Digital transformation at scale: How to prioritise users in systems implementation

BMJ Future Health Conference

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Digital Transformation at Scale: How to Prioritize Users in Systems Implementation

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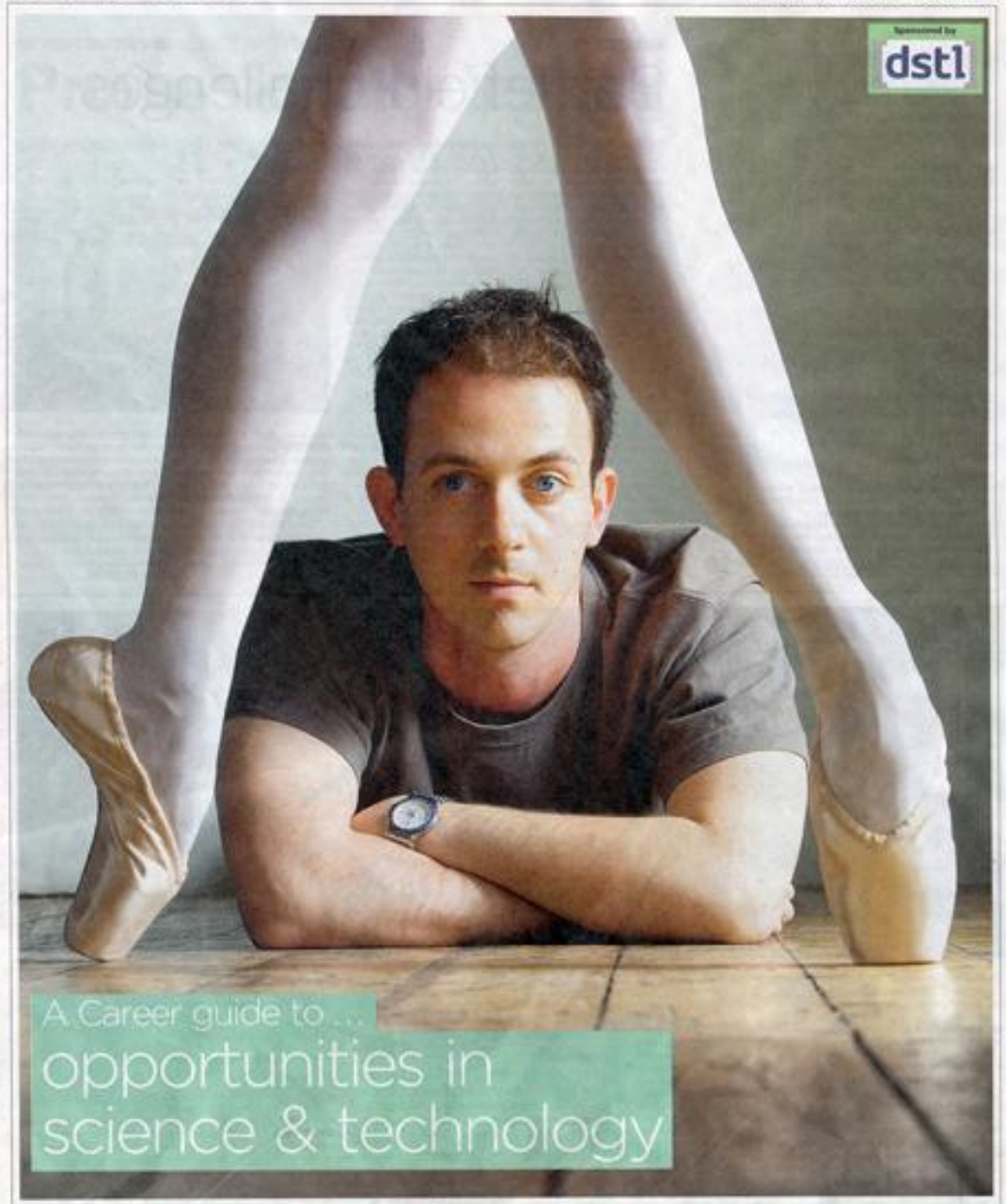
Overview of Session

- User centered research and design is a software development bedrock - yet when it comes to healthcare, implementations struggle or fail because the users aren't included.
- Explore how to truly engage users in designing healthcare interventions.
- Review the double-diamond model of design thinking, applied to the cardiac arrest trolley.
- Review the role design sprints to build out tele-health programs.
- A deeper dive into stakeholders, processes, and outputs/outcomes



Bomb disposal How robots are taking on the MoD's challenge 2
World's worst smell Meet the woman who made a real stink 5
Dancing shoes Industrial design is helping to shape the future 6

MANUFACTURING

In step with design

Emily Ford finds out about a career that combines functionality with artistic beauty

RICHARD LEA-HAIR

JAMES DYSON'S fixation with industrial design began at 5 when he was made to vacuum his home. In his mid-twenties, he had the same problem: "I realised it was the bag which stopped the air flowing," he says. He looked for an alternative, and the Cyclone vacuum cleaner was born.

