Design thinking for innovative healthcare service

Shelley Evenson
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Carnegie Mellon
Design

Overview

What is design thinking?

Two case studies

   • intel research technology

   • University of Pittsburgh Medical Center (UPMC) patient needs

Underlying methods

3 Big needs

what is design thinking?

"a discipline that uses the designer's sensibility and methods
to match people's needs
with what is technologically feasible
and what a viable business strategy can convert
into customer value and market opportunity."

Tim Brown Harvard Business Review June 2008

Designing a business
from a technology

intel research+
Carnegie Mellon

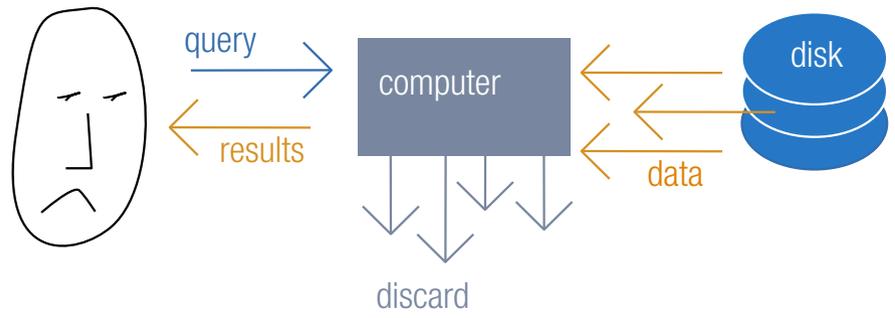Simon King | Casey Helfrich | Anu Melville | Adil Wali
Mentors: David Westfall | Art Boni | Laurie Weingart | Shelley Evenson

Shelley Evenson | Interaction & Service | School of Design | Carnegie Mellon University

The project began with giving the team a choice of open-source algorithms from intel research

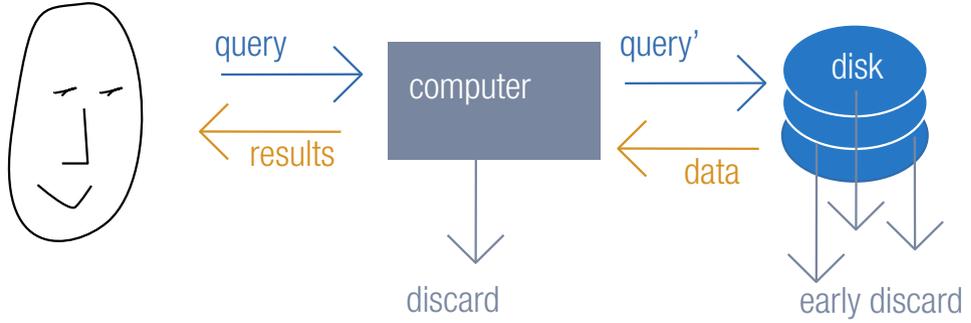design (people)

technology

business
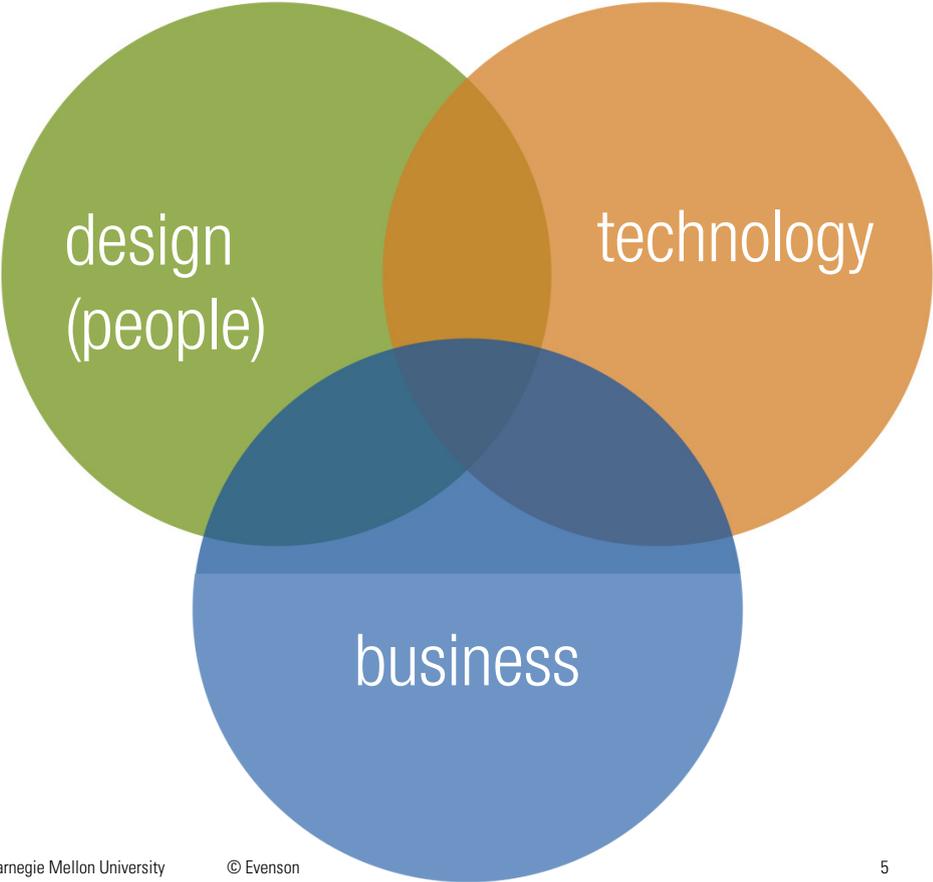
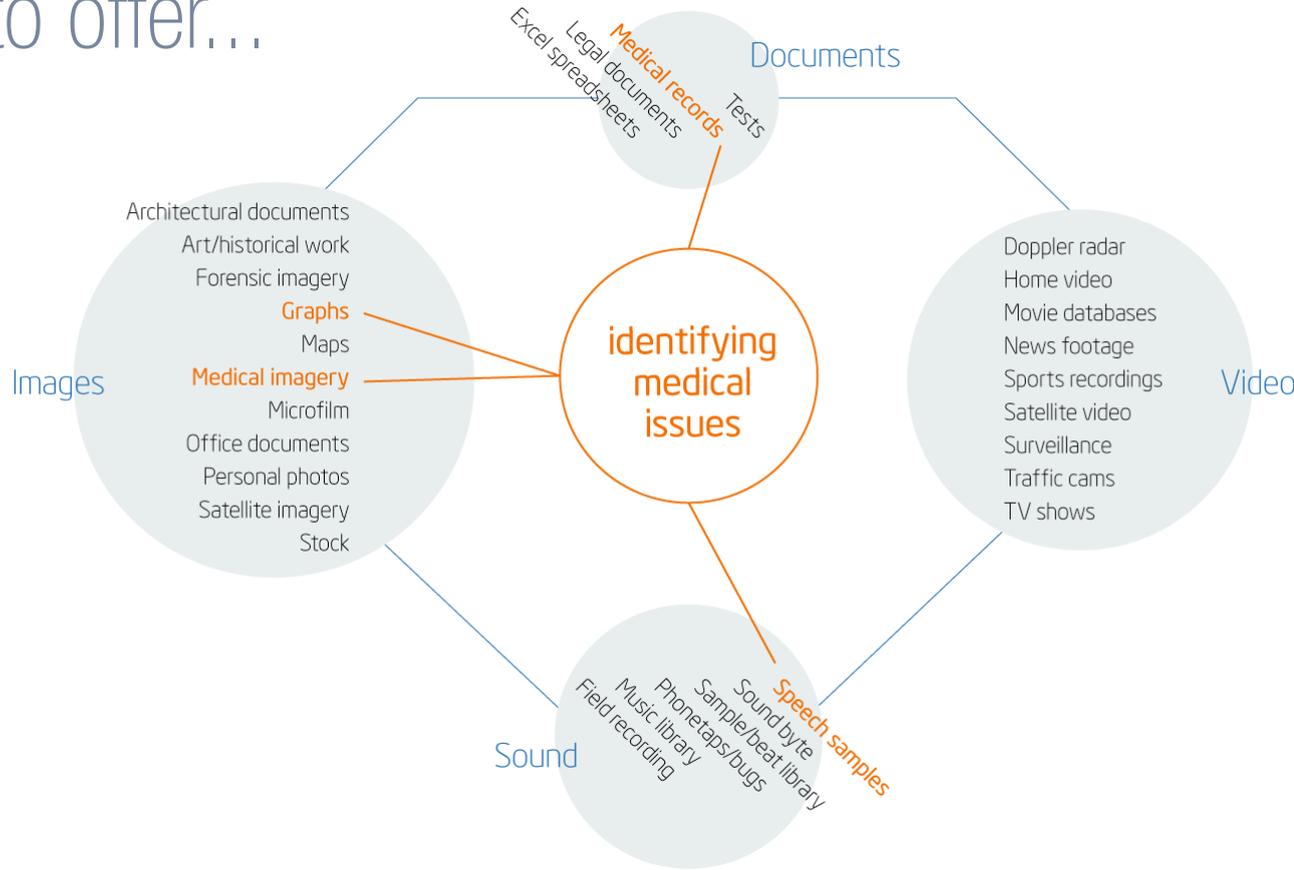# They selected the Diamond algorithm for interactive search through non-indexed data

