

# *How to Navigate & Design for Digital Health*

Session 97, August 11, 2021

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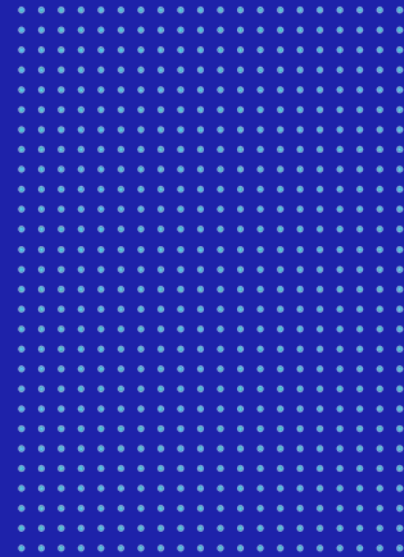


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*Welcome*



Molly Woodriff, MPH  
*Senior Product Manager  
at NYU Langone Health*



# *Conflict of Interest*

Molly Woodruff, MPH has no real or apparent conflicts of interest to report.

# *Agenda*

- NYU Langone Health
- What is Digital Health?
- Design Thinking for Digital Health
- Keys to Success & Navigating Challenges
- Q&A

# *Learning Objectives*

- Describe five key phases of a design thinking approach to developing digital health technology
- Apply design thinking principles/model to real-world patient use cases from a large hospital setting
- Discuss the opportunities and challenges of implementing design thinking approaches within large hospital systems
- Explain the importance of an empathetic, multi-disciplinary, and cross-functional approach to innovative technology development within a large academic medical center
- Restate the value to patients, technologists, and healthcare organizations that design thinking, and in particular a commitment to early, frequent user data gathering, provides to the development

*NYU Langone  
Health*



is one of the nation's premier academic medical centers. Our trifold mission to **serve**, **teach**, and **discover** is achieved daily through an integrated academic culture devoted to excellence in patient care, education, and research.



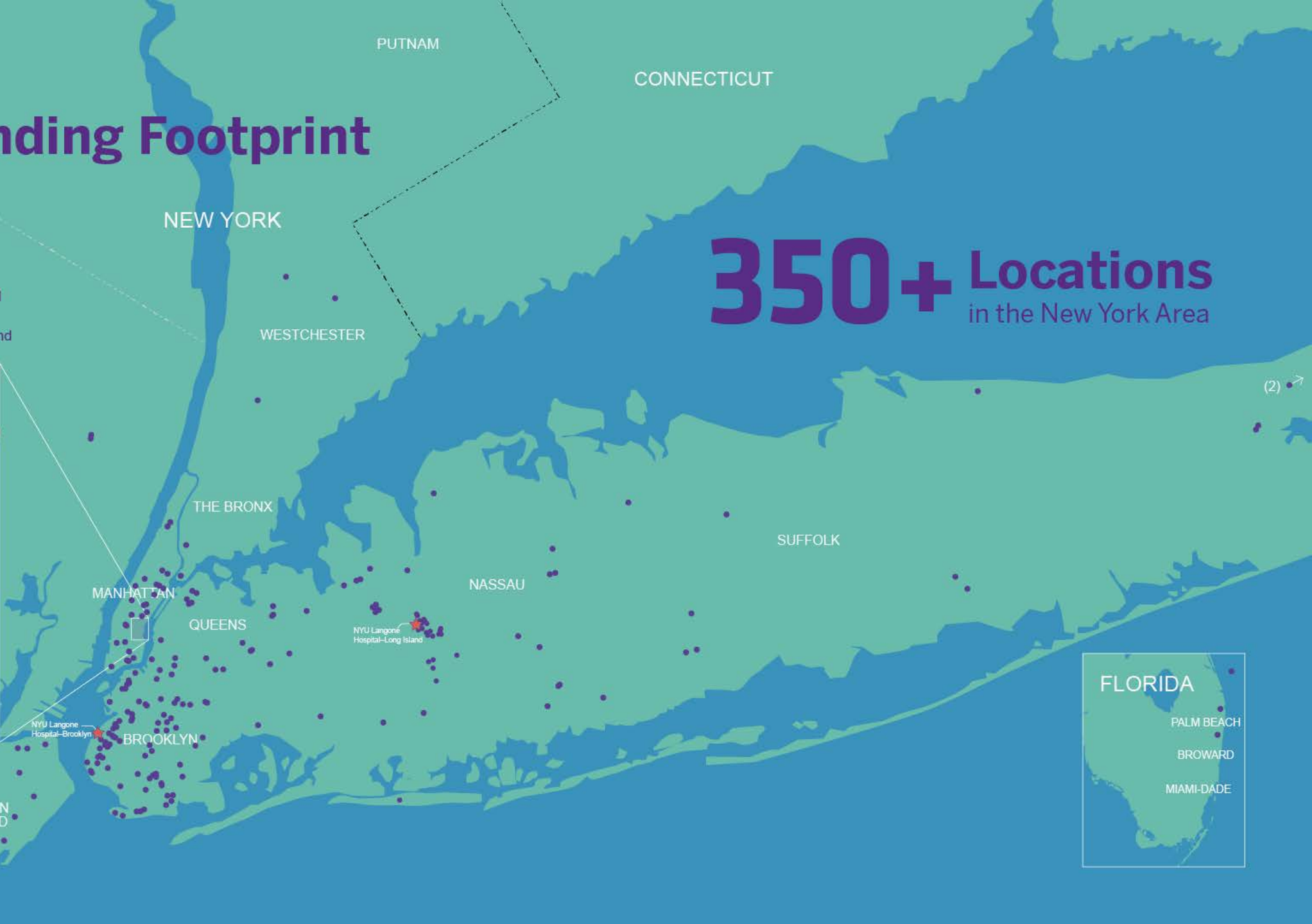
# Our Expanding Footprint

● NYU Langone Locations

★ Inpatient Locations

- Tisch Hospital
- Kimmel Pavilion
- Hassenfeld Children's Hospital
- NYU Langone Orthopedic Hospital
- NYU Langone Hospital—Brooklyn
- NYU Langone Hospital—Long Island

**350+** Locations  
in the New York Area



As of April 2021



# Recognition & Honors



# **2** Top Medical School for Research



**TOP 10** Best Hospitals and Nationally Ranked in 15 Adult Specialties

**4** Investigators for the Howard Hughes Medical Institute

**11** Members of the National Academy of Sciences

**10** Members of the Health and Medicine Division of the National Academies of Sciences, Engineering, and Medicine

**18** Fellows of the American Association for the Advancement of Science

**8** Members of the American Academy of Arts & Sciences

# Recognition & Honors



**Vizient's Bernard A. Birnbaum, MD, Quality Leadership Award and Ambulatory Care Quality and Accountability Award\*** for Demonstrated Excellence in Delivering High-Quality, Patient-Centered Care



