-related competencies, like design thinking, entrepreneurship, and making
- Share innovations across sites
Trained and Engaged VA Employees to Develop Innovations Impacting 124,877 Veterans in 1 Year

- 448 VA Staff implemented innovations
- 648 Employees trained so far in FY 2017
- 1,107 Participants in pitch workshops in FY16-17
- 5,895 People reached through VA Innovators Network events in FY16-17

124,877 Veterans, Veteran Family Members, and Veteran Caregivers impacted by innovations developed through VA Innovators Network Accelerator

More than $3M in Cost Savings in First Year

More than pays for the initiative itself, typical private sector healthcare ROI is 4 years

- **Technology-Based Eye Care Services, Atlanta**
  Cost savings: $232,272
  $36 per Veteran, with a total of 6,492 veterans using TECS = $232,272 savings per year

- **Referral Documentation Tool (REFDOC), Portland**
  Cost savings: $2,520,000
  21 sites x $120,000 per site per year

- **Bikeshare Program, Chillicothe**
  Cost savings: $51,000
  By repurposing Smoke Shelters and use as Bike stations across the campus, this program saved $51,000 this year

- **High Risk / High Cost Medication Management, Portland**
  Cost savings: $445,984
  A 17% dose change/discontinuation rate represents an estimated $445,984 cost avoidance

- **Using Collaborative Care to Improve Hepatitis C Screening in Substance Use Disorders Treatment Program, Jackson**
  Cost savings: The cost savings is $270,000 over 5 years.

- **Integrative Creative Wellness Studio, Boston**
  The program decreases hospitalization stays by more than 90%, in turn reducing costs by over 90% as well
Projects Demonstrated Customer, Clinical, and Operational Value

**Smartphone Cardiac Rehabilitation**
- 275% increase in Veteran participation in cardiac rehab and improved cardiovascular outcomes through modification of risk factors including better blood pressure control, improved exercise tolerance, and fewer ED visits and hospital admissions.

**High Risk / High Cost Medication**
- Successfully implemented the web-based registry and CPRS Medication Efficacy Note with strong positive feedback from providers and Veterans contacted. The registry dramatically improved the efficiency of conducting safety monitoring for cohorts of Veterans on prioritized medications.

**Bike Share Program**
- 8 Veterans involved in the bike share program, 3 of which have started their own businesses. Diffusion efforts to expand to Tampa and Boston VA are being explored. Developed partnerships with Boots to Business and SBA to deliver entrepreneurship training for Veterans.

**Creative Wellness**
- Veterans showed improved coping skills for PTSD, substance abuse, increased self esteem, independent living skills and quality of life. Veterans also report participation in the Center keeps them out of inpatient psychiatric hospitalizations, evident from the 90% decrease in hospitalizations.

**HepC Screening Program**
- Through this screening program, nearly 1 in 5 patients infected with HCV was a new diagnosis. Over half of identified cases were treated during the residential stay with clearance of HCV in over 80% of the screened patients and no documented reinfections to date.

**Mental Health ED**
- Tool showed a higher validity and reliability compared to the standard triage tool (ESI) when used to triage Veterans based on their mental health needs in the ED and was able to predict more accurately the mental health acuity of the Veterans presenting to the ED.

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**Example project: Atlanta’s Catchment Area**

- 9% per year growth nationally
- 15% per year growth in Atlanta
- Also, Growth Rate >> ability to build new clinics
Example project: Technology-based eye care services
Improves access to eye care screening for veterans and help prevent blindness.

New addition in 2017: Focus on extending the platform to predictive analytics through collaboration with Google and adding capabilities for glaucoma.

Example project: Post-Surgical Skin Graft Monitoring Application at Boston VA

In collaboration with MIT researcher, a VA doctor is developing a non-invasive tool to measure blood flow to reduce staff burden and improve outcomes following reconstruction surgery of head and neck cancer patients (<$5K of investment)

Problem this Practice Addresses:
- Non-invasive measurement of blood flow to skin, following a free-flap reconstruction of head and neck cancer patients

Innovation Summary:
- Prototype the use of video analysis algorithms to measure pulse and blood flow in transplanted tissue, through the use of simple technology (i.e., smartphone camera).
- Changes in pulse and blood flow would indicate viability of the tissue transfer.