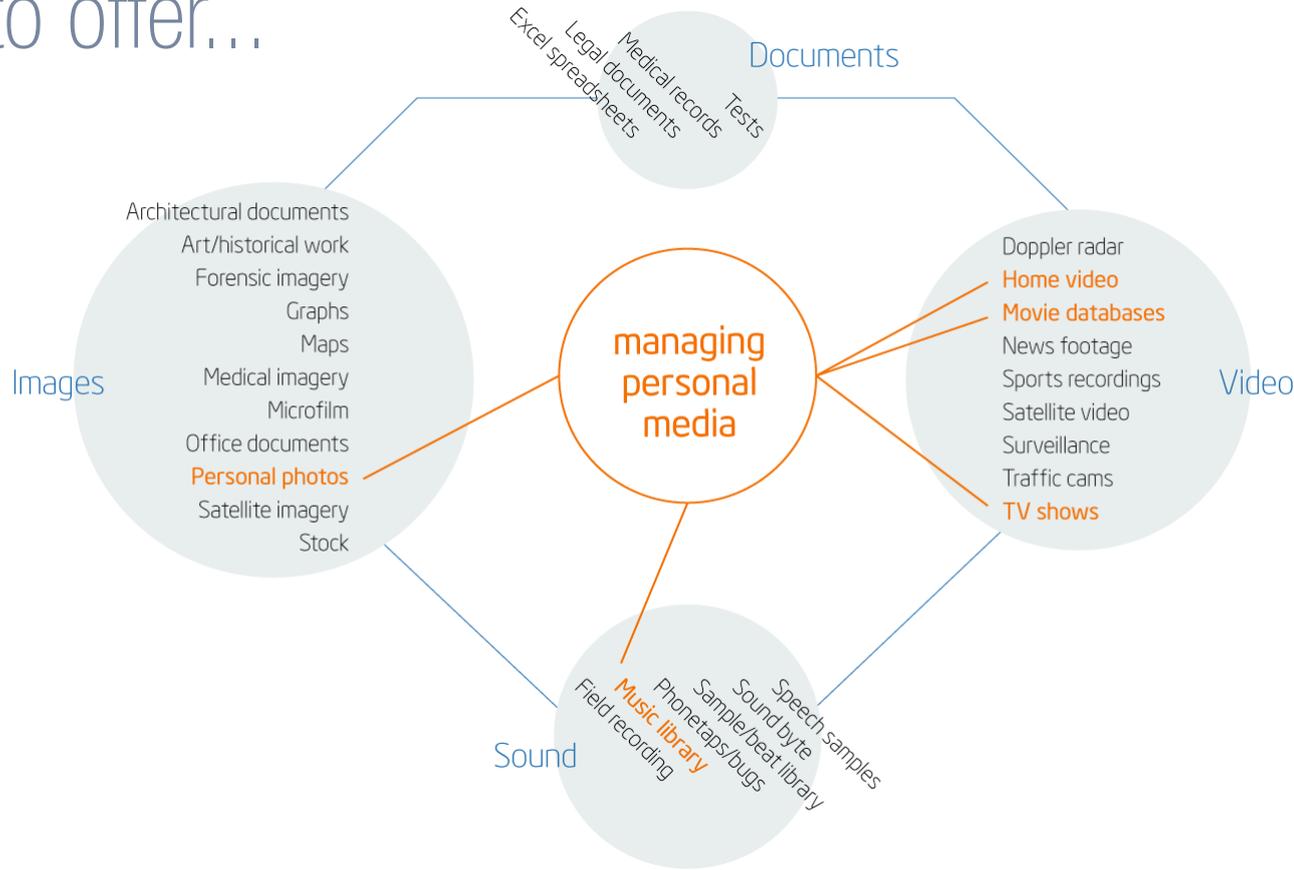Traditional exhaustive search—the burden of discarding is on the person

