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The Right Way to Embrace Startup Innovation

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Hospital Review

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Agenda

1 Context and Purpose

2 Approaches and Techniques

3 Case Studies and Results







Digital Innovation a top priority

Executive Report

AHA & AVIA DIGITAL INNOVATION SURVEY

A summary of statistics and findings from the 2017 AHA and AVIA survey on digital innovation

...tied to our long-term strategy"

(5%)

...a priority at our health system"

...essential to meeting long-term goals and metrics"

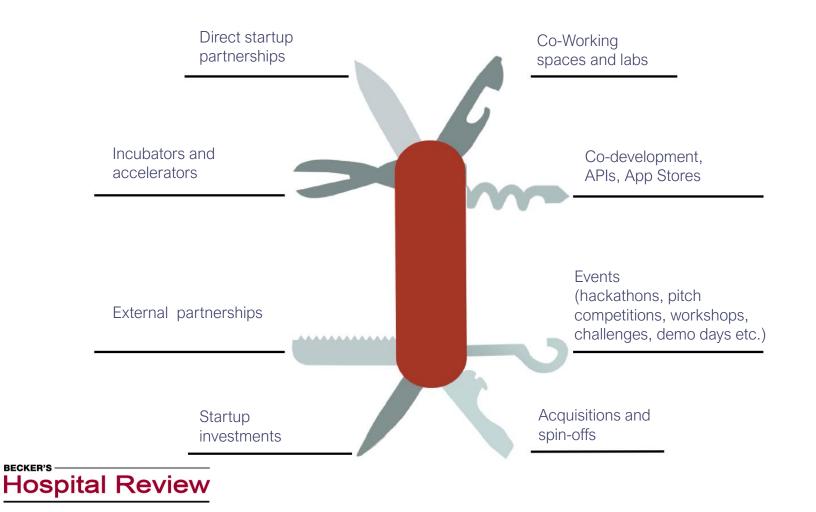
...pursuing it is necessary for a competitive advantage"

76%

leaders believe that innovation includes partnering with other innovative organizations

42%

leaders believe that innovation includes testing and scaling externallydeveloped digital solutions made by small to medium-sized solution companies



Digital Health Startup Pilots

DEFINITION: Product implementation trial with potential customers (payers, providers, pharma companies and others)

STARTUPS' PRIMARY GOALS FOR PILOTS Reported as % of startups selecting goal as one of the two most important Reported as % of startups selecting goal as one of the two most important NEW CUSTOMER PRODUCT/MARKET FIT RAISE FUNDING Image: Colspan="3">Optimized as for startups selecting goal as one of the two most important Image: Customer image: Custo

Question: "What are your primary goal(s) of pursuing a pilot? You may select up to 2 choices."

Answer Choices: (1) Raise funding. (2) Increase our brand reach. (3) Establish future revenue/customer. (4) Refine product/market fit. (5) Access to data.

Source: Streamlining Enterprise Sales in Digital Health, Sept 2017, available at https://rockhealth.com/reports/streamlining-enterprise-sales-in-digital-health/

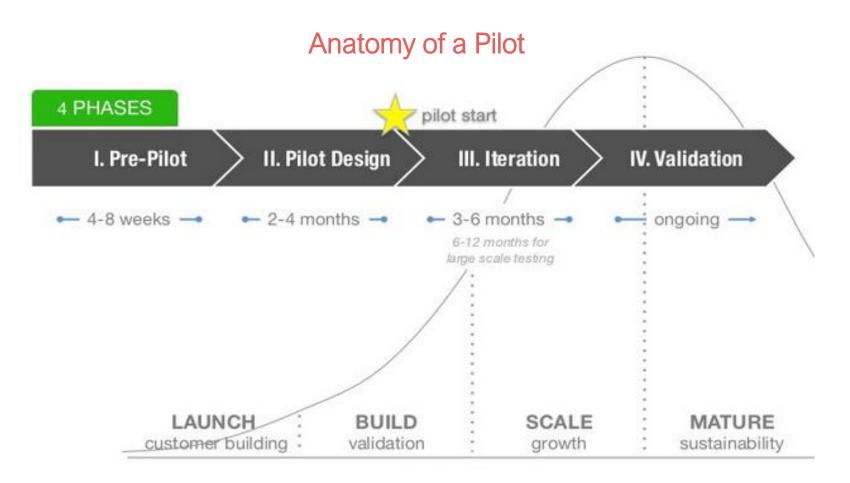
Key Challenges

Divergent Risk Profiles

Differing Motivations

Distinct Cultures

Complex Regulations



Source: The Entrepreneur's Guide to Hospital Partnerships, Sept 2012, available at https://www.slideshare.net/RockHealth/the-entrepreneurs-guide-to-hospital-partnerships