Industrial design covers almost anything that is manufactured, from hairdryers to wheelchairs. Its chief purpose? To make things work better, Dyson says: more functional, more user-friendly, greener.

His latest project involves making smaller, more powerful electric motors that use less electricity. They are already being used in the company's hand dryers.

"Science and technology feed design," says Robert Brown (*pictured*), the director of Sprout Design, a consultancy. "New materials, manufacturing processes, practical models to work things out."

The design of ballet shoes, traditionally made with leather and hessian paper, had barely changed for hundreds of years when, scientists invented a material which changes its form on shock. It was being used in motorcycle clothing when Brown saw another possible use. "We talked to ballet dancers and observed how they move, the way forces go through the shoes," he says.

User-centred design is increasingly important, says Andrea Siodmok, chief design officer at the Design Council. Aspiring industrial designers need empathy, scientific rigour and creative flair. Siodmok cites Philips, which designed MRI scanners for children to scan their teddies first so that they would be less afraid, as a good example. "That's what designers are really good at — understanding the experience of the end user," she says.

Industrial designers usually work in-house at large companies or for design consultancies. Many international design-led companies have British or British-trained design leaders, among them Nokia, Apple and Lego. "We are world-leading in this field," Siodmok says.

The art-science duality means that prospective undergraduates can choose a BA, with an emphasis on concept and style, or a BSc course with an engineering focus. Most students on the Royal College of Art's (RCA) industrial design engineering masters course used to have engineering backgrounds, says Miles Pennington, a senior tutor at the RCA. But now the course, which is run in conjunction with Imperial College London, draws students from a broader range of backgrounds. One was even a merchant banker. "The designer is at the centre of complex projects, [so] they have to be able to communicate with different people," Pennington says. A 'dating' scheme sees Imperial scientists visit the RCA to recruit designers for their projects.

A recent RCA alumnus won a United Nations award for "concrete canvas", a fabric containing concrete flakes that can be inflated and sprayed with water to create instant refugee shelters. "The cleverness is how it borrows from two cutting edge technologies: 3D textiles and high-end cement-chemical mixes," he says.

Technology has revolutionised the design process too, says Ross Lovegrove, whose work has been featured in the Design Museum and whose current projects include a carbon fibre car that runs on water and a new solar tree.

Six years ago he switched from manual to digital design techniques. "I decided it was time to join the modern age," he says. A computer allows more technical drawings, while a 3D printer prints out plastic models, saving hours of work.