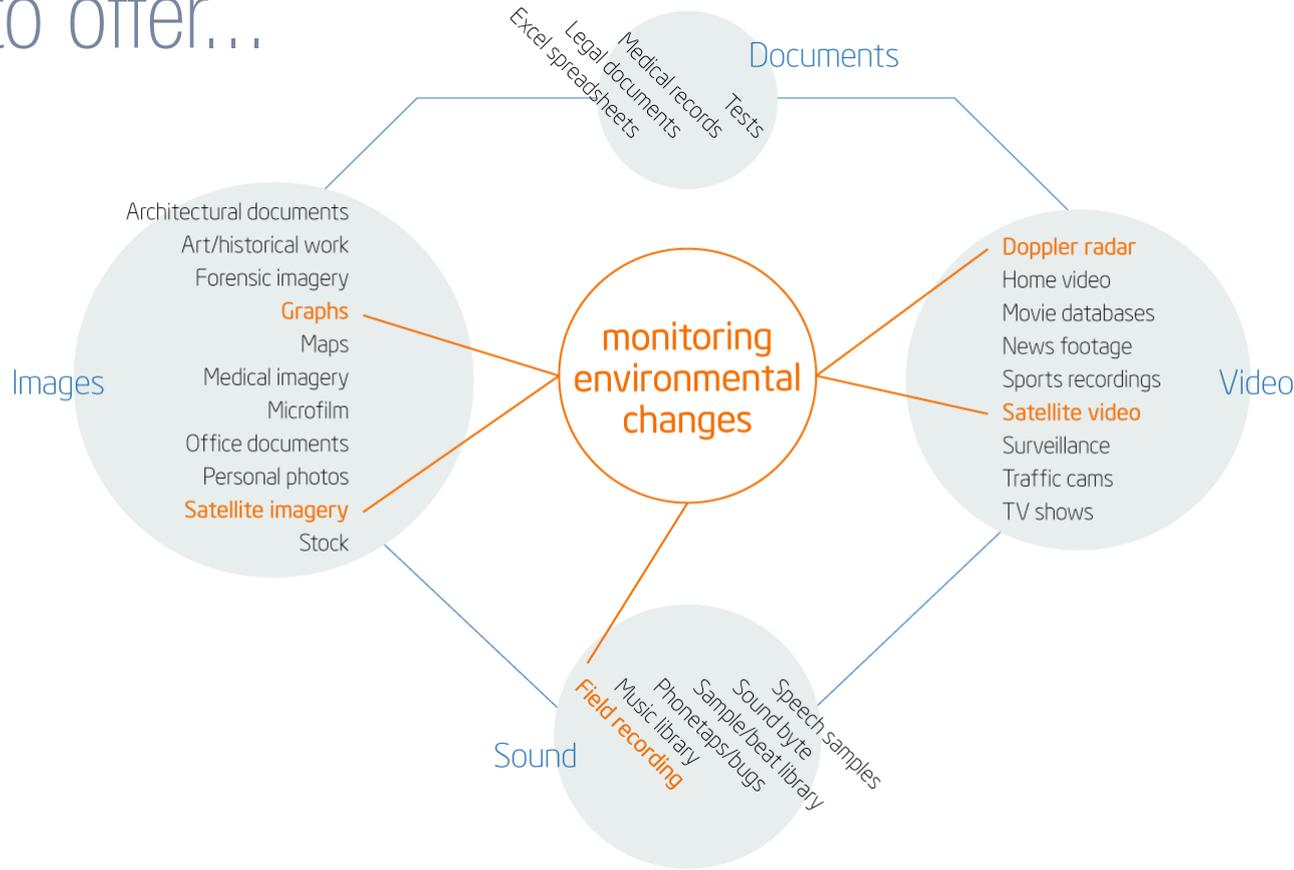With Diamond—discarding happens in the background relieving the burden on the person

Shelley Evenson | Interaction & Service | School of Design | Carnegie Mellon University   © Evenson

They looked with fresh eyes at what the technology had to offer…

Documents
- Excel spreadsheets
- Legal documents
- Medical records
- Tests

Images
- Architectural documents
- Art/historical work
- Forensic imagery
- Graphs
- Maps
- Medical imagery
- Microfilm
- Office documents
- Personal photos
- Satellite imagery
- Stock

identifying medical issues

Video
- Doppler radar
- Home video
- Movie databases
- News footage
- Sports recordings
- Satellite video
- Surveillance
- Traffic cams
- TV shows

Sound
- Field recording
- Music library
- Phonetaps/bugs
- Sample/beat library
- Sound byte
- Speech samples

They looked with fresh eyes at what the technology had to offer...

managing personal media

Documents
- Excel spreadsheets
- Legal documents
- Medical records
- Tests

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- Forensic imagery
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- Stock

monitoring environmental changes

Video
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Forensic imagery
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Maps
Medical imagery
Microfilm
Office documents
Personal photos
Satellite imagery
Stock

analyzing sports plays

Video

Doppler radar
Home video
Movie databases
News footage
Sports recordings
Satellite video
Surveillance
Traffic cams
TV shows

Sound

Field recording
Music library
Phonetaps/bugs
Sample/beat library
Sound byte
Speech samples

The team then looked at social, economic, and technical trends and applied other business analysis methods.

They saw Diamond-enabled medical imaging as having the greatest potential value—financially as well as socially.