Reasons Pilots Never Reach Destination

Poor contracts lacking long-term commitment Vague success metrics Open-ended sponsor roles Failure to understand operational realities Runaway vaporware



BONUS: What are some challenges providers face with embracing startup innovation, driving and scaling pilots? #Aim2Innovate





Rasu Shrestha MD MBA @RasuShrestha

Pilot-itis. There has to be an **#ICD10** code for this ailment.

QDon't lead by pilots. No. Never. QLead by strategic alignment first.

#Aim2innovate #HIMSS18 @HIMSS



Rasu Shrestha MD MBA @RasuShrestha

Most startups are in a hurry; and most of healthcare is not.

Hind the right collaborators who have a shared VISION and shared sense of URGENCY.

#Aim2innovate #HIMSS18 @HIMSS



Bonus: Challenge with pilots is that they stay pilots. Often orgs enter into a pilot w/o clearly mapping what outcomes define success and worse not defining what the next steps are if it works. Figure it out BEFORE you agree to fund/start/work on a pilot #aim2innovate

10:52 AM - 8 Feb 2018

7 Retweets 19 Likes 🛛 😑 🌇 🧔 🧔 🗐 🔞 🥥 💷 🧔



Bonus: Major challenge is time & resources. Many providers doing all they can to see patients as it is & don't want new burdens. Means want fit in w/o more burden. #Aim2Innovate



Linda Stotsky @EMRAnswers

Funding. And actually defining success. Many times there are great ideas but no goals to get there. Must include the right people. Dreamers & Doers, #Aim2Innovate



Bonus: Many pilots never included a sustainable business model, so scaling is often near-impossible. #aim2innovate



Manish Sharma

@msharmas

"Pilots stay in the sky" with no one making the move to bring them to do the actual work

Don't need pilots need collaborations with startups to leverage the Agility and speed in delivery

#Aim2Innovate #HIMSS18

55% DO NOT HAVE a standard process to assess whether to pilot

49% DO NOT HAVE a standard process to decide whether to scale a pilot

47% DO NOT HAVE a standard process to assess and potentially discontinue innovation projects that are not consistent with org priorities

70% DO NOT HAVE sufficient IT resources to effectively support innovation



of the time a digital innovation is identified to fill a need, it does not receive a pilot



have NOT seen a large enough ROI from previous digital solution investments

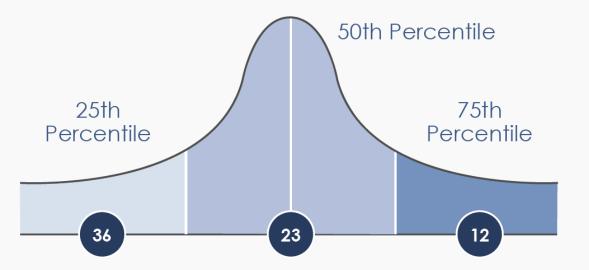


believe that the time put into digital innovation is spent inefficiently

Source: AHA and AVIA Digital Innovation Report 2017

Source: AHA and AVIA Digital Innovation Survey Executive Report, Sept 2017.

Going From Need to Pilot to Scale



STATISTICAL SUMMARY

Hospitals and health systems can vary a great deal in terms of the time it takes them to get from identifying a digital innovation need to scaling a solution to meet that need. Use this information to benchmark your efficiency and speed relative to other hospitals.

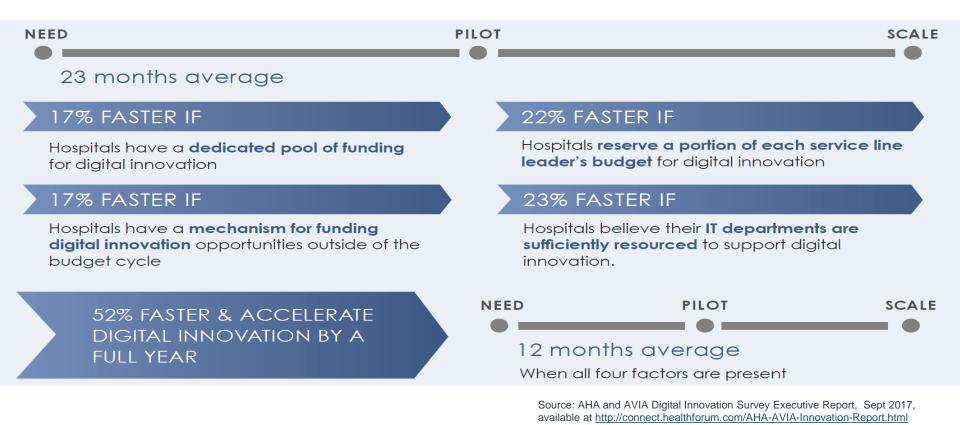
Months from identifying a digital innovation need to scaling a solution