**Grade A Leapfrog Hospital Safety Grade** for Protecting Patients from Errors, Injuries, Accidents, and Infections



**Five-Star Quality Rating** by Centers for Medicare and Medicaid Services (CMS)



**Magnet Designation** for Nursing Excellence Achieved by Only 8% of Hospitals in the Country



**The Gold Seal of Approval®** by The Joint Commission, Reflecting a Commitment to High-Quality Patient Care

# NYU Langone Health National Recognition and Achievements in IT



HIMSS Davies  
Award Recipient



HIMSS  
EMRAM/OEMRA  
M Stage 7  
Enterprise



Staff  
Recognized for  
Excellence by  
ComputerWorld



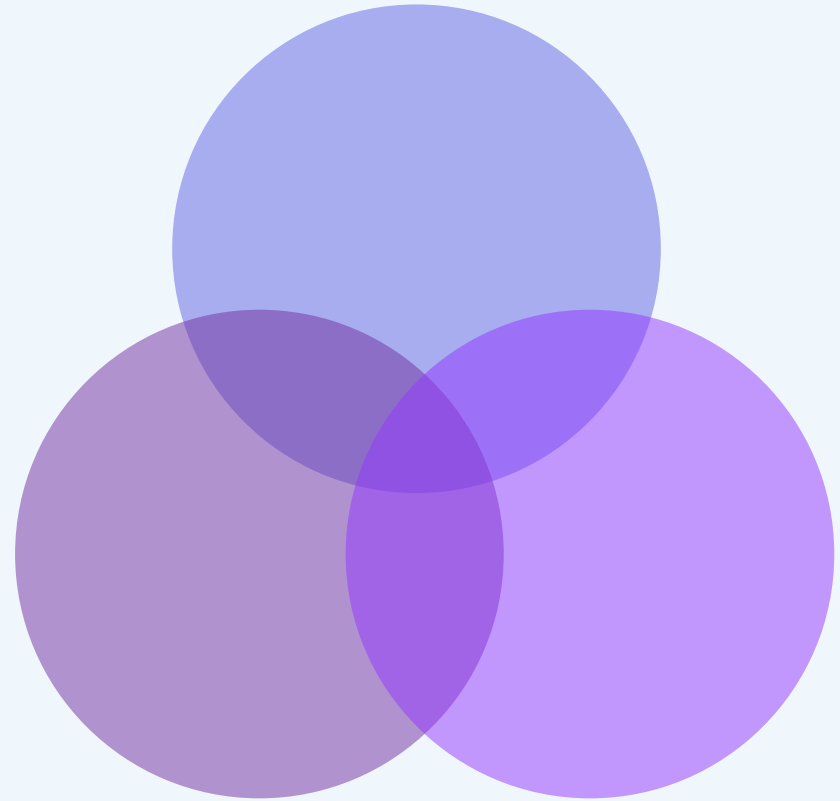
Most Wired  
Hospital



HIMSS AMAM  
Stage 6  
Enterprise

# *Digital Health*

Digital Health is the convergence of technology, medicine, and human activity



70B

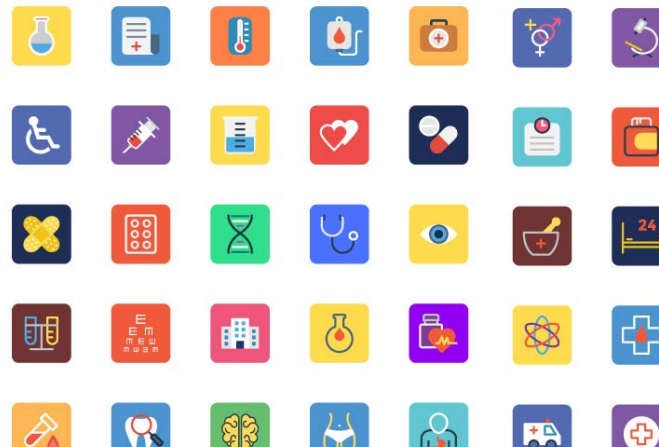
Invested in digital health startups since 2011  
(Source: Rock health funding database)

400K+

Wellness, research, and clinical apps in  
the Apple and Play stores.



The tech industry giants are involved



# DIGITAL HEALTH FUNDING

2011-H1 2021



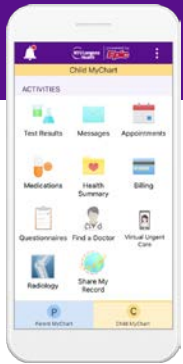
## TOTAL VENTURE FUNDING

# OF DEALS



Note: Only includes U.S. deals  $\geq$ \$2M; data through June 30, 2021  
Source: Rock Health Funding Database

# NYU Langone Health is active in the digital health innovation space



NYU Langone Health App

Patient Portal (Epic)