They focused down even more, concentrating on melanoma because it is a leading cause of death, but early detection dramatically increases survival rates…

One person dies of melanoma every hour.

One in every 62 Americans will die of melanoma.

Incidence of melanoma has more than doubled since 1973.

Melanoma Statistics, 2006, CCMAC (http://www.ccmac.org/statistics.html)
Cancer Facts and Figures, 2006, American Cancer Society (http://www.cancer.org/downloads/STT/CAFF2006PWSecured.pdf),US
Census Data 2000, chapter 20
Melanoma Basics, 2005, Melanoma Center (http://www.melanomacenter.org/basics/statistics.html)

The team then conducted interviews and observational research in dermapathology services. They discovered the current workflow often fails for difficult cases…

view   search   compare   diagnose

They designed a new workflow and interface, "onPath"
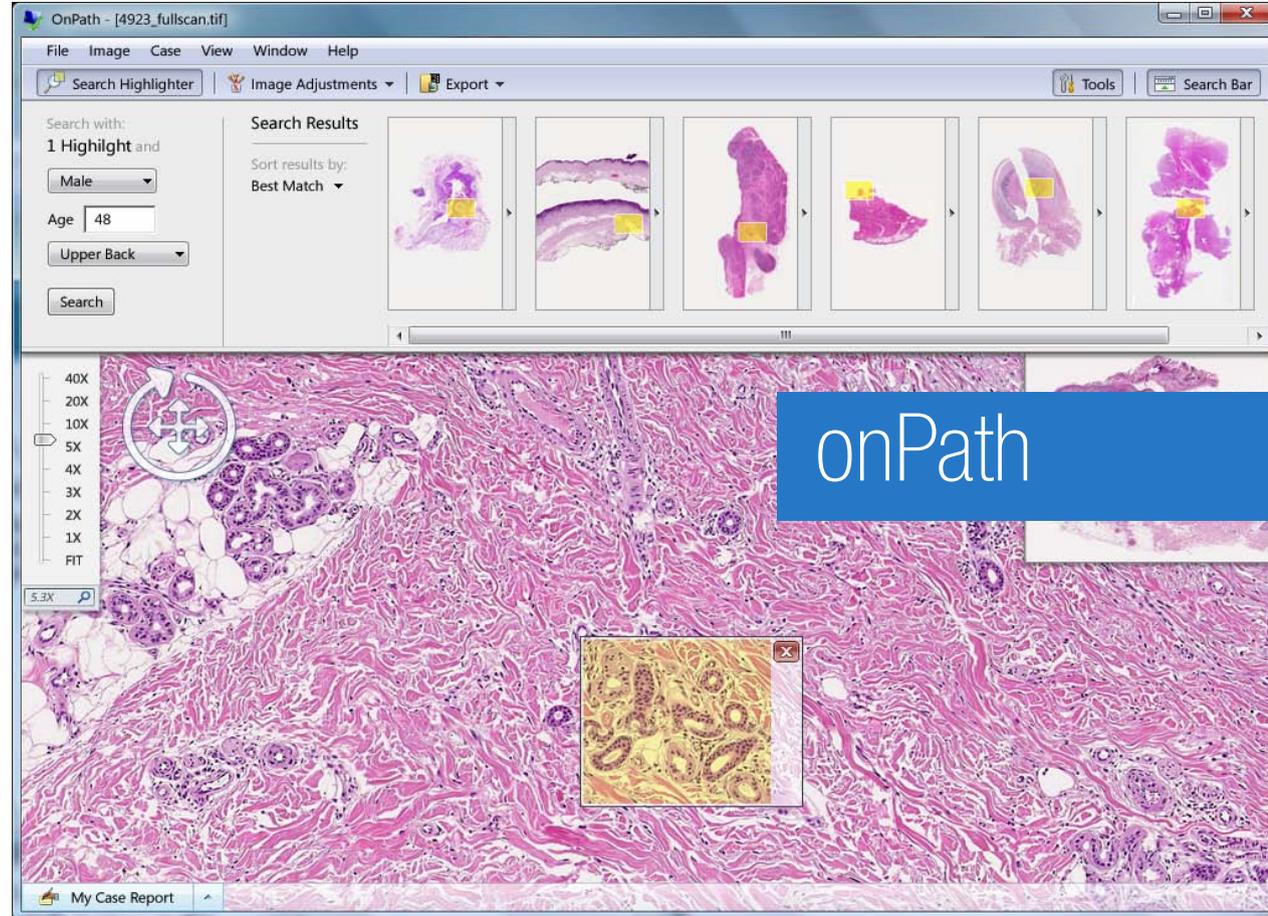
They evaluated it with real users

"You can actually compare apples to apples and not just apples to oranges. This is really great!"

A Director of Dermatopathology, University of Pittsburgh Medical Center

The team then designed the business for building and delivering onPath (including designing the company's organization)

- produced a marketing strategy

- developed a financial strategy

- crafted a business pitch to interest investors in making onPath a reality

the result? 3 months, 3 students, and a viable new business that has the potential to transform practice and improve patient outcomes.

Designing more participatory solutions for healthcare services

UPMC + Carnegie Mellon

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In a recent McKinsey survey of 2000+ patients with commercial insurance, 75% would consider switching hospitals to become better informed about treatments or if appointments were kept on time. If forced to choose between information and timeliness, 3 times as many patients said they valued information more…

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A collaborative project to improve experience while seeing as many patients as possible.

UPMC

Dr. Kassam

Neurosurgery clinic staff

Center for Quality Improvement
and Innovation

Carnegie Mellon Students

Kip Lee | Kara Tennant | Leanne Libert | Jamin Hegeman | Melissa Cliver

Exploratory: Observe with designer's eyes
what's being communicated here?

Payment is due at the time services are rendered.

Physicians Today
A. Kassam, MD
M.   Horowitz, MD
A.H. Mintz, MD

Exploratory: Observe with designer's eyes
what's the patient experience?

is that your foot or mine?

Exploratory: Observe with designer's eyes
what's the staff experience?