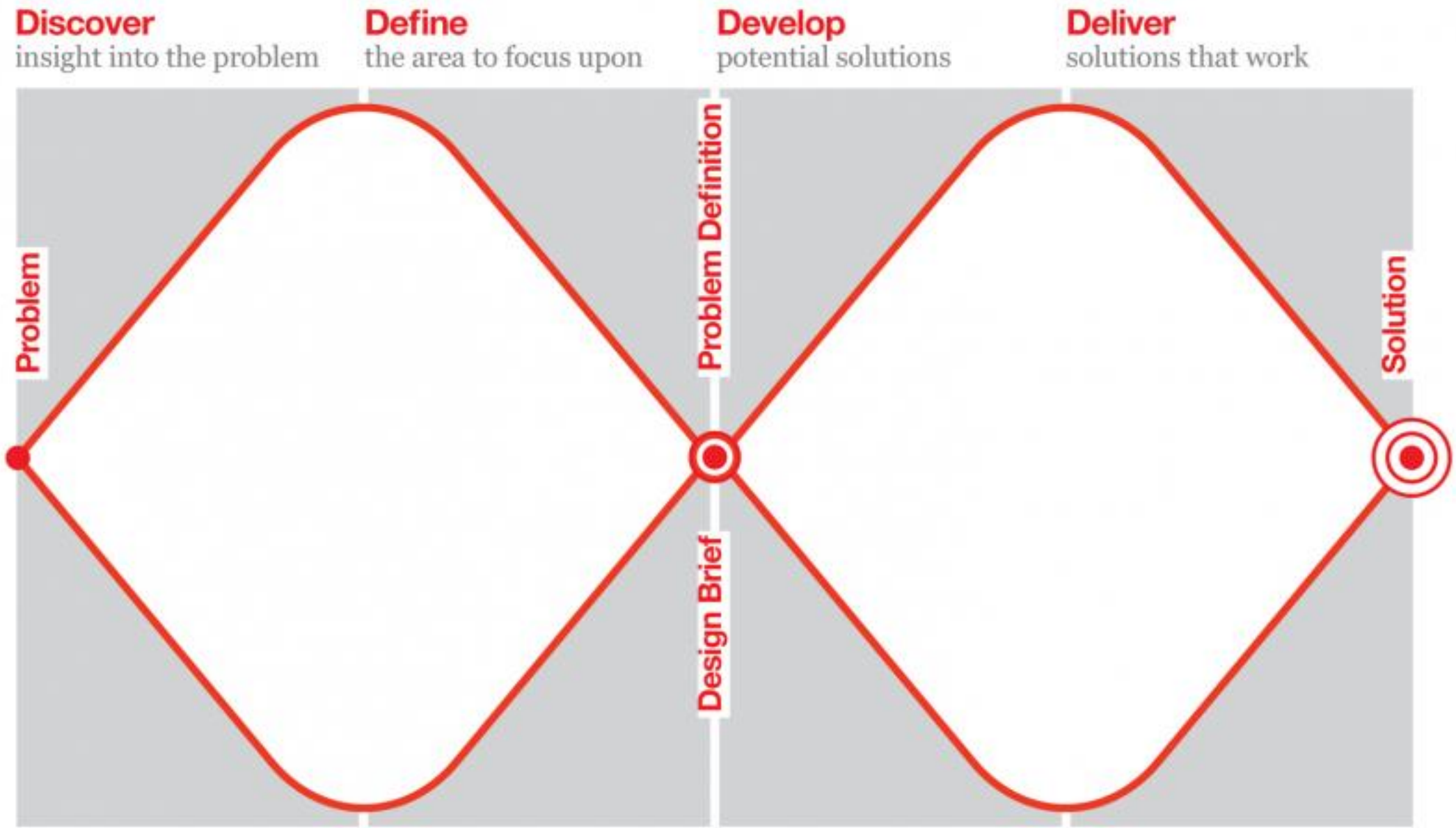
Industrial design is desperately short of scientists and engineers, he says; competition from Asia is threatening our ability to stay ahead. While an artistic sense is useful, beauty often comes from functional simplicity, not styling. "Ask anybody to fold a paper plane and they will fold Concorde."

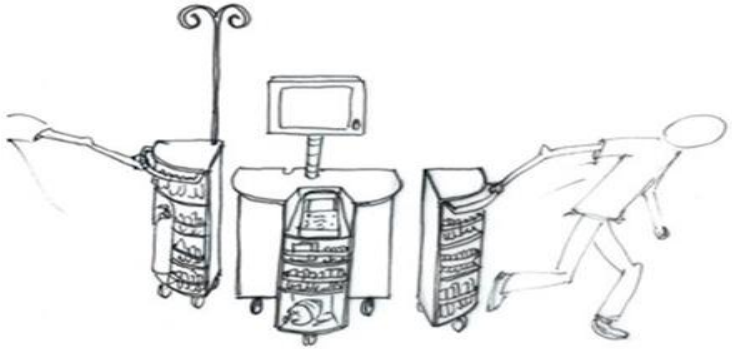
the helen hamlyn research centre

Royal College of Art
Postgraduate Art & Design

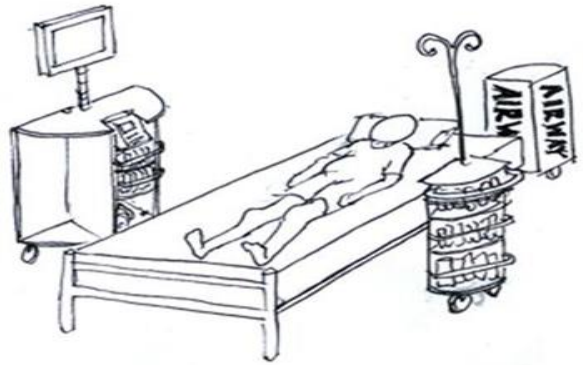
NHS
National Patient Safety Agency

Imperial College London


Discover
insight into the problem
Define
the area to focus upon
Develop
potential solutions
Deliver
solutions that work
Problem
Problem Definition
Design Brief
Solution



