

PART ONE: DATA-SMART DESIGN AND THE FUTURE HEALTHCARE ECOSYSTEM

Chris McQuillan, Principal

B+H | BOLD + human

bharchitects.com

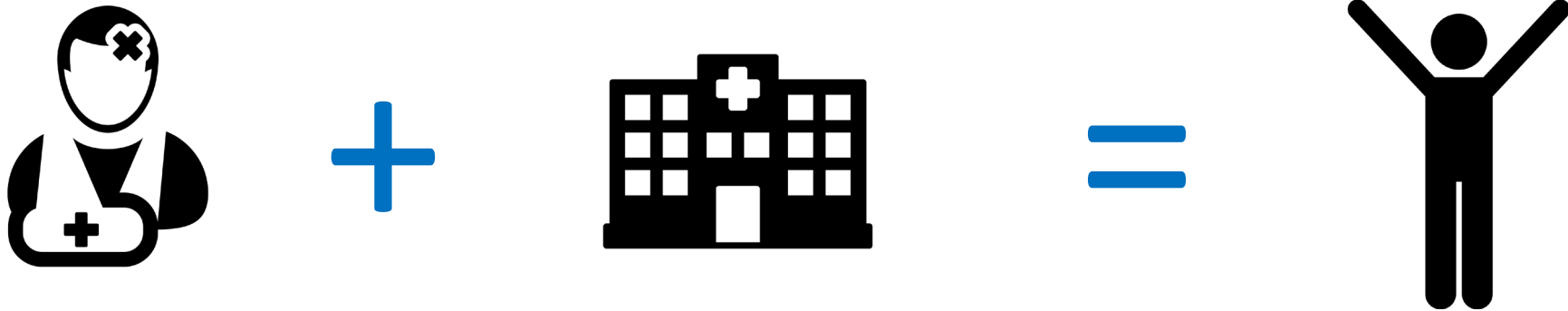


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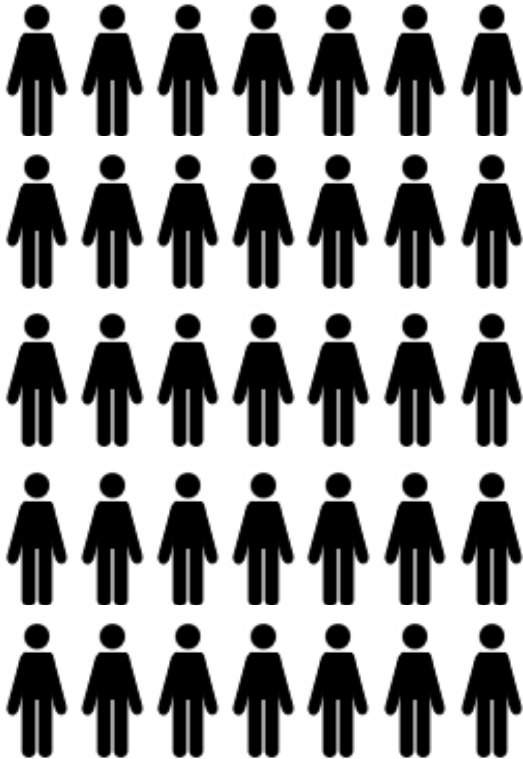
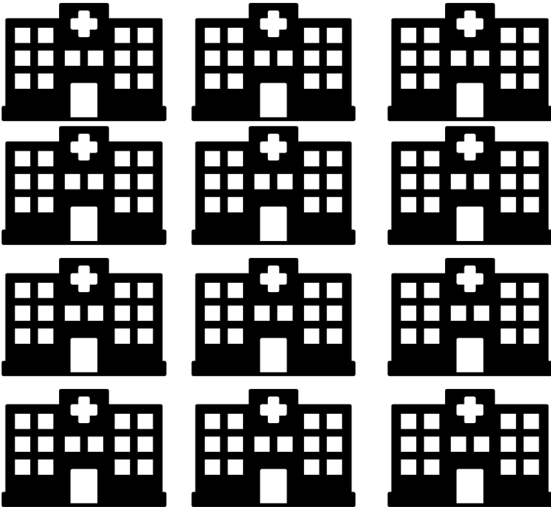
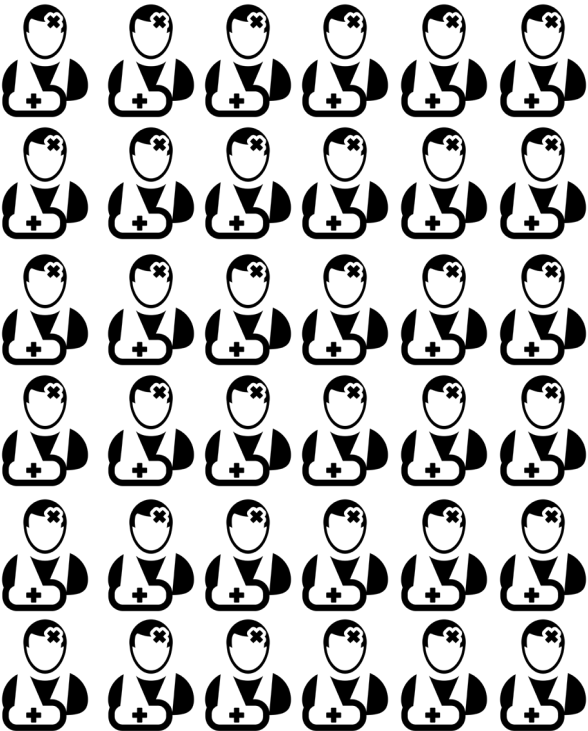
Noun