Sample hand images
(not-flap or patient images):
Field-Based Informatics Solution: REFDOC

1st generation
- Query-based
- Data automation to PDF
- Desktop app – limited deployment

2nd generation
- Web-based
- Enhanced automation
- Improved design
- Platform supports broad deployment

Innovators Network

REFDOC improves:
- Timeliness of medical record transfer to TPA by 400-700%
- HIPAA compliance
- Communication & data sharing with community partners
- Staff satisfaction (ave. 9.8 out of 10 on 11 item assessment)

Example project: Minimally Disruptive Medicine

https://medium.com/vainnovation/minimally-disruptive-medicine-kind-and-careful-health-care-32c3c7233d82#.x32meg9j1
Innovations Are Tied to Strategic Priority Areas

Care Coordination and Care Management
Access via Telehealth & Mobile Health
Mental Health
Special Populations Health
Primary Care
Patient Safety
Gastroenterology
Emergency Care
Surgery
Endocrinology/Diabetes
Eye Care
Nephrology
Public Health & Disease Prevention
Cardiology
Rehabilitation & Prosthetic Services
Pharmacy
Anesthesia
Laboratory, Radiology & Pathology

Spark-Seed-Spread Innovation

Funding Mechanism ($1.5M in FY16) resulted in 21 implemented innovations within 1 year to allow us to efficiently make large impacts for Veterans to modernize VA

Status of FY16 Investments:

- 21 Implemented
- 5 Retired
- 6 Delayed
- 6 Prototype + Testing
- 14 Implemented Locally
- 6 Initial Scaling
- 1 Scaling Nationally
Over $2M Provided Through In-Kind Investments from 32 Private Sector, Academic, and Non-Profit Partnerships*  
*One 3D printing company partnership alone provided close to $1M in value

**VA Innovators Network Partnership with Diffusion of Excellence**

The majority of VA Innovators Network sites participate in Diffusion of Excellence Shark Tank program (above average VHA participation rate):

- 4/13 Gold Status projects implemented at VA Innovators Network sites
- 3/13 Gold Status projects are from VA Innovators Network sites
Focused on “Importing” and “Exporting” Promising Practices Across Sites

62 imports and 44 exports across VA Innovators Network sites in FY16 + 17 so far*

*Completed and in process

VA Medical Center Leadership are Investing in the Program Due to Project and Cultural Impacts

80% CONVERSION RATE of VA Innovators Network sites

14/18 VISNS REPRESENTED ACROSS 22 VA INNOVATORS NETWORK SITES

FEVS innovation scores increased at a rate 2.5x more than the average VA Medical Center

We also have strong “finalist” site participation from the remaining 4 VISNs
What happens in the VA Innovators Network Accelerator?

• Kick-off ‘bootcamp’ to train you on innovation competencies
• Financial and resource support through Spark-Seed—Spread innovation investments
• Access to a larger network of like-minded VA innovators and innovation advisors
• Individualized mentorship and support from the Innovation Specialist
• On-the-job exposure to innovation methodologies
• Opportunity to present at “Demo Day” finale event in Washington DC to to amplify your innovation efforts!

“This is by far the absolute best conference I have attended over 30+ years in the field! I grew so much with the positive guided energized environment... you invited us to be passionate about our projects and this is such a welcome relief.”

“This was the most energetic conference I have been to at the VA. If you didn’t go you should.” - Gail Graham, Medical Center Director

“What an incredible experience it was to attend the Accelerator Boot Camp. It was exhilarating to be in the presence of so many incredibly knowledgeable, positive, proactive people from across the nation.” - Linda Yao, Milwaukee VA

Accelerator Bootcamp Testimonials
Diffusing Innovation

- Creating an innovation ecosystem, and successfully identifying innovations is only part of the process.
- It is important to establish a process/method to diffuse innovative solutions across a system once tested and verified.
Failure to Diffuse Innovations According to Don Berwick

• Captain James Lancaster proved link between scurvy and dietary factor (Vitamin C)

1601

1747

• James Lind, British Navy physician, repeated study in a random trial, proving citrus effective against scurvy

1795

• British Navy finally reacts by ordering citrus fruits become part of the diet on all navy ships

1865

• British Board of Trade orders proper diets on merchant marine vessels

The total time elapsed from Lancaster's definitive study to universal British preventive policy on scurvy was 264 years.
Diffusing Innovation – Process Models

Barriers to Innovation That Can Damage the Health of Your Ecosystem

- Traditional top-down management discourages front-line empowerment and innovation
- Short term focus on execution with no time to think for the future
- Lack of resources, leadership, and inadequate funding
- Lack of systemic innovation process
- Lack of end-to-end processes for bringing ideas to fruition
- Focus on immediate and unreasonable financial returns
- No incentives to innovate
- No common definition of innovation and how to measure success
- Lack of effective communication between individuals, managers, various disciplines, etc.
- Lack of understanding and interaction with the customer, market, and industry
- Too much specialization and lack the ability to cross-pollinate ideas or make connections
- Lack of focus, vision and direction from management and leadership ranks
- Lack of focus and support on innovation by senior management
- No infusion of new ideas, new problems, or learning opportunities
- Resistance to change
- Inappropriate measures for managing innovations
- Organizational focus and value on risk avoidance
- Inadequate measures for managing innovations
The Diffusion of Excellence Initiative was established in 2014 as a method to effectively identify, diffuse, and sustain best practices in this heterogeneous system, to achieve consistency in the Veterans’ experience.