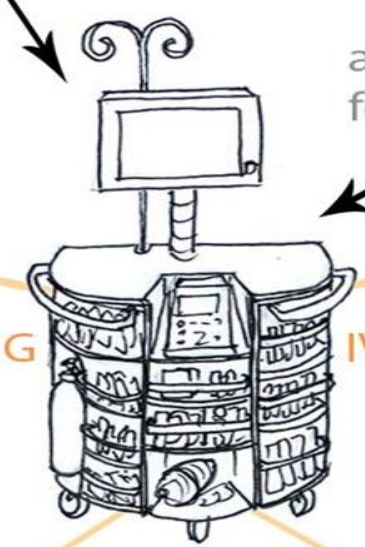
SPLITTING



RESUSCITATION

actions/notes/stock display

additional surfaces
for preparation



AIRWAY & BREATHING

IV ACCESS & FLUIDS

DEFIB & SPARES

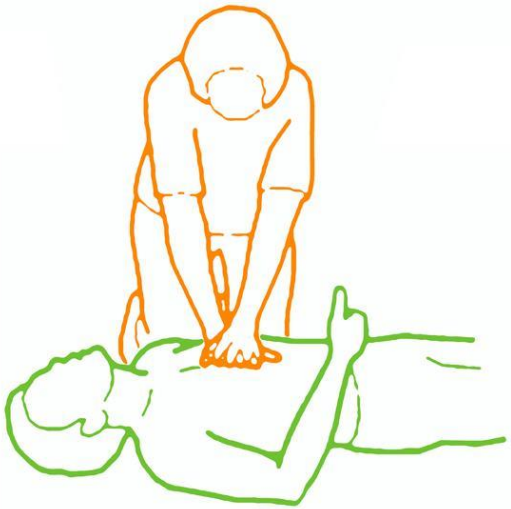
open storage - split by therapeutic area

STORAGE

RESTOCKING

European Resuscitation Council

Resuscitation Council (UK)



Helix Centre

Do you have an idea for improving patient care in the NHS?