Find a Doctor

Search & Appointment Scheduling



Virtual Urgent Care

Telemedicine



Radiology Scheduling

Mobile App Integrated Scheduling



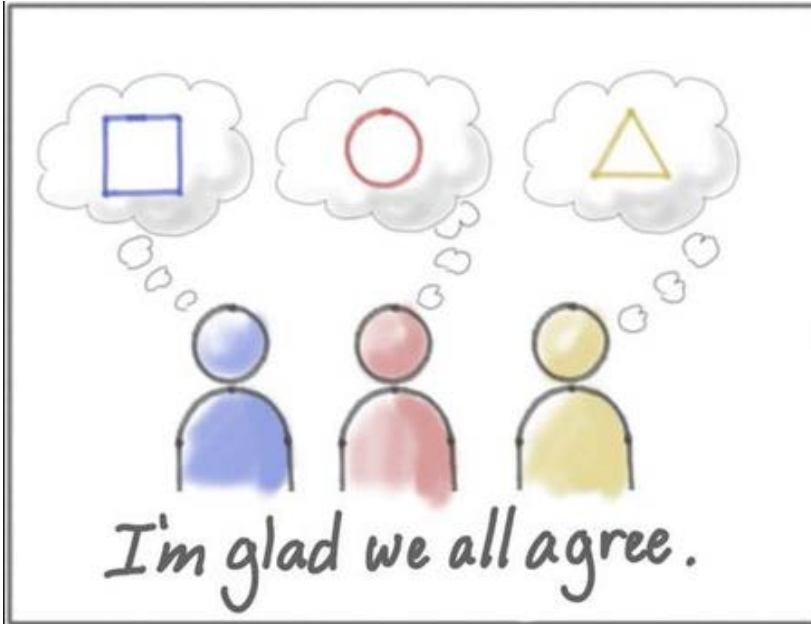
MyWall

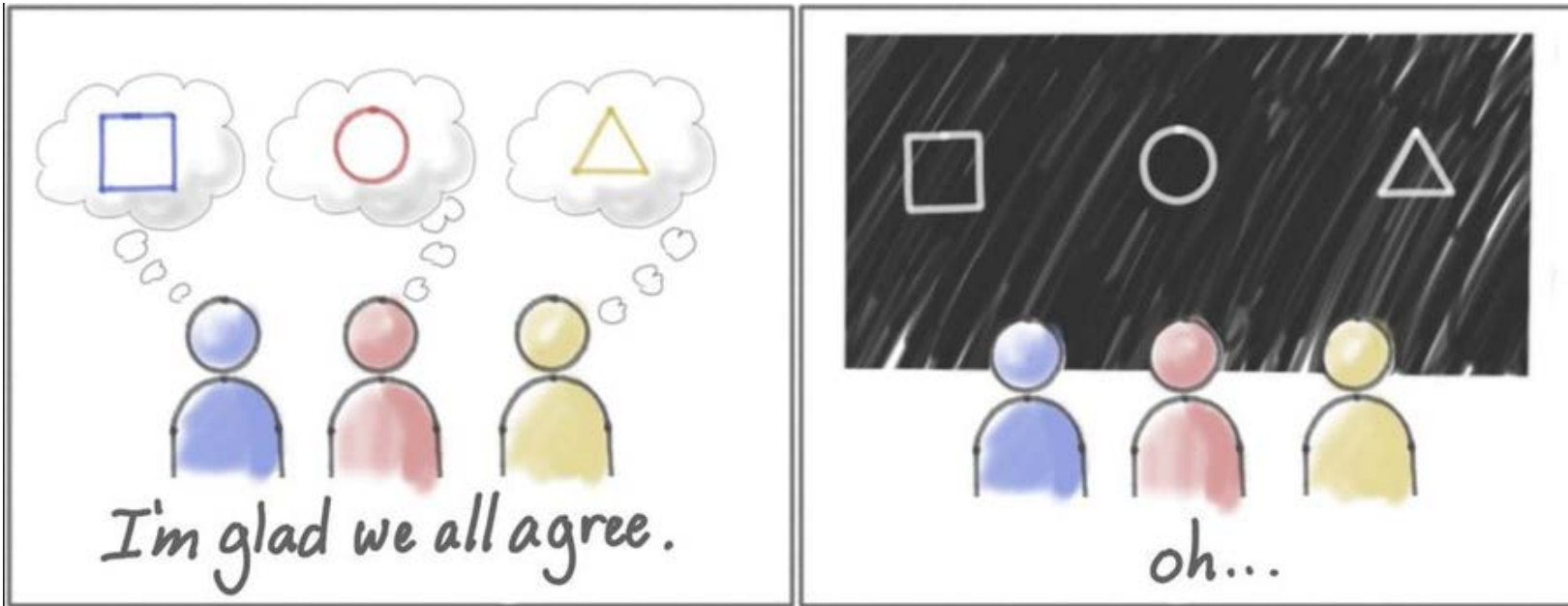
Inpatient & family experience

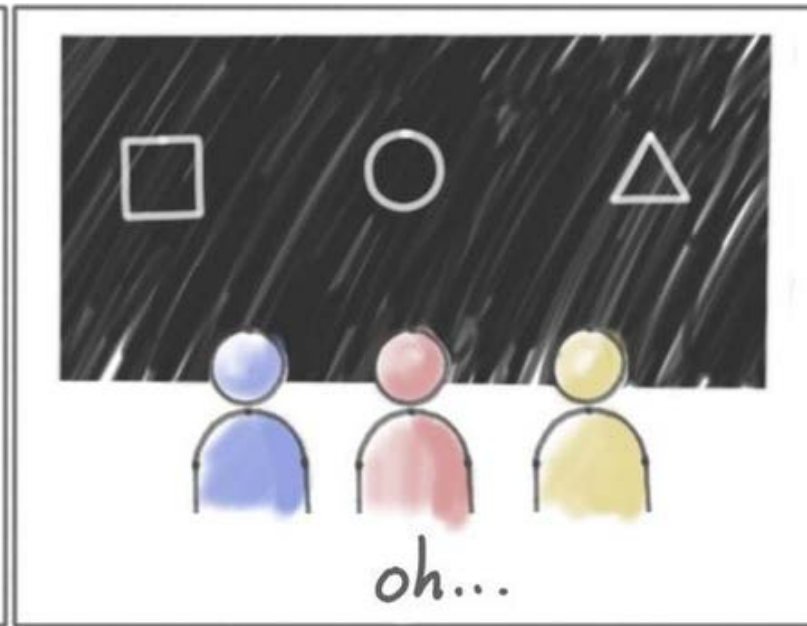
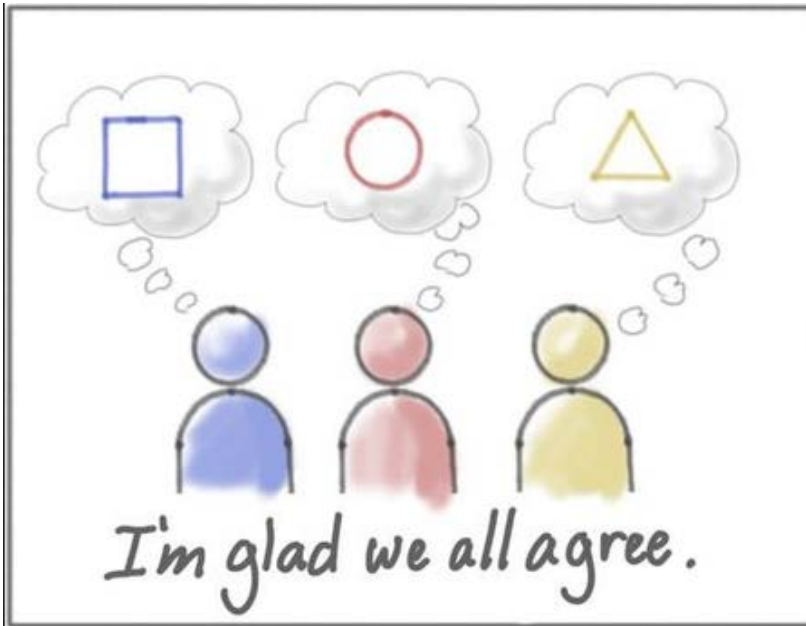


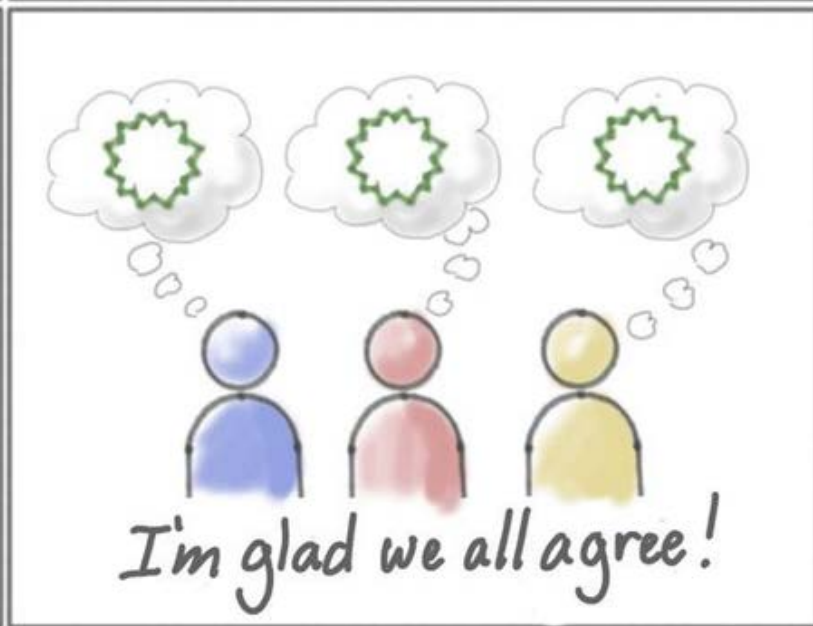
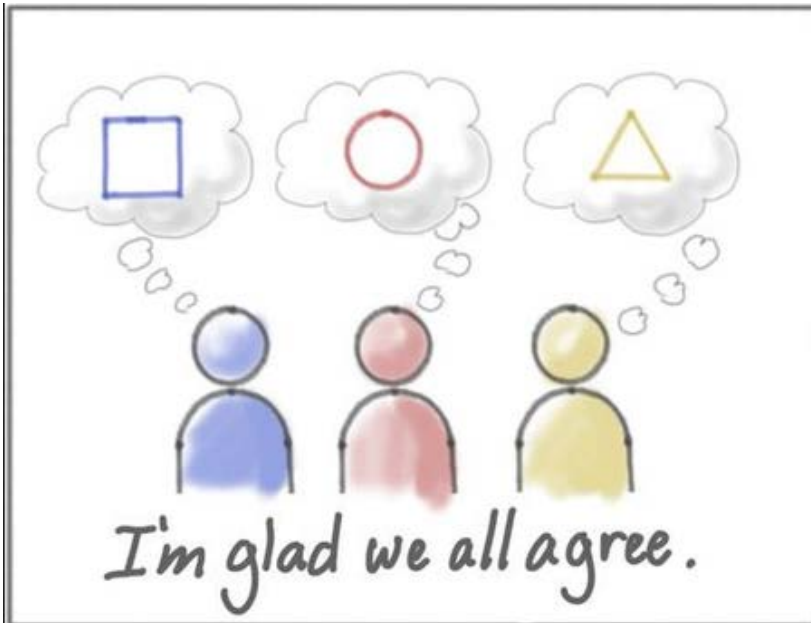