Background

The Veterans Health Administration (VHA) is the largest integrated health care delivery system in the United States, with over:

- **1,700** sites of care
- **300,000** employees
- **8.76 million** Veterans served each year

While VHA is a leader in the delivery of high quality health care, it has lacked consistency in the application of best practices

We sought to develop a method to effectively **identify, diffuse, and sustain** best practices in this heterogeneous system
Objective

**Identify and scale innovations across VHA, while:**

**Empowering employees**

to promote innovation sharing and drive a supportive culture of continuous improvement

**Institutionalizing processes and mechanisms**

for systematically diffusing and implementing promising practices throughout the system

**Minimizing negative variation, and standardizing practices** by diffusing innovative and industry recognized best practices across the system

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**Model for disseminating best practices**

- **Sustain and improve**
  
  Establish a robust operations center for managing and tracking outcomes, in parallel with implementation.

- **Establish Consistency & Standardize**
  
  Leverage national program office leader support to select those ready for national rollout and support standard development and scaling.

- **Identify Promising Practices**
  
  Solicited practices nationally and engaged staff at all levels, including projects from the VA Innovators Network and Communities of Practice, to evaluate them using a rigorous set of criteria.

- **Find the Champions**
  
  Local champions, or ‘early adopters’ served as sharks in a ‘shark tank’ style event. Those selected as implementers identified local champions to lead.

- **Adapt and Replicate**
  
  Leverage Diffusion Council-governance structure to engage field staff and leaders during initial replication to support issue resolution; Use advanced technology tools and project management resources to track and monitor progress.
Enabling success by leveraging **three** organizing principles

- **Technology**
  - Rapid and transparent flow of information across regions and boundaries

- **Governance**
  - Vertical accountability to agency priorities
  - Engagement of senior leadership and staff

- **Process**
  - Consistent framework for evaluation, adaptation, and reapplication of practices

Accelerating and sustaining adoption and uptake with **technology** tools

- **Pulse platform** promotes conversation and sharing about promising practices

- **Virtual VA “Shark Tank”** style event enabled virtual engagement in unique opportunity to ‘pitch’ their promising practices

- **Diffusion Hub** provides robust project management and tracking tools to manage replication and implementation of best practices, all based on LEAN principles and frameworks
### eScreening

**Practice originated at:** VA San Diego HCS  
**Implemented at:** VA Ann Arbor HCS, Edith Nourse Rogers Memorial Veterans Hospital (Bedford, MA), & Lebanon VAMC (Lebanon, PA)

**Problem Statement:**
- PCPs are faced with an overwhelming workload and cumbersome processes regarding manual management of clinical measures/reminders
- Providers spend excessive time on administrative tasks rather than attending to patients

**Practice Summary and Purpose:**
- Development of eScreening, a mobile technology interfacing with Computerized Patient Record System (CPRS) for immediate results documentation
- Veteran-directed reporting of symptoms, timely patient alerts, individualized patient feedback, and monitoring of treatment outcomes

**Outcomes:**
- Implemented in Primary Care, Mental Health, Behavioral Health, and Pain Management clinics
- In the Care Management Program (San Diego), the percentage of Veterans with same day suicide risk assessments increased by 20%.
- Reduces clinician administrative time spent on data entry (5-6 minutes/visit)
- Increase in positive mental health screenings (10%) requiring additional referral/care (Lebanon)

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### Flu Self-Reporting Desktop Icon

**Practice Originated at:** VA Boston Healthcare System  
**Implemented at:** Mountain Home VA Medical Center & VISN 12

**Problem Statement:**
- Flu data for external vaccinations not fully captured by Occupation Health (OH)
- Low employee flu vaccination reporting rates due to inefficient process requiring employees to go to OH to fill out a form to report vaccinations received outside VA
- Issues:
  - Employees’ lack of time
  - Waiting in line to fill out form
  - OH is closed during nights and weekends, which are the most convenient times for employees working day shifts
  - Clinical staff unable to leave workstation/clinic during times when OH is open

**Practice Summary and Purpose:**
- Desktop icon allows VA employees to quickly self-report flu vaccinations, improving reporting rates

**Boston Outcomes:**
- Since 2013, the desktop icon captured an average of 500 vaccinations annually
- The percentage of employees that reported a flu vaccination increased from 40 percent to 60 percent
Flu Self-Reporting Desktop Icon

- Flu Icon can be accessed on all laptops and VA workstations
- It takes 5 computer mouse clicks, (30 seconds) for employees to answer when and where

- Increased reporting of outside flu vaccination by employees (captures 10% of total vaccinations)
- Encourages more employees to get vaccinated

Flu Self-Reporting Desktop Icon Replication Map

Now in over a third of all VA hospitals

As of April 28, 2017

67 Replicated
32 In Progress
QUESTIONS?

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