Submit by 4th September | helixcentre.com/joinus

Lord Ara Darzi
Director
Institute of Global Health Innovation

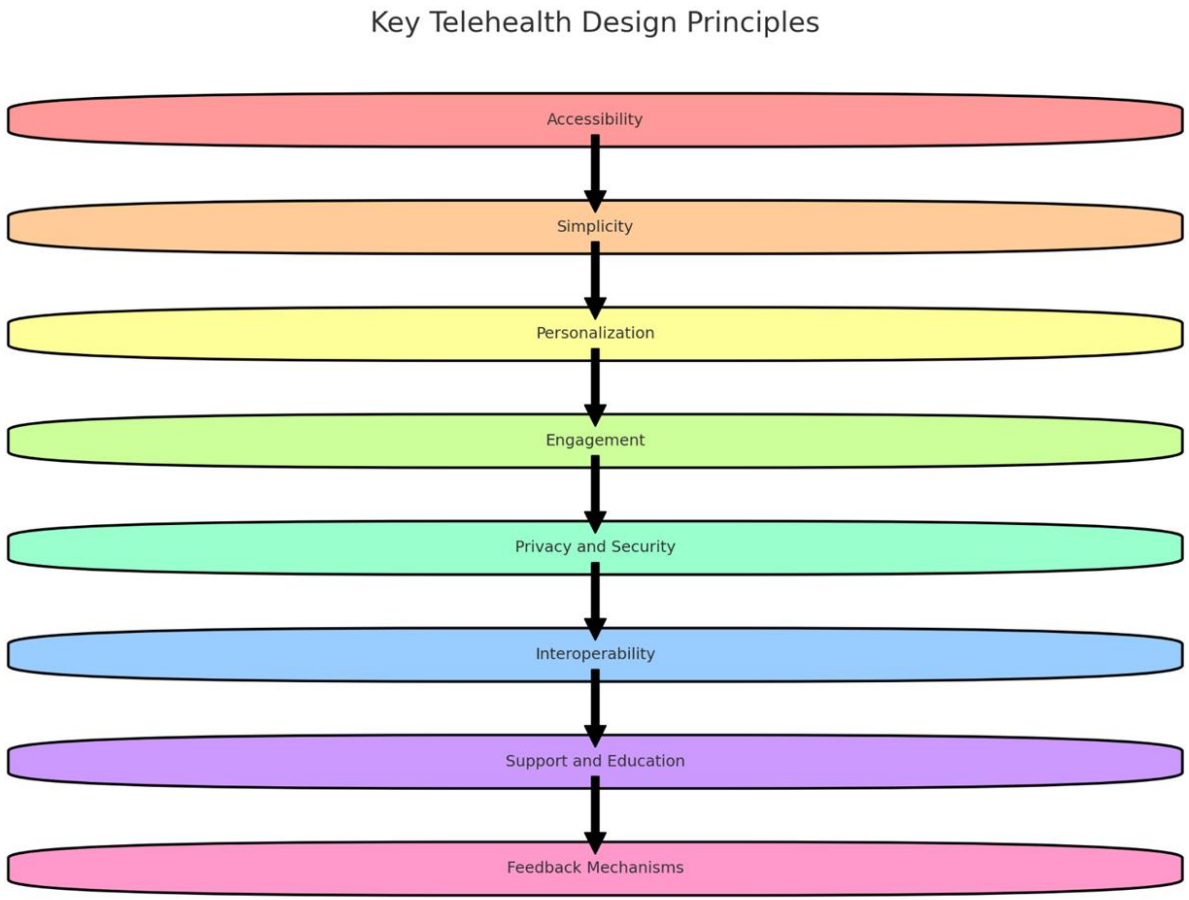
James Wise
Partner
Balderton Capital

Tania Boler
CEO
Chiaro

Adam Sewell-Jones
Director of Improvement
NHS Improvement

Maja Kecman
Creative Director
Helix Centre

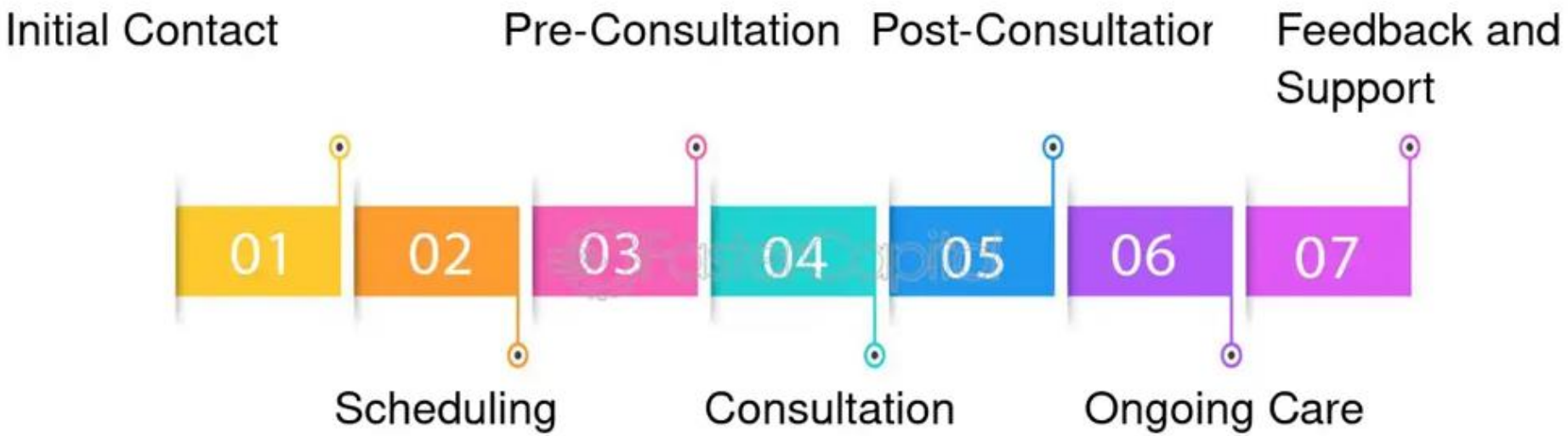
Design Thinking in Telehealth



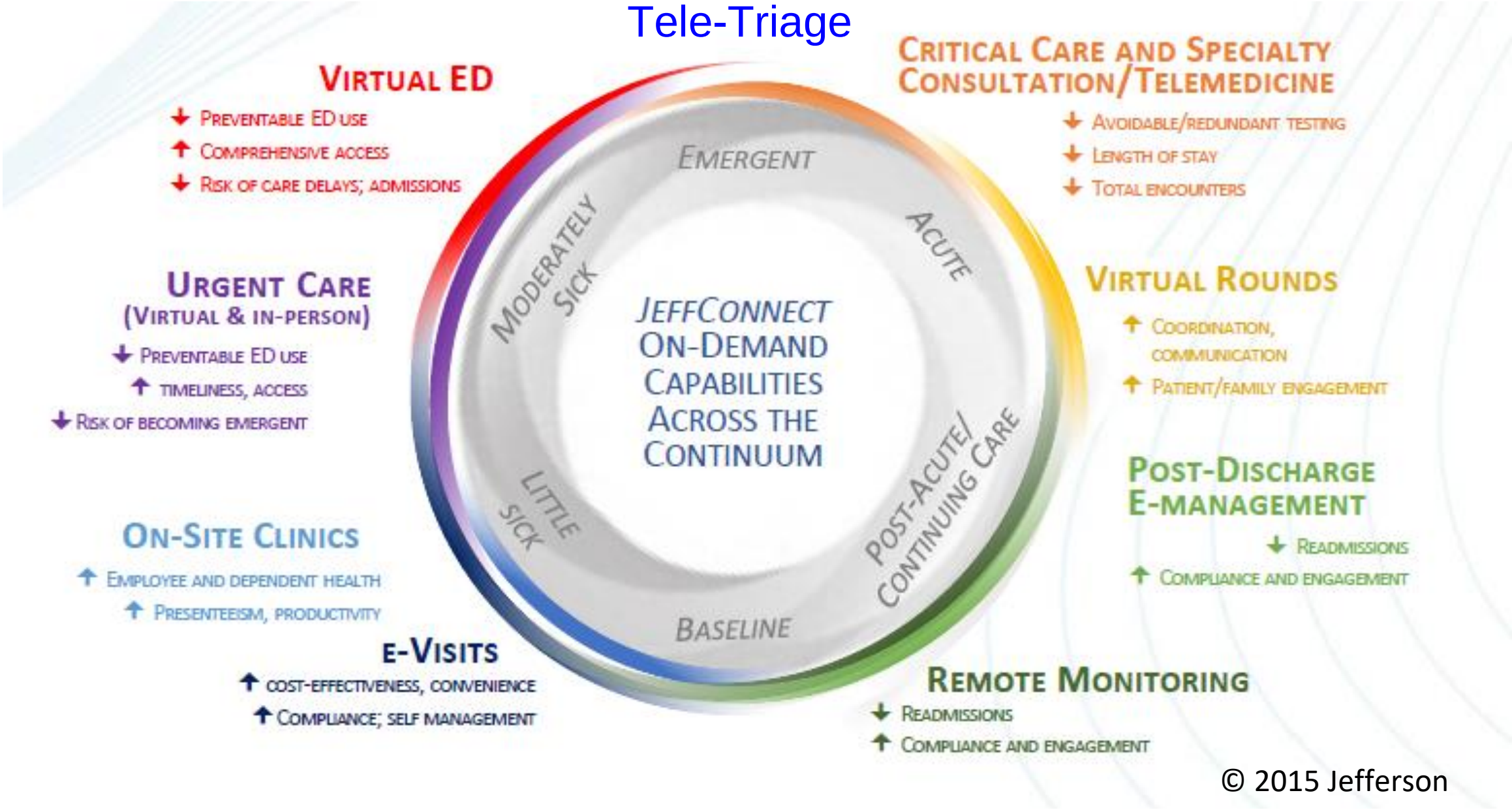
‘Combining Empathy in Programs by understanding the End User’ or

Don’t Build Something that is neither usable nor wanted

Understanding the Telehealth User Journey



Tele-Triage



- Research the Community
- Tailored Services based on data insights
- Use the right technology
- Education and Training
- Backup Care Environments
- Community Trust/Privacy
- Clear Workflows. Clear Limits.
- QA Process and Quick iteration

Health Design Thinking: Creating Products and Services for Better Health. Ku and Lipton. 2020

Where’s the Design Thing in Telehealth Now?

2017	2021	2022	2022	2023
Review paper including 24 design thinking intervention in healthcare	RPM Program and Home Health Hub	USC Design Thinking to evaluate digital divide	Review paper inclusion of 75 papers	Centralized Digital Hub UAE

Jefferson Health

14 Hospitals

- Abington Hospital
- Abington – Lansdale Hospital
- Jefferson Bucks Hospital
- Jefferson Cherry Hill Hospital
- Jefferson Frankford Hospital
- Jefferson Hospital for Neuroscience
  - *part of Vickie and Jack Farber Institute for Neuroscience*
- Jefferson Stratford Hospital
- Jefferson Torresdale Hospital
- Jefferson Washington Township Hospital
- Magee Rehabilitation Hospital
- Methodist Hospital
- Physicians Care Surgical Hospital
- Rothman Orthopaedic Specialty Hospital
- Thomas Jefferson University Hospital
  - *Sidney Kimmel Cancer Center (NCI-designated)*