*Designing for  
Digital Health*



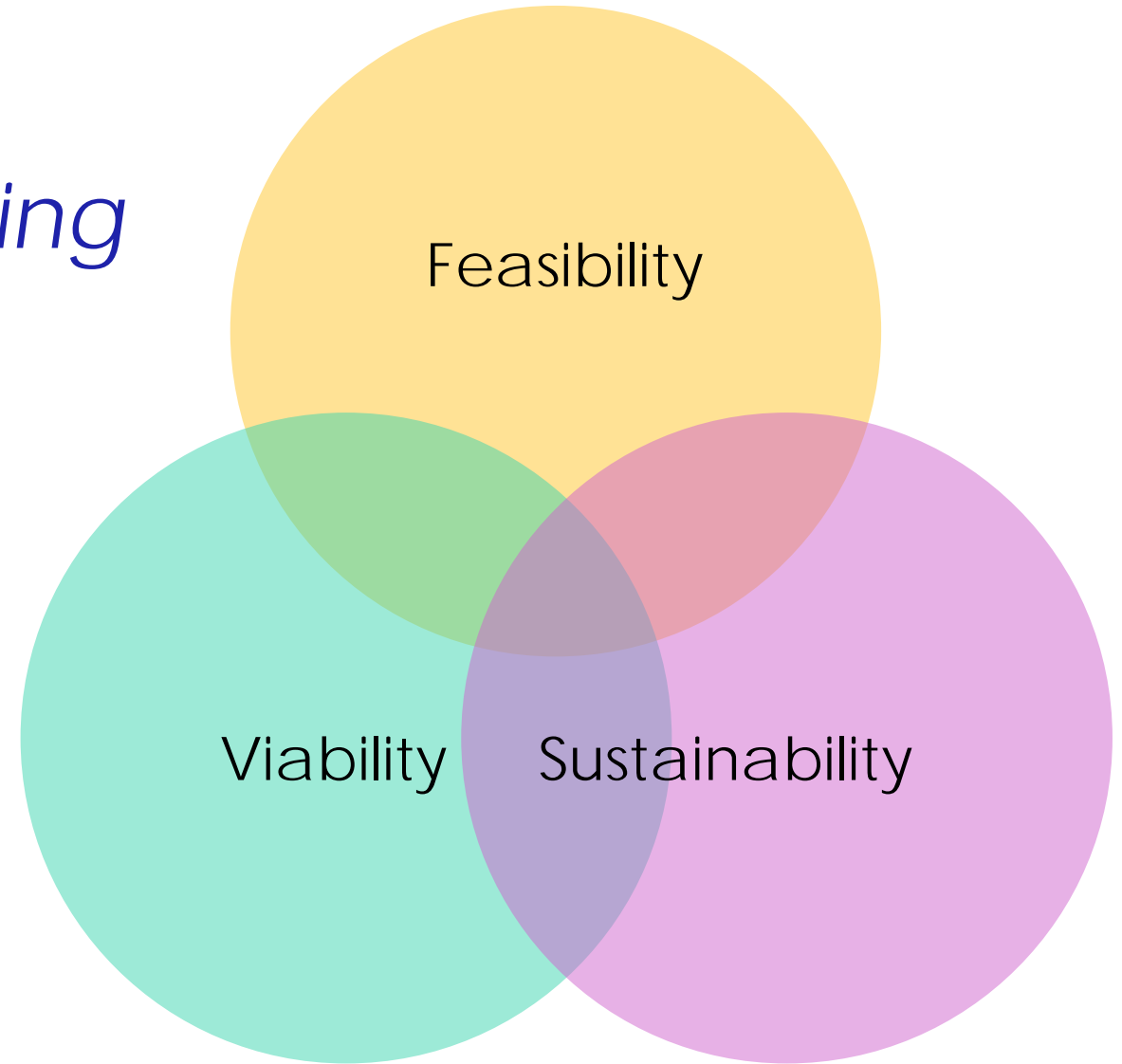






# Objectives of Design Thinking

- Follow a process to ensure a **human-centered design approach**
- **Untangle** the complexities of a problem
- Optimize for **design evolution**