Students combined observations and interviews with quantitative research

"My first visit took over four hours."
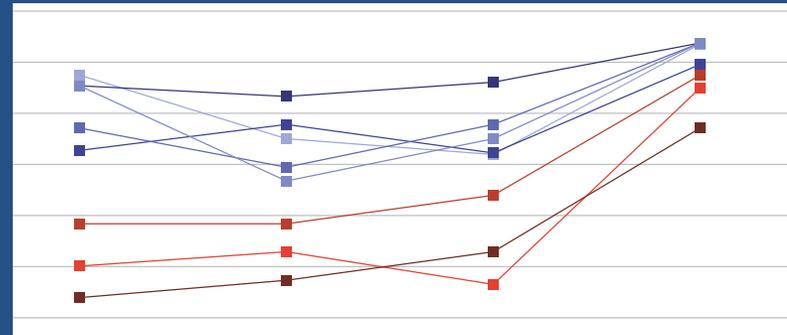
They created a model of the patient's journey…

Detection — Primary care visit — Diagnosis/first visit — Pre-op visit — Surgery — Post-op visit — Follow-up visit — Follow-up visit

Generative: interactive experience research

and produced a summary of needs

Patient

Feeling welcome

Actual wait time

Respect

Space and comfort

Distractions

Staff

Better workflow

Locating Dr. Kassam and each other

Communication

Making a difference

Dr. Kassam

Spend quality time with patients

See everyone

Support staff

Manage time

Opportunities for all constituents

Embrace Wait Time
Inform, engage, and comfort patients

Improve Workflow
Fewer tasks, less distraction, and better communication

Balance Kassam
Support his efforts to help patients, but also find time for himself and to support his staff.

Evaluative: concept validation with patients
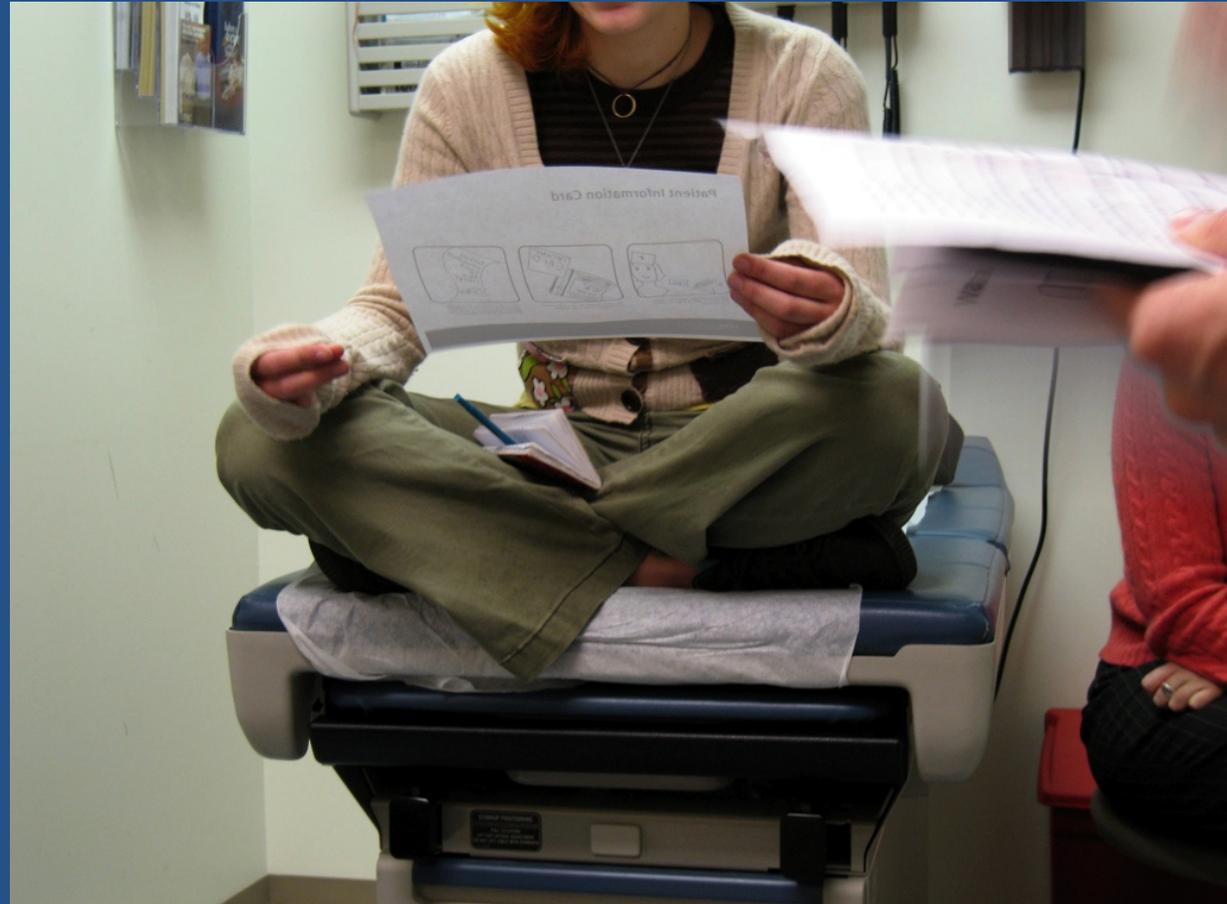
Dr. Kassam fact sheet to inform, engage, and comfort patients, and provide a model for their experience

I'VE GOT SOME GOOD NEWS FOR YOU.

I know you don't want to be here.
I know you don't want to know me.

But the best thing that could happen
is to know me.

I've performed more than 3,000 neurosurgical procedures. More than
800 are what's called minimally invasive endoscopic procedures.
And I'm a person first. I'll be direct and treat you like a friend.
Occasionally, I may even make you laugh.

I KNOW YOU'LL HAVE QUESTIONS THROUGHOUT YOUR JOURNEY.

I work with a great team, and could
not do my job without them. They can
answer a lot of your questions. Trust
them as you trust me. We're here for
you the whole way through.

My staff and I see a lot of patients,
and provide attention and care to
all. We know this sometimes leads to
backups. But I hope you'll understand
and trust I'll see you as soon as I can.