BEST HOSPITALS U.S.News & WORLD REPORT HONOR ROLL 2017-18

6,600 physicians/practitioners

7,400 nurses (full/part time)

MAGNET RECOGNIZED AMERICAN NURSES CREDENTIALING CENTER

Abington Hospital, Jefferson Hospital for Neuroscience and Thomas Jefferson University Hospital are Magnet-designated hospitals

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Over **4.3 million** patient interactions annually

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HOME OF SIDNEY KIMMEL MEDICAL COLLEGE

Thomas Jefferson University

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- College of Architecture and the Built Environment
- College of Biomedical Sciences
- College of Health Professions
- College of Nursing
  – *Aria Health School of Nursing*
- College of Pharmacy
- College of Population Health
- College of Sciences, Health and the Liberal Arts
- Kanbar College of Design, Engineering and Commerce
  – *School of Business Administration*
  – *School of Design and Engineering*
- School of Continuing and Professional Studies
- Sidney Kimmel Medical College

and also

- Philadelphia University Design Institute
- Philadelphia University Honors Institute

160+ Graduate & Undergraduate programs

63,000 Alumni

7,800 Students (full/part time)

over **$110 million** in public/private research funding.

5th largest university in Philadelphia

326 combined years of providing professional education

Nationally ranked in architecture, fashion design, primary care, research and strategic leadership

Jefferson
Philadelphia University + Thomas Jefferson University

HOME OF SIDNEY KIMMEL MEDICAL COLLEGE

Who we are

- Bold and think differently
- Passionate about innovation
- Quick, nimble, and efficient