*Once you label me, you negate me.*

Soren Kierkegaard

*Danish Philosopher (1813-1855)*

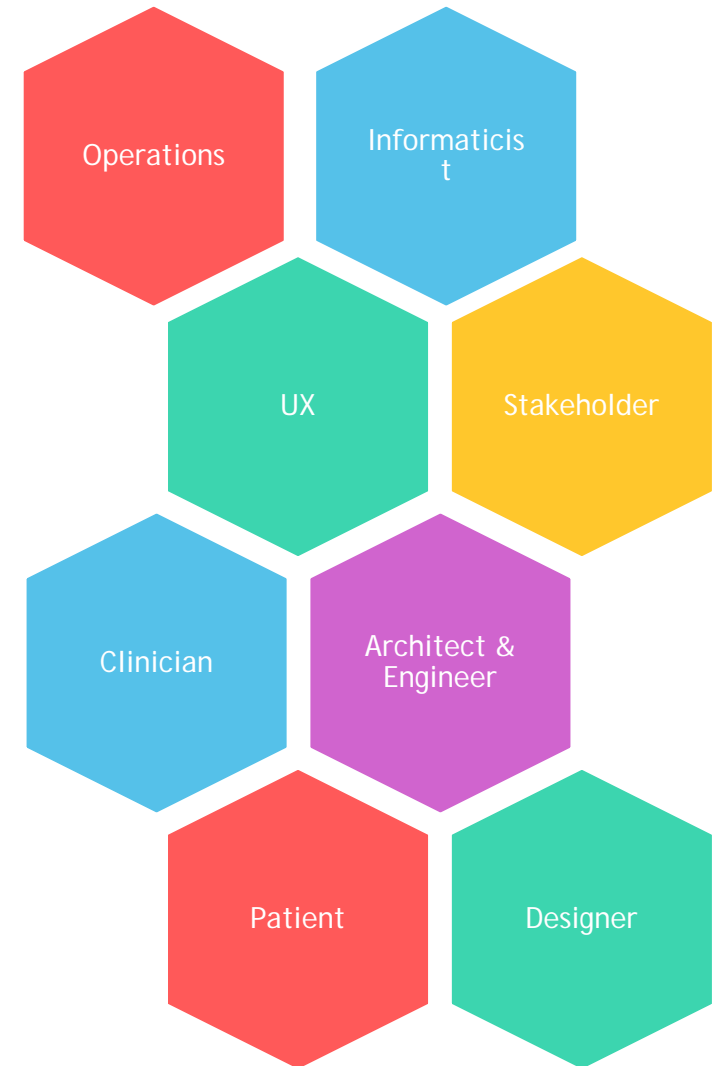
# *Building a multi-disciplinary team*

Get everyone involved

Ensure a diversity of perspectives

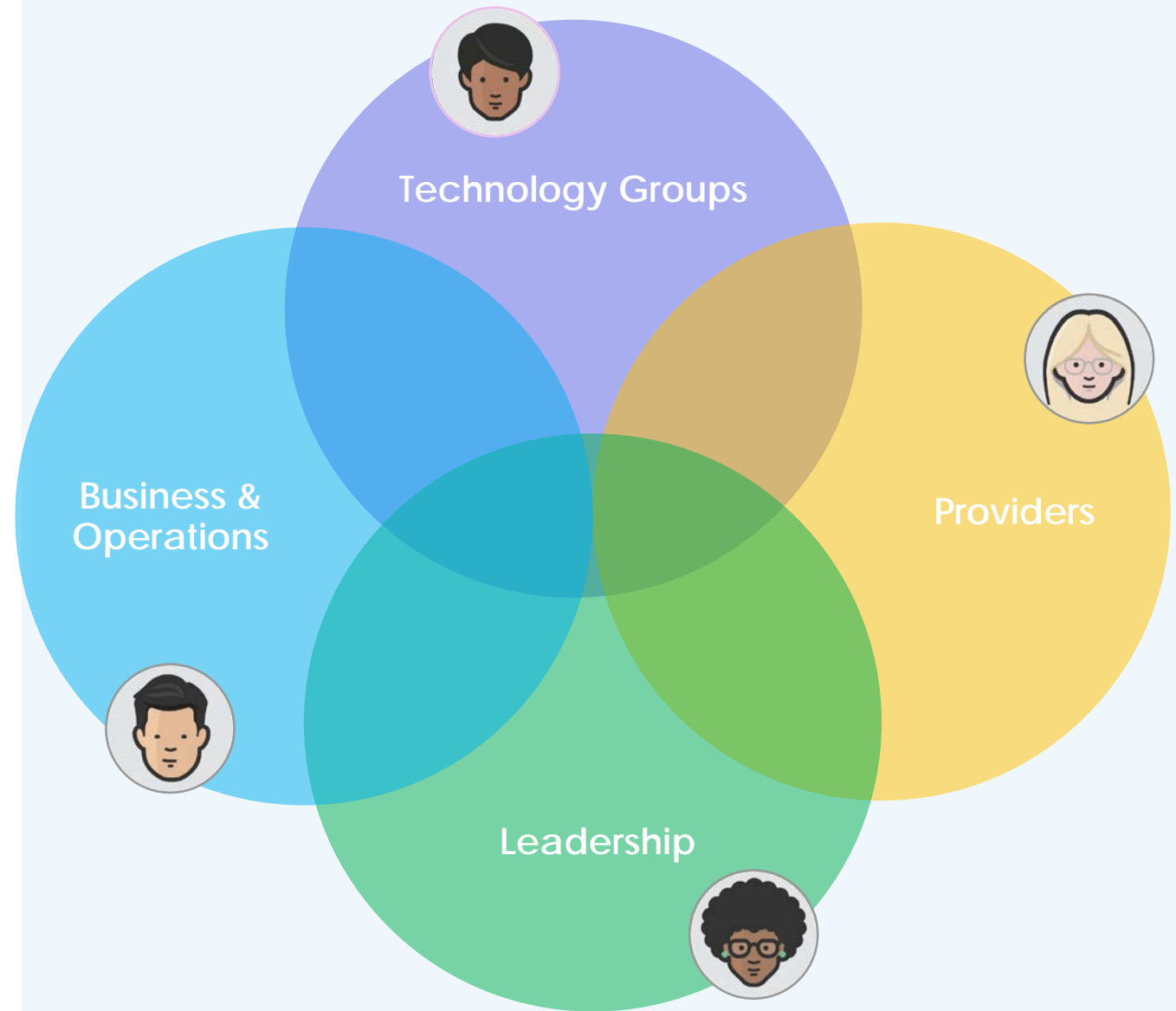
- Stakeholders who can pay attention to detail AND see the big picture
- Experience/product front-stage and back-stage

Team impacts viability, sustainability, feasibility





# Support from key stakeholders across silos



# *The Process*



ORBO



DESIGNING THE  
PRODUCT



DESIGNING THE  
EXPERIENCE



## *What is design thinking?*

**An approach to solving problems which is:**

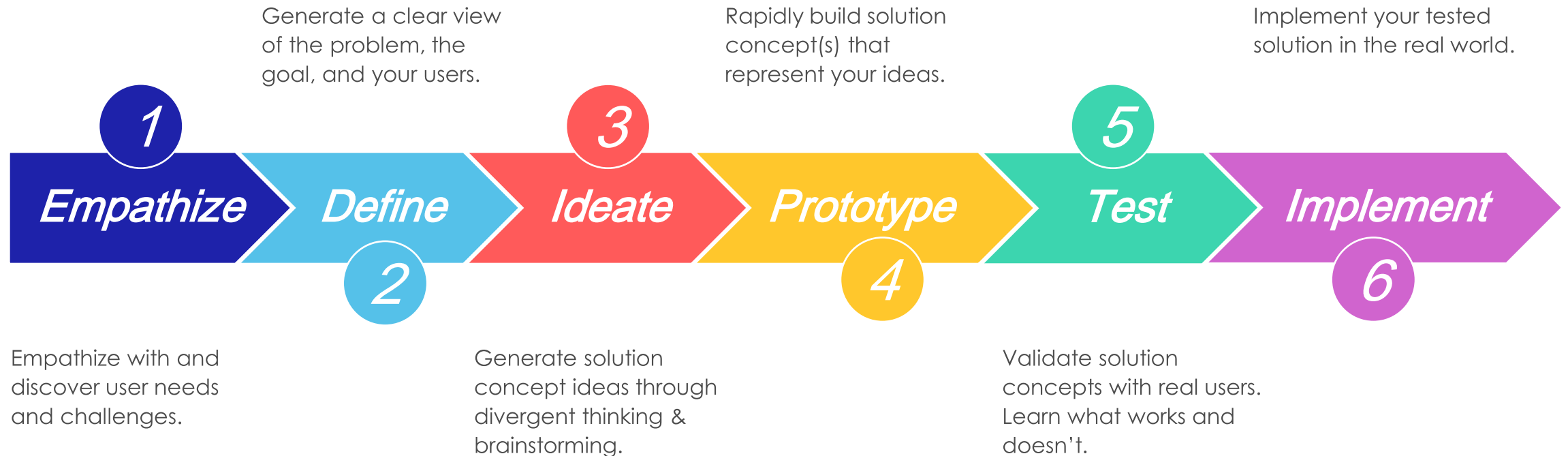
Human-centered

Creative

Collaborative & inclusive



# Phases of Design Thinking



# *Design Thinking Mindset*



# 1 Empathize

- Understand what your users do, think, say, and feel
- Observe, engage, watch & listen
- Conduct user research
  - **User Interviews**
  - **Shadowing / observations**
- Acknowledge blind spots & gaps in understanding