Source: AHA and AVIA Digital Innovation Survey Executive Report, Sept 2017, available at http://connect.healthforum.com/AHA-AVIA-Innovation-Report.html

Shared Traits That Drive Scaled Success

The average hospital takes 23 months to go from recognizing a digital innovation need to fully scaling a solution





Develop a standard process

Invest in IT resources

Implement a flexible budget cycle for operations staff

Source: AHA and AVIA Digital Innovation Report 2017

Key factors for translating pilots to implementation

Clinical Validation

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Ensuring pilot clinical success metrics and validation processes are well defined and aligned with requirements for decision making.

Co-Development

Co-development between health system and innovator to develop DH applications that align with internal stakeholders' needs and vision of success.

Source: Tseng, Jocelyn, et. al. "Catalyzing Healthcare Transformation with Digital Health: Performance Indicators and Lessons Learned from a Digital Health Innovation Group." *Healthcare*, 25 Sept. 2017.

Iterative Models

Multiple sequential tests of DH solution where people, process, and/or technology are changed based on lessons learned to optimize pilots for success.

Matching Needs

Matching high priority needs and strong internal champions with DH solutions that meet those needs.

Capability Model

0 7	I. Pre-Pilot	II. Pilot Design	III. Iteration	IV. Validation
Relationship Management	 Intake/application process Community outreach and sourcing mechanism Identifying internal champions 	 Goals, roles, scope, incentives, metrics, budget Mutual timelines, milestones User recruitment Project Management, PR 	 Staging expansion plans Data analysis User surveys 	 Documentation of evidence Publishing papers/report External Marketing/PR
Regulatory / Security	Conflicts of interestFDA assessment	 IT Security Compliance HIPAA certification / audit IRB / Quality Improvement EMR Data Requests 	Security monitoring	 Security validation File for FDA clearance as appropriate
Technical	 Interface documentation Scoping High level technical assessment 	 Technical integration Workflow integration Connectivity Single Sign On Data sharing 	 API builds Technical standards adherence Technical documentation 	 Technical validation & verification
Legal	Disclosure policiesProvisional patentsGrant application	 NDA IP considerations Contracting: LOI, SOW, BAA, other T&Cs 	File patents	SLAsContractual obligations

Source: Adapted from Rock Health's "The Entrepreneur's Guide to Hospital Partnerships", Sept 2012, available at https://www.slideshare.net/RockHealth/the-entrepreneurs-guide-to-hospital-partnerships

Additional Considerations

Only pilot what you intend to buy





Be honest with yourself about how much customization you really need



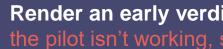
Source: "Healthcare IT startups have become too willing to accept pilot status," Lisa Suennen, MedCityNews, May 2016, available at https://medcitynews.com/2016/05/healthcare-startupsbecome-willing-accept-pilot-status/, accessed March 2, 2018; Interviews and research



Think hard about whether a pilot is really necessary



Don't measure success by # of pilots; have the right approach



Render an early verdict – if it's clear the pilot isn't working, stop it early



Case Studies

Case Study #1

Dignity Health

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Approach in Brief: Run, Run, Jump

- Approach to startup pilots modeled after a swimming technique for toddlers; launched in 2012
- Accepts three to five "emerging" companies per year to test and launch pilots with the goal of scaling them.
 Recent pilots include AirStrip, Augmedix, Propeller Health, and Go Health
- "Run, run" refers to two sets of pilots and "jump" refers to broader deployment
- First pilot is run in a favorable environment and assessed for small, quick impact; second pilot involves a higher bar that must be met for a system wide roll out; 15 startups have been brought to scale using the approach
- Also has a separate investment arm; investment terms vary widely – include rev-sharing agreements, co-development deals, and traditional equity stakes

Like kids, early stage **startups have to jump in, but they need to do it in a way that is safe and tested.** Using the "run, run, jump" method, we test a new product with one team in a specific geography — the first "run." If that product passes the first test, Dignity Health will try it again in a different geography and team on a second run. If it works with both runs, then we jump to scale it."