A welcome booklet that embodies the spirit of the physician, previews the experience for the patient of the Neurosurgery Clinic, and at the same time positions the staff to help with broader delivery role

Embrace wait times with a clinic chat system to provide information updates even when the patient isn't being touched

Join the Conversation

Clinic Chat

Common Patient Phrases

brain surgery

Dr. Kassam endonasal surgery

facial pain   hang in there   nurse Lois

so lucky   **thank you**

wait time

UPMC | University of Pittsburgh Medical Center
Minimally Invasive endoNeurosurgery Center

You're in Good Hands   Text #3425 to Post

Clinic Chat

Waiting Room Patient — 10:37 AM   09/25/2012   A Waiting Room Patient Says:
"What are you doing back there?"

Waiting Room Patient — 10:40 AM   09/25/2012   A Waiting Room Patient Says:
"Yeah, things are pretty busy out here in the waiting room."

Dr. Kassam — 10:45 AM   09/25/2012   Dr. Kassam Says:
"Our goal is to make you wait ;) Busy back here too. Send me questions while you wait."

Lois Burkhart, RN (Staff) — 10:48 AM   09/25/2012   Lois Burkhart, RN (Staff) Says:
"Some rooms will be opening up soon."

UPMC | University of Pittsburgh Medical Center
Minimally Invasive endoNeurosurgery Center

http://neurosurgery.pitt.edu/minc

Staff have access via hall displays.

Patients can send messages to Clinic Chat from their phone, personal computer or kiosk in the waiting room, exam room or at home.

Dr. Kassam can reply from the office computer.
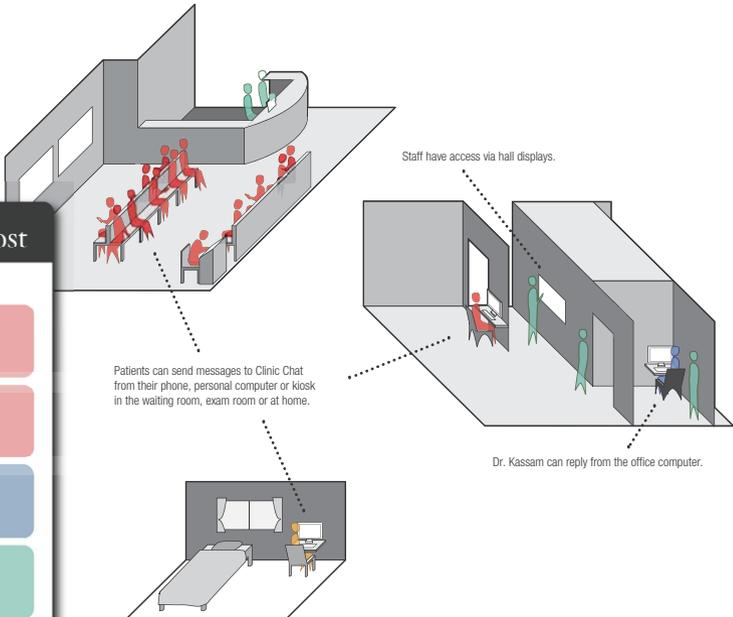
our result? patients have the information to understand their journey and build communities, so they can become more active in codesigning their care

# Our projects lead to innovative results.

Three things drive the way we work that we believe can continuously lead to innovation in healthcare services
- simultaneous interdisciplinarity
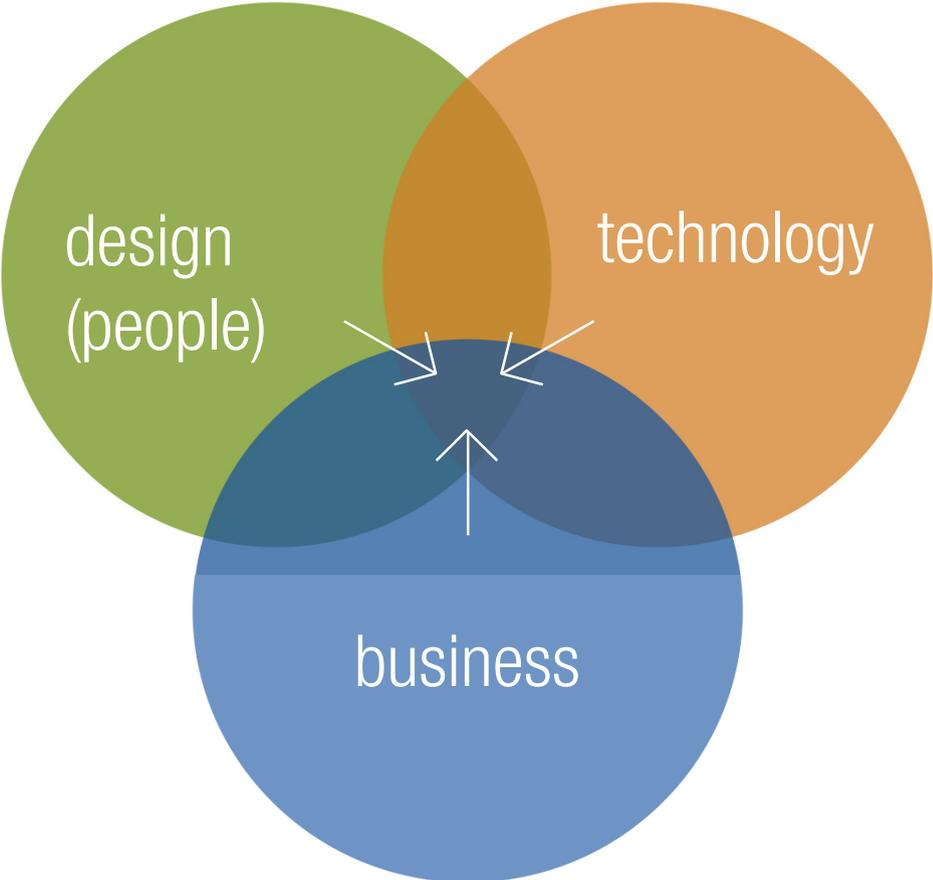- modeling-based process
- user-centered methods throughout