## 2 Define

- Synthesize your insights
- Understand the problem from your user's perspective
  - User journeys
  - Storyboard
  - Persona
  - Empathy map
- Define (or redefine) the problem
  - Problem statement
  - Hypothesis statement

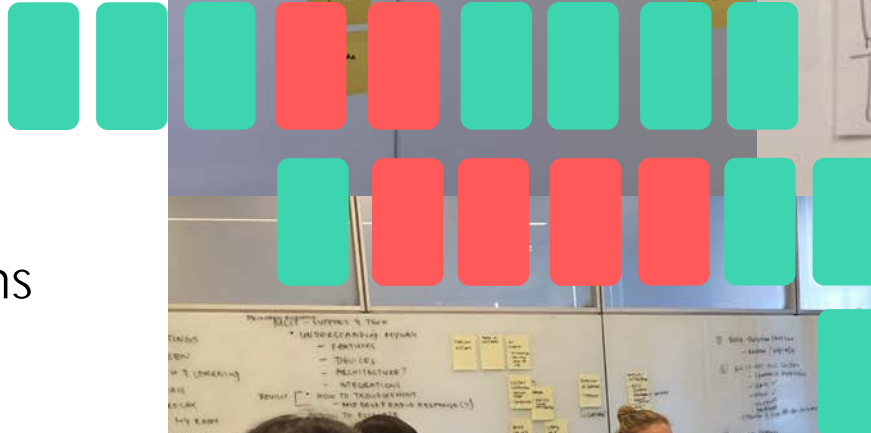
*“A wonderful interface solving the wrong problem will fail.” – Jakob Nielsen*

The collage illustrates various user experience design tools:

- Service Blueprint:** A process flow diagram for a 'CAREERS' service, showing stages like 'Finding Careers', 'Enabling on-Career', 'Ordering Careers', 'Building Careers', 'Eating & Presentation', and 'We serve, follow up, Partner'.
- User Profile:** A form for 'Full Name' with fields for 'Goals' (e.g., 'The goals this user hopes to achieve'), 'Motivations' (e.g., 'Incentive', 'Fear'), and 'Personality' (e.g., 'Introvert', 'Analytical', 'Conservative', 'Passive').
- Empathy Map:** A central diagram for a female user with three sections: 'WHAT DOES SHE THINK AND FEEL?' (What really matters to her? What occupies her thinking? What worries and aspirations does she have?), 'WHAT DOES SHE HEAR?' (What are friends, family and other influences saying to her that impacts her thinking?), and 'WHAT DOES SHE SEE?' (What things her environment influence? What competitors...?).
- Journey Map:** A graph titled 'THOUGHTS & FEELINGS' and 'PHASES OF THE JOURNEY' showing 'Emotional/Physical Food Journey Throughout the Day' and 'Emotional toward NMFG'. It includes a 'Sugar crash!' and a 'Sugar crash!' label.
- Persona Card for FANNY:** A detailed profile for 'FANNY', a 43-year-old Medical Secretary at CMC. It lists her 'MOTIVATIONS' (Being good at my job, efficiency, Helping patients, Helping my boss, Being appreciated by my supervisors), 'GOALS' (Family, Work-life balance, Professional growth, learning EPIC), 'FRUSTRATIONS' (High volume of work, when others slack off, Complicated IT systems, Dealing with insurance companies, Inconsistent messages), and 'HOPES' (Being happy and secure in my job, Getting more done, learning the system). It also includes a photo of her at work and a quote: "This is complicated!" "Am I going to be responsible for this?".

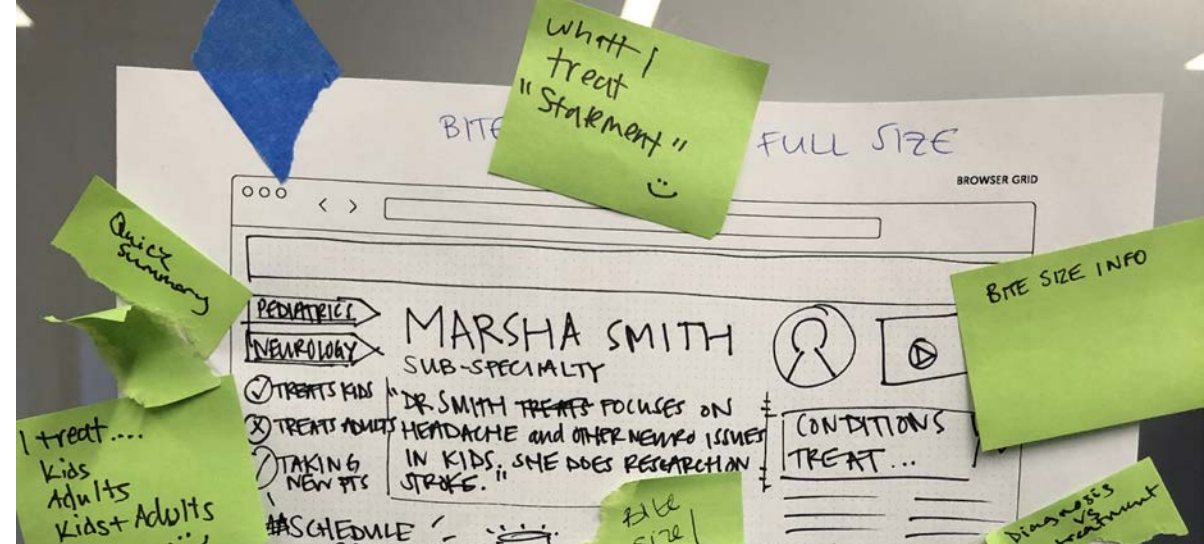
# 3 Ideate

- Generate ideas that address the defined problem
  - Build a team
  - Brainstorm
- Explore wide range of solutions
  - Information Architecture
  - User Journeys with solutions
  - Potential New User Flows
  - Front-stage / back-stage