> Rich Roth Vice President of Strategic Innovation Dignity Health

Source: "Run, run, jump': the Dignity way for scaling innovation", Lisa Ward, Modern Healthcare, Nov 2016, available at http://www.modernhealthcare.com/article/20161119/TRANSFORMATION04/161119960; accessed March 2, 2018; "Health 2.0 Conference: Finding a Way Into Workflow and Life Flow," Rebecca Vesely, California Healthline, Oct 2013, available at https://californiahealthline.org/news/health-20-conference-finding-a-way-into-workflow-and-life-flow, accessed March 2, 2018.

Augmedix jumps in at Dignity



- Founded in 2012 and headquartered in San Francisco, CA
- Offers HIPAA-compliant Google Glass-powered remote scribe services to improve physician productivity

Small first deployment with only four PCPs serving primarily middle class patients, many of whom were on Medicare. Simple metrics ("micromeasures") used to prove the pilot's success Begun scaling services with other physicians within Dignity and expanded deployment to Bakersfield and Redding. Continues to scale through a measured rollout.

Source: "Run, run, jump': the Dignity way for scaling innovation", Lisa Ward, Modern Healthcare, Nov 2016, available at http://www.modernhealthcare.com/article/20161119/TRANSFORMATION04/161119960; accessed March 2, 2018

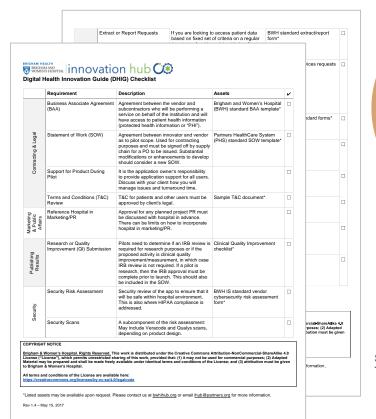
Second deployment began with four PCPs working out of three clinics and expanded to 12 physicians and an additional four clinics. Physicians served a younger, less affluent patient population with migrants. Case Study #2

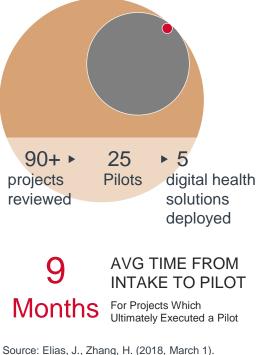
Brigham Digital Innovation Hub

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Process in Brief: Digital Health Innovation Guide (DHIG)

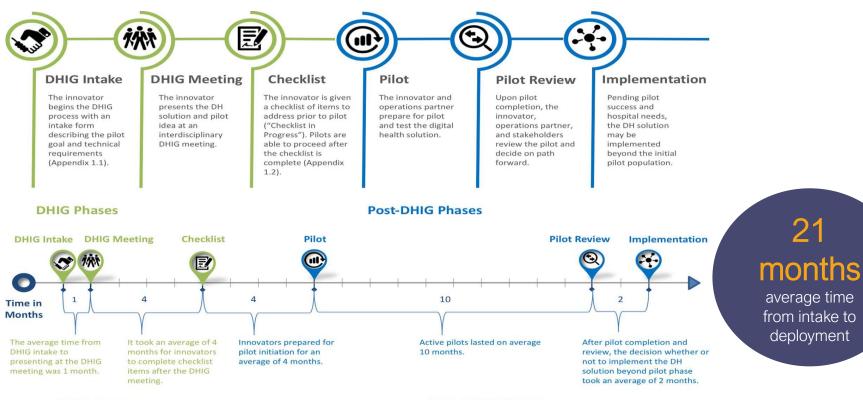
- Governance process to expedite decision making and improve success likelihood by ensuring proper approvals and best practices are followed
- Ensures risk reduction both for individual projects and broader organization
- Involves cross-functional guidance from information security, EHR, compliance, IRB, and other teams
- Serves as a single repository for all navigational needs of external (and internal) innovators
- Check-list driven approach includes pre-approved guardrails and regular check-in to keep projects on track





Source: Elias, J., Zhang, H. (2018, March 1). Telephone interview. Brigham Digital Innovation Hub.