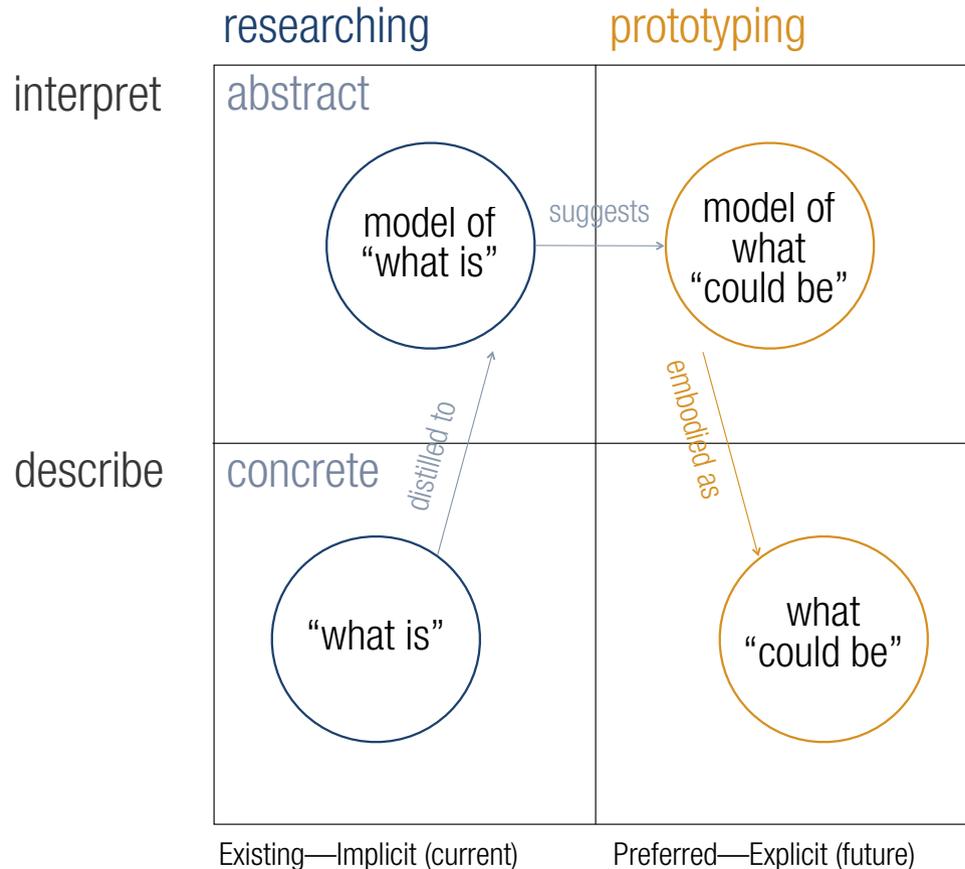# Most innovation starts with a technology...

design
(people)

technology

business
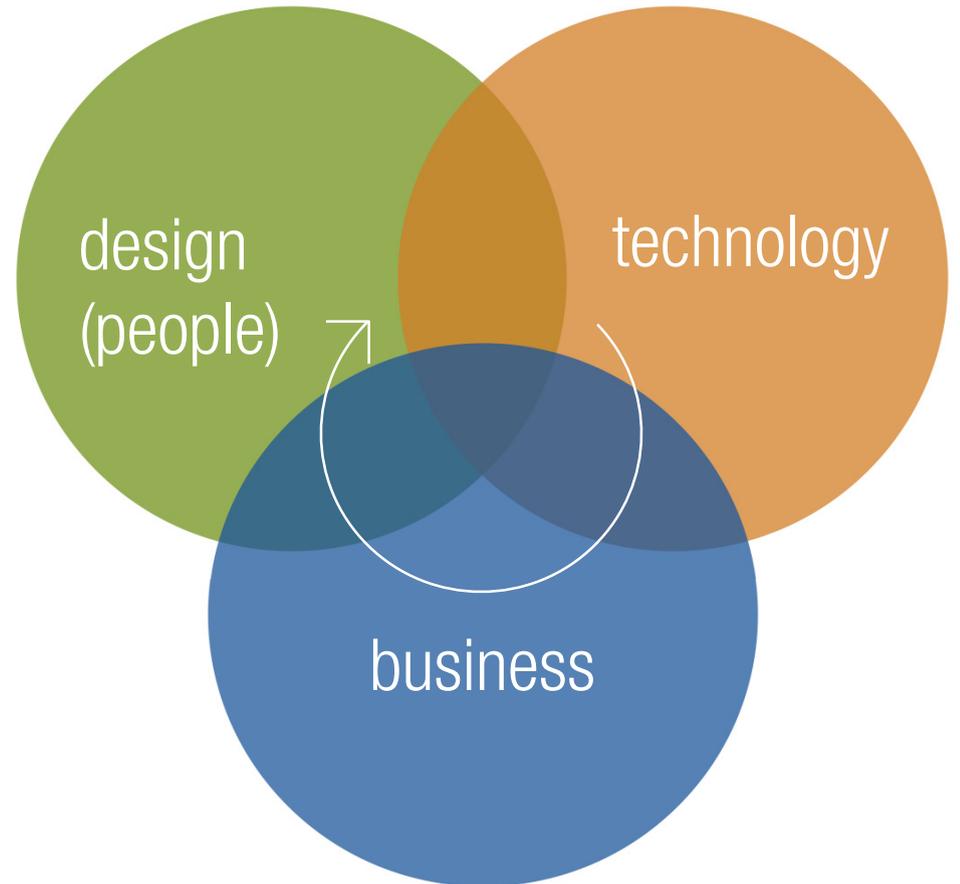
Better companies start from people…
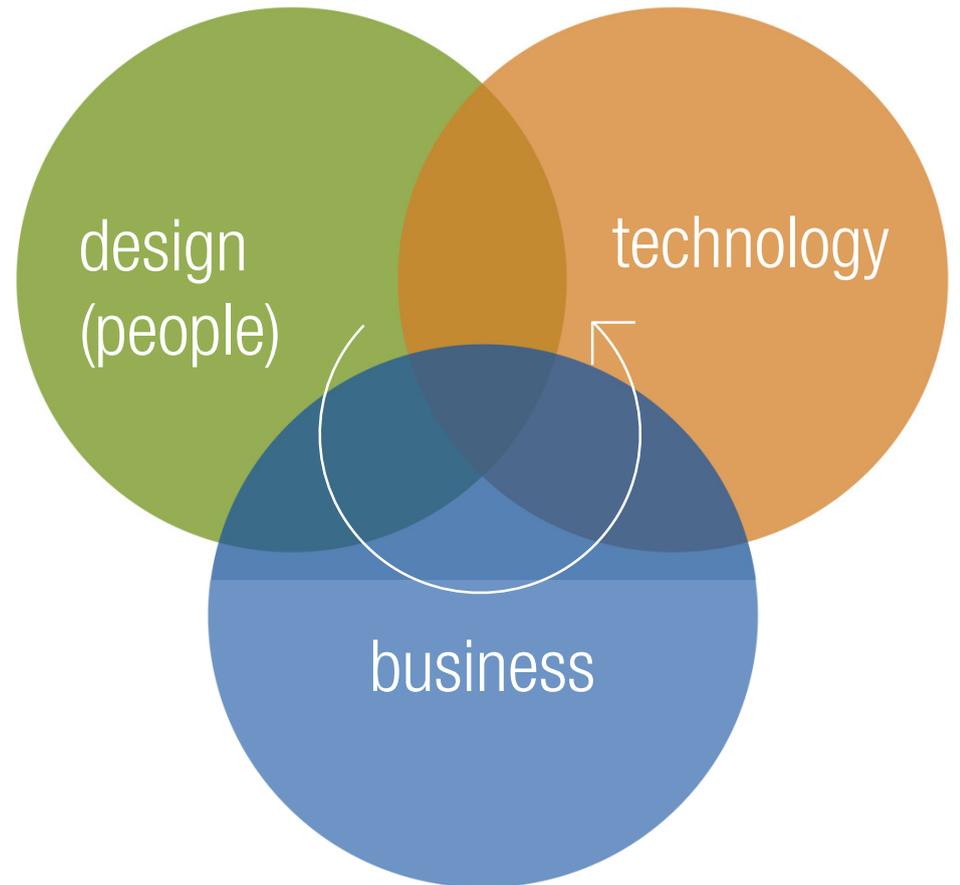
We believe in simultaneous interdisciplinarity