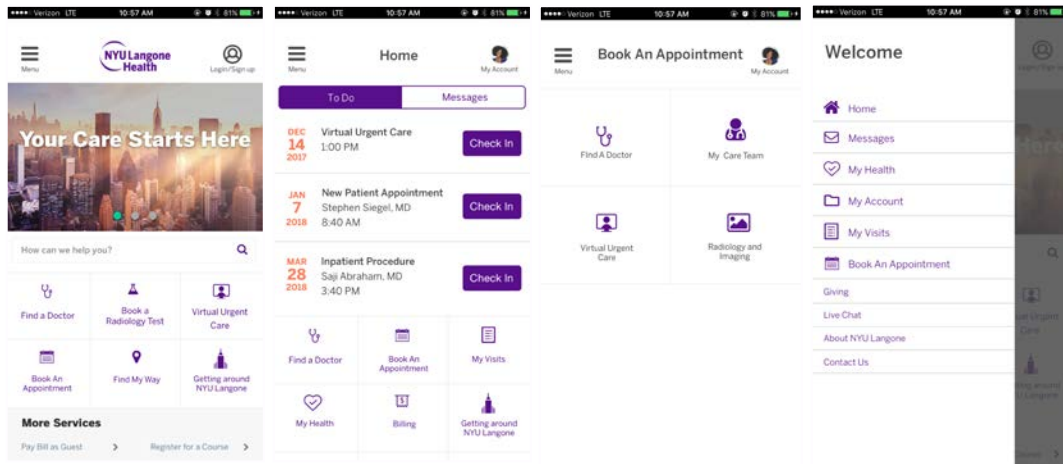
## 4 Prototype

- Paper
- Wireframes
- High fidelity
  - Design mockups
  - Interactive

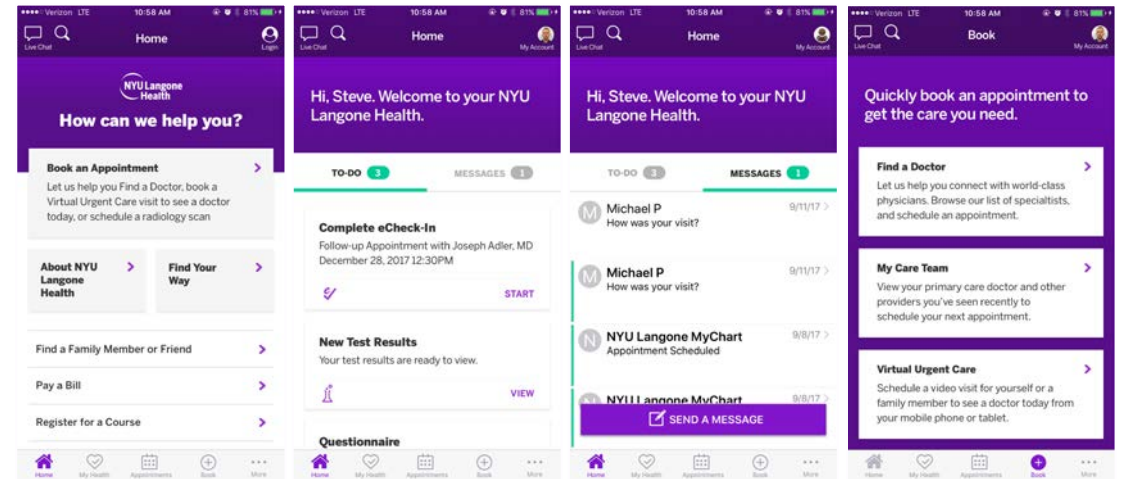


# Prototyping Navigation Menu for NYU Langone Health App

## Hamburger Menu



## Tab Menu

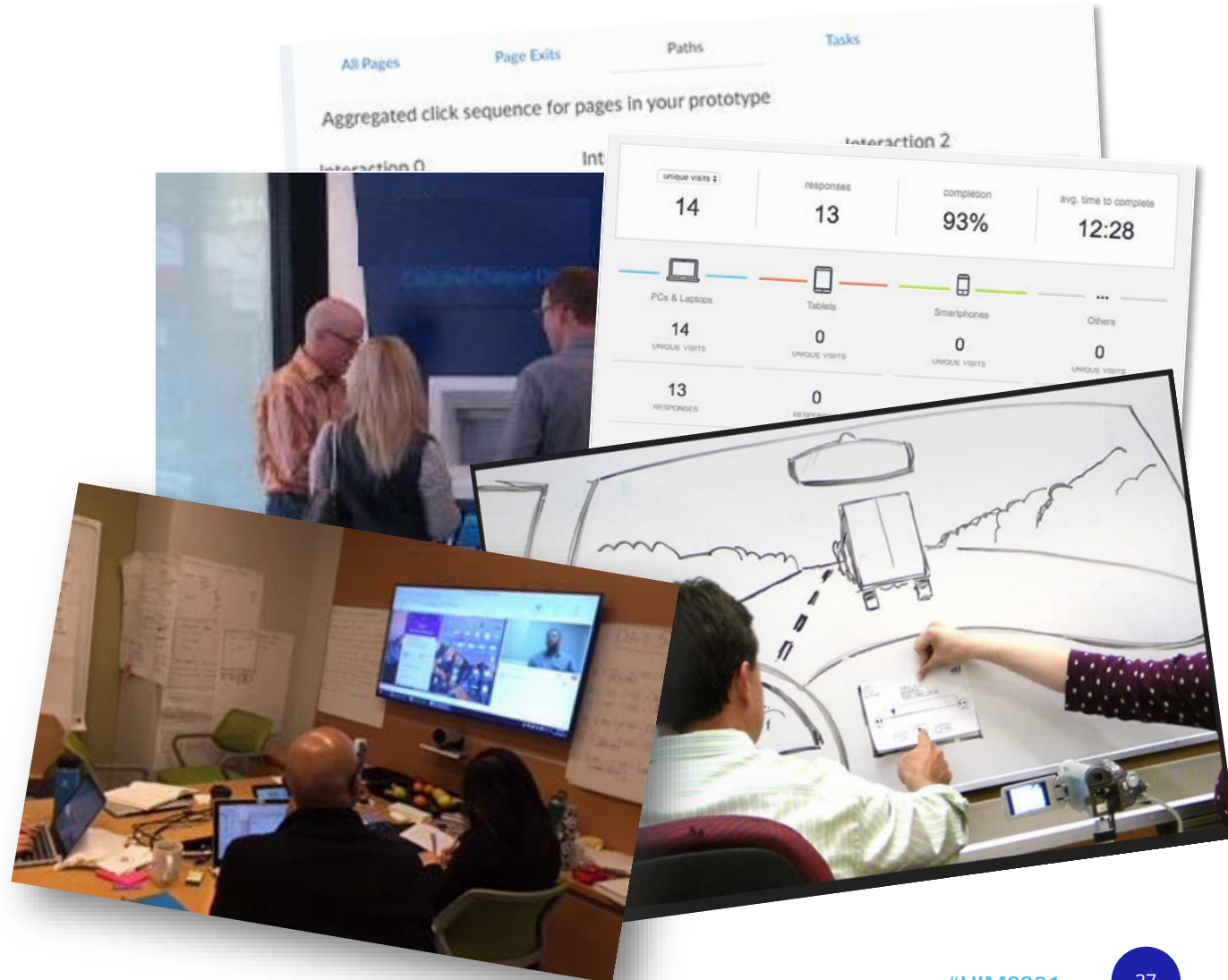


5

## Test

- Validate solution with real users
  - Does your solution solve the problem?
  - Is your hypothesis correct?
- Get feedback from usability tests
  - A/B Tests
  - Observed user behavior
  - Task completion success
  - Survey results
  - Qualitative feedback

*“Early on, all of our movies suck.”  
- Ed Catmull, Pixar President*



## 6 Implement

- Implement your tested solution in the real world
- Measure success
  - Was your hypothesis correct?
  - Did you achieve your goal(s)?
- Continuous feedback loop