Brigham iHub's DHIG Supported Implementation Pathway



DHIG Phases

Post-DHIG Phases

Source: Tseng, Jocelyn, et. al. "Catalyzing Healthcare Transformation with Digital Health: Performance Indicators and Lessons Learned from a Digital Health Innovation Group." *Healthcare*, 25 Sept. 2017.

Project-Based Monitoring and Detail Checklists Track for Progress and Pitfalls

	BWH iHub R	eadine	ss Da	ashboard:			In Pro 05/0										
Primary Contacts	What problem are you trying to so	lve?:								K	ey proje	ect in	dicat	ors			
Innovator	what prociem are you trying to solve ?:							•			Caala						
Assigned To:										•	Goals						
Clinical/Administrative										•	Contac	te					
Champion Why is this important?: Assigned To:										Contacts							
longited to:								•	Task St	tatus							
Project Manager	How will this benefit BWHC?:																
Assigned To: Vendor										 Issues 							
Assigned To:																	
Contracting/agreement associate	Readiness Review								Files								
Assigned To:	Primary	Status	Start Date	Assigned To	Apr 30 May	May 7 May 14	May 21	Aav 28 Jur	14								
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	2. Information Security	In Progress	05/04/17			-	_	_									
iles	3. Project Management 4. Marketing/Public Affairs	Not Started Not Applicab					0 - i	At T	ask Name		Start Date	End Date	Status	Assigned	Ser	Comments	
Readiness Review Comb	5. Consult with Legal	Not Applicab					• - •	Risk "	ISK Name		Date	End Date	Status	То	Ser	Comments	
SharePoint files	6. IRB/QI	Not Applicab				1		PE	1. Supply Cha	ain Managem	ent		In Progress	1			
	7. PeCare Research Team 8. Hardware/Software Technical	Not Applicab	07/06/17			2	0 🗆	P	Business A	ssociate Agre			In Progress				
	Support 9. Milestones for Success and	Not Started				8 6			(BAA) Contract/Ag				In December 1				
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Service Now Tickets	10. Innovation and Data Sharing	g In Progress				5	0		Term Sheet		,		Not Applica				
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	Contract/Agreement In Progress			Comments	_	8	0		(VISP) Opening Po	rte			Not Applica				
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UPMC Enterprises

As an organization dedicated to Life Changing Medicine, UPMC has defined a bold mission: to shape the future of health care through innovation. At UPMC Enterprises, we help bring this mission to life by turning innovative ideas into growing, thriving businesses.



venture capital fund incubator angel investor angel investor corporate venture investor growth equity fund for accelerator non-profit innovation fund strategic buyer public company



Cost Pressure

Increased Emphasis On Quality

Opportunity

lantern UPMC

Lantern is an accessible, measurable digital program that combines evidence-based Cognitive Behavioral Therapy and mindfulness with the support of a behavior change coach to help individuals better manage stress, anxiety, and depression.

Pilot in UPMC Primary Care Offices:

Of the patients who completed both baseline and two-month assessments, **30% showed statistically significant improvement** in their anxiety symptoms. On average, study participants spent approximately 165 minutes in the program over 18 days. Even more promising, an early analysis of 6-month results by UPMC and Lantern researchers show reduced utilization of medical care from patients who used the app.



Vivifyhealth UPMC

Vivify Health is a leading mobile population health solutions company focused on remote patient monitoring. The company offers a wide range of solutions covering high-, rising- and at-risk patients, and is the first end-to-end remote care management platform to utilize consumer electronics, wireless health devices, and the cloud.



UPMC Health Plan	Medicare patients
nembers age 65+ who	enrolled in the
enroll in the Vivify	program were 76%
remote monitoring	less likely to be
rogram are now 74%	readmitted within 90

days of discharge.

Success at UPMC:

The Vivify software has triaged more than 73,000 clinical information data **points**, helping nurses respond in priority to the 2% of data points showing clinical relevance in need of intervention.