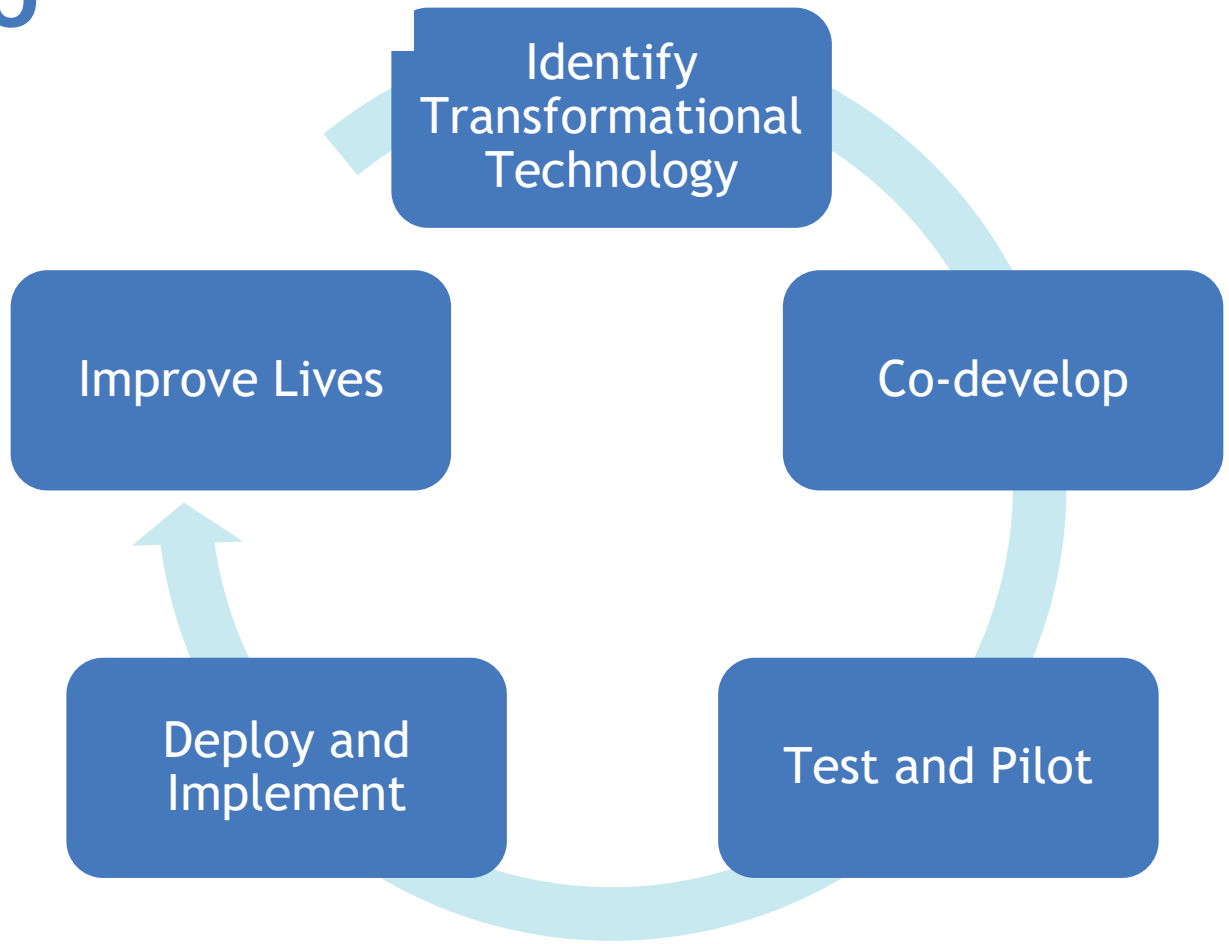
Companies with innovative technology

Jefferson Strategic Ventures

- Clinical areas
- Facilities and security
- Information technology and systems
- Partner hospital systems
- Patient/consumer tools
- User feedback

What we do

Team of healthcare, business, and operations experts evaluate for fit and impact



Top rated academic health system

Work alongside partners

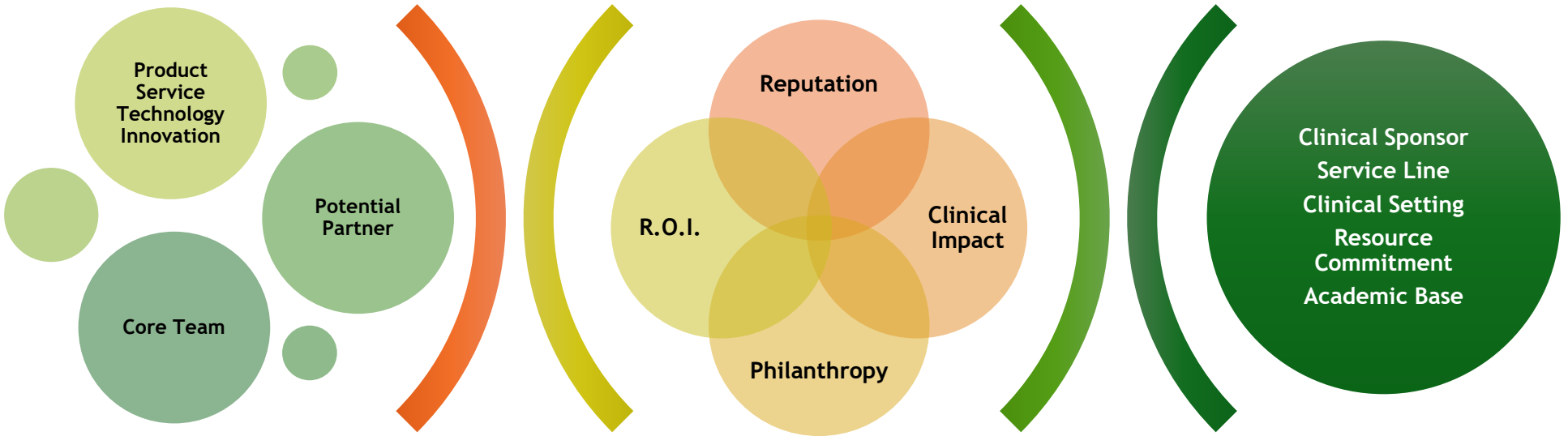
Internal champions test and pilot technologies

Real time, real world feedback

Support commercialization efforts

Provide referrals to healthcare systems, testimonials from reputable experts, and scientific validation

Better outcomes and better lives through innovation



External Company

Gestalt

Jefferson Health

115

INTERNAL CHAMPIONS ACROSS ENTERPRISE

10 CAMPUSES

TJUH, Abington Lansdale, Torresdale, Frankford, Bucks, Stratford, Washington Township, Cherry Hill, Jefferson University East Falls, Magee Rehabilitation Hospital

13 ENTERPRISE

TOUCH POINTS

Division(s) – Oncology, Emergency Medicine, Critical Care, Cardiology, Pulmonary, Post-Acute
Department(s) – Family Medicine, Pharmacy, Security/Access, IS&T, Finance, Legal
College(s) – Kanbar College of Design Engineering and Commerce

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