design (people)

technology

business

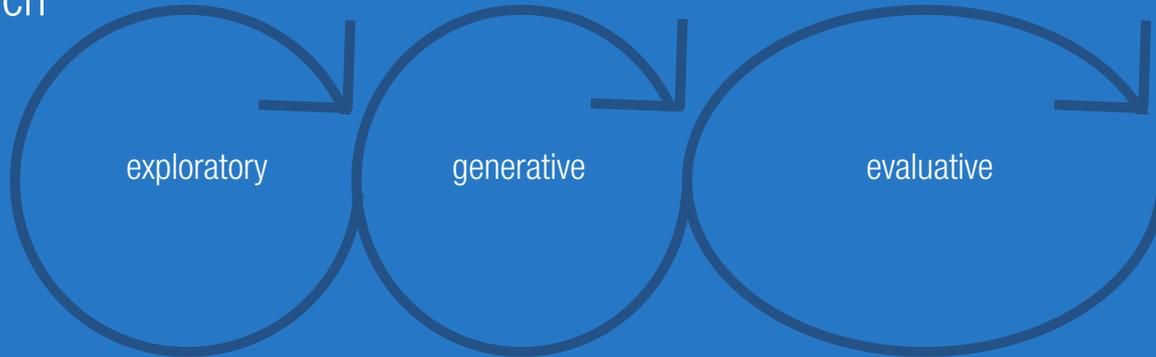# We use a modeling-based process

Analysis-synthesis bridge model
Hugh Dubberly
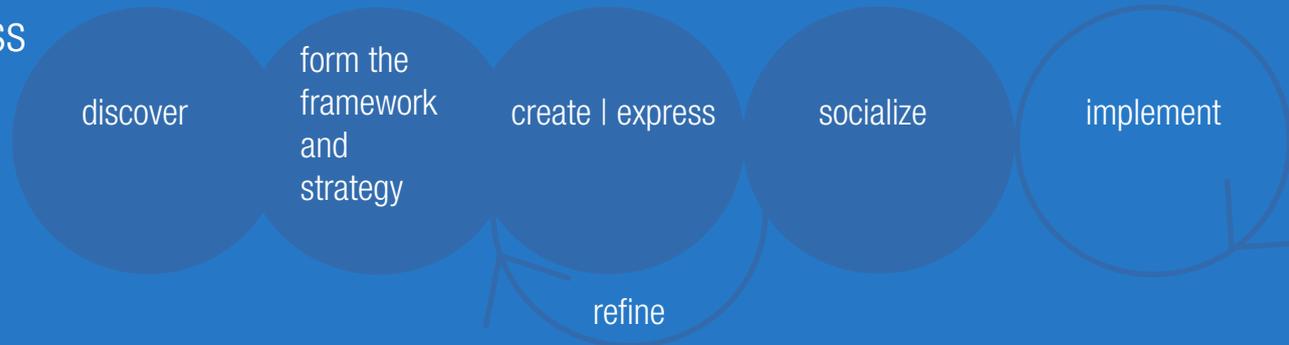Shelley Evenson
Rick Robinson

Interactions
March/April 2008

...and we focus on user-centered methods throughout the design process

project research

design process

but there is more to design thinking…

design thinking requires design and six types of thinking…

understanding

integration

openness

attention

exploration

envisioning

understanding (in the small and large)

a focus on deeply understanding people's expressed and latent needs viewed in the context of broader social, economic, and technical trends

integration

the ability to organize and integrate disparate information into something many stakeholders—with different viewpoints—believe is better

openness

fearlessness with regard to listening to another person

or learning from another discipline or division's perspective

attention

respect for emotion and its importance in driving rational choice and satisfaction

exploration

letting creative extremes take you into ever-richer solution spaces

envisioning

leaps of faith as to what might work and creating quick, tangible, examples of it,

while being unafraid to discard design options along the way

Bringing design thinking to healthcare services will enable the creation of customer-centered innovations for healthcare and provide the skills needed to explore new organizations, business models, and healthcare service delivery

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3 big needs

New methods for modeling patient experience

New models for skilling everyday people to become more active participants in their care

Innovative prototyping for exploring new healthcare service delivery systems

thank you