Remote monitoring compliance rates have increased to 92% with the use of Vivify.

members age enroll in the remote mor program are now **74%** less likely to be readmitted to the **hospital** within 90 days of discharge,

Five Success Factors



Successful Pilot

lantern





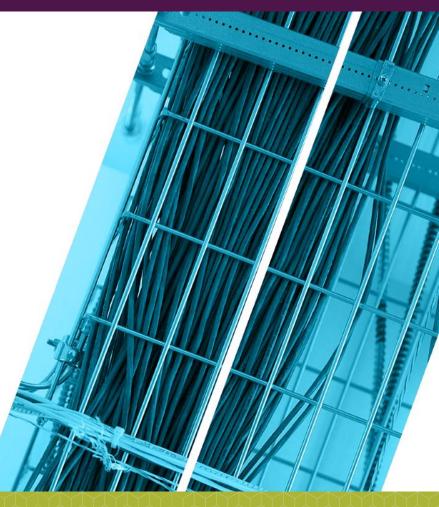
Product Rollout/Distribution

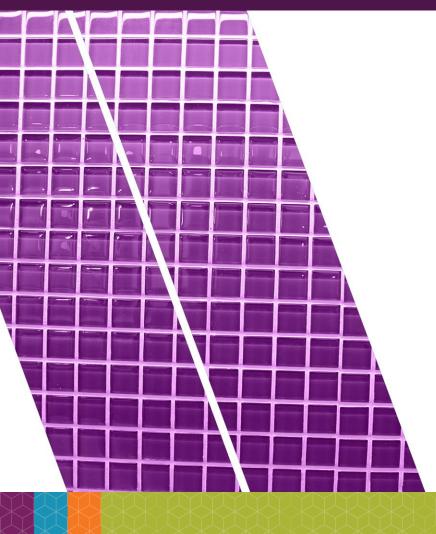




IT Systems Integration Health Catalyst ignite outcomes improvement







Workflow Integration

Vivifyhealth



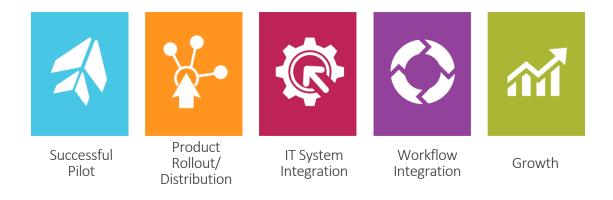
Growth







Five Success Factors







Rise of the App Stores of the EHRs

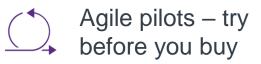
Allscripts Developer Program



Vathenahealth marketplace MORE PLEASE

Benefits of App Stores







BECKER'S

Hospital Review

Cut down integration costs and implementation time

S Lower investment and risk



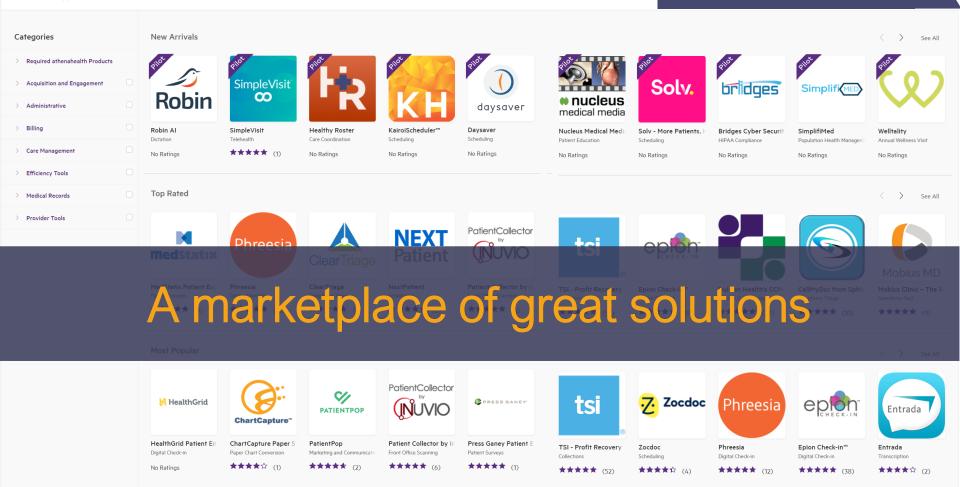
Shopping experience – choice of similar functionality within category

 Filter signal from noise –
 glean from peer reviews and best practices

Vathenahealth marketplace

Q Search apps...

200+ apps and services



Discussion

"They're blind to how healthcare is different."

"Piloting with health systems is like being dragged out into the middle of an ocean & being abandoned."



"They don't understand that we can't just spin something up just because we are a big system."



"Failing Fast' is unacceptable in healthcare."

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"They think they can retire on their killer app idea by getting their kid's college roommate to code it for them."

"No more hyperbole and enough with the vaporware."



adventures, especially · into new territory, are scary - Sally Ride

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ALCO.

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