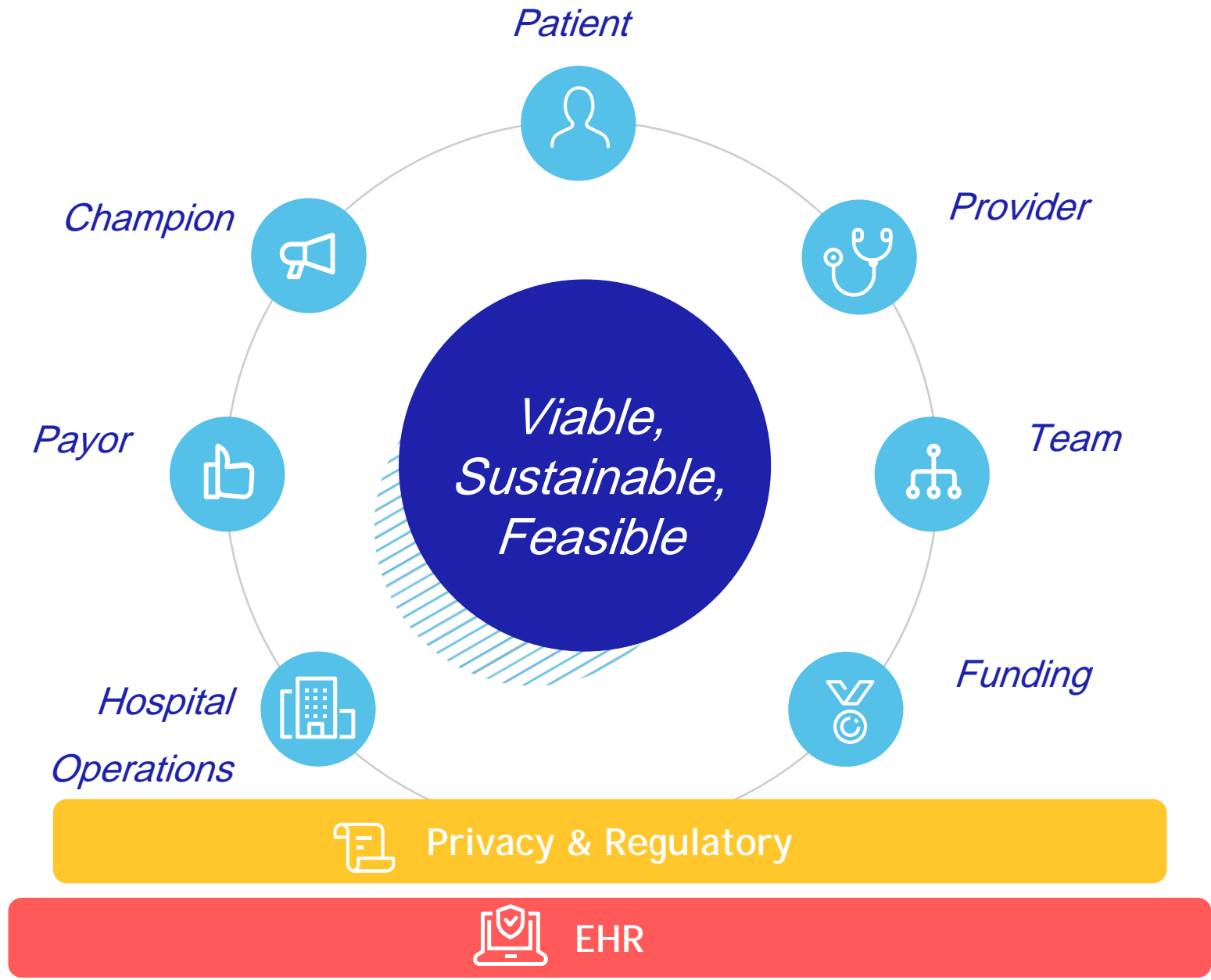
# *Why would I start design thinking?*

- Better understand the unmet needs of your users
- Generate new insights
- Buy-in amongst team members
- Learn faster, fail cheaply
- Reduce innovation risk



*Keys to Success &  
Navigating  
Challenges*







*What people think of as the moment of discovery is really the discovery of the question.*

Jonas Salk

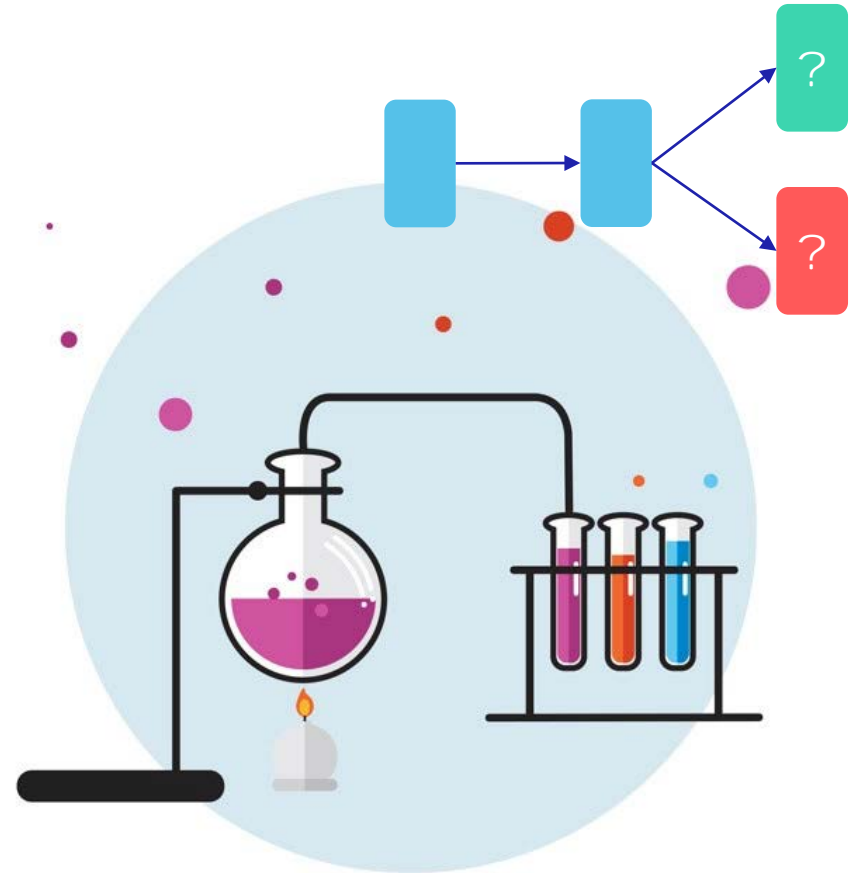
*American Virologist known for developing first polio vaccine*

*NYU Medical School*



# Writing a hypothesis statement

- We believe that... *[this capability or feature]*
- Will result in... *[this outcome or benefit]*
- We know it's working when... *[we see this measurable signal]*



# 3 Keys to Ensuring Success

1

## *Love the problem, not the idea*

Framing the problem properly is key to finding a creative, appropriate solution and reduce waste. Requires comfort with failure and the unknown.

2

## *Align on goals & success metrics*

Clear problem and hypothesis statements will help clarify goals and success metrics, ensuring the outcomes of the design thinking process align across team and organization.

3

## *Prototype quickly to test your hypothesis*

Before tackling high complexity development, like EHR integration, ask yourself what is the Minimum Viable Product? It might be paper...



# Q&A





*Thank You!*

Molly Woodruff, MPH

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