comes from the Latin word *Hospitalia*, meaning an apartment for strangers and guests. Caring for the sick was a community effort.

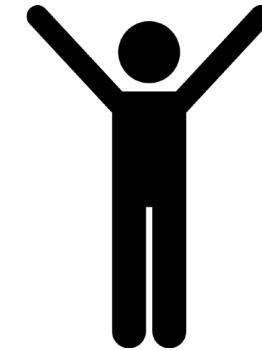
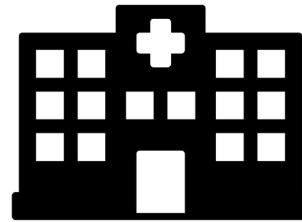
SEEMED
~~THE FORMULA WAS FOOLPROOF~~



... OR WAS IT?



NEW IDEAS ARE NEEDED!



How can patients get the **right** care they need, **when** they need it?

How can hospitals **adapt** to increasing volume, complexity and costs, evolving technologies, and tightening regulations?

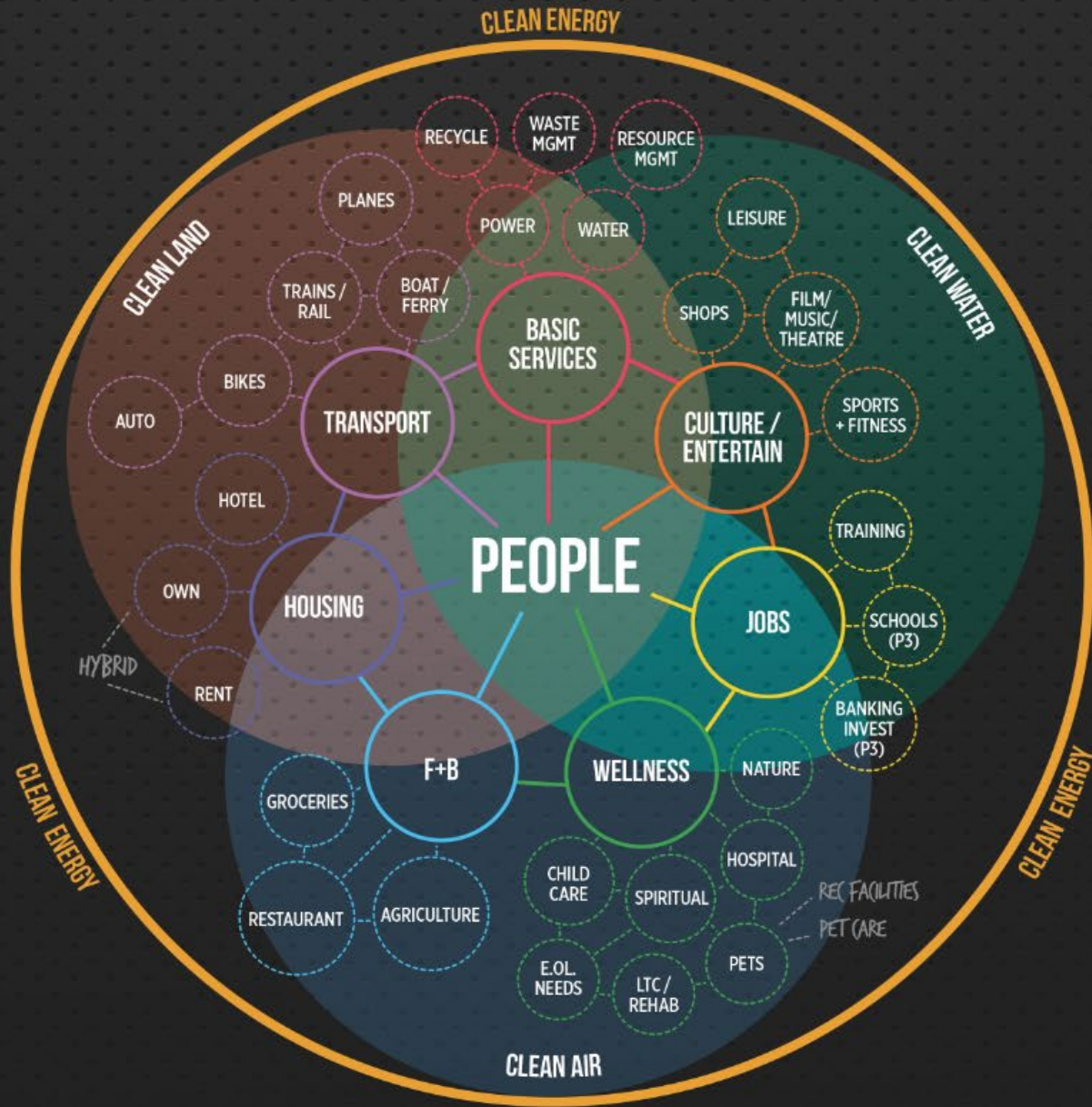
How can we achieve the best outcomes – best **quality of life** for patients, families and communities at a responsible cost?

The background of the image is a stunning view of the Milky Way galaxy, showing a dense band of stars and interstellar dust. The colors transition from deep blues and purples at the top to bright oranges and yellows at the bottom, suggesting a view from a different perspective or a specific wavelength of light. The stars are numerous and vary in brightness, creating a rich, textured appearance.

THE FUTURE OF THE HOSPITAL

THE HUMAN ECOSYSTEM

People are at the centre of both the **purpose** and the **value** proposition of healthcare.



THE GENERATIONAL DIVIDE



BOOMERS

Prefer traditional models of care.



MILLENNIALS, GEN Y, GEN X

Prefer ease, speed, accessibility, customization, decentralization. Discussion, proof and catered service.

THE TECHNOLOGICAL ECOSYSTEM

Better Ways



Minimally Invasive Surgery



Collaboration and e-Health



Nanotechnology



Wearables / Smart Phones



Data mobility



Internet & Social Media



Big Data



Advanced Diagnostics



Genomic Medicine

Enabling Self

Expanded Perspectives

LABORATORY AND TREATMENT CENTRE ON YOUR SHOULDER (OR ON YOUR WRIST!)

One Drop Blood Glucose Meter Now Sends Data Directly to Apple Watch

9/28/18 - NEW NOW NEXT

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By Jimmy
McDermott and
Adam Brown

One Drop's Chrome becomes the first blood glucose meter to send data directly to Apple Watch without a nearby phone. Plus, new health features on the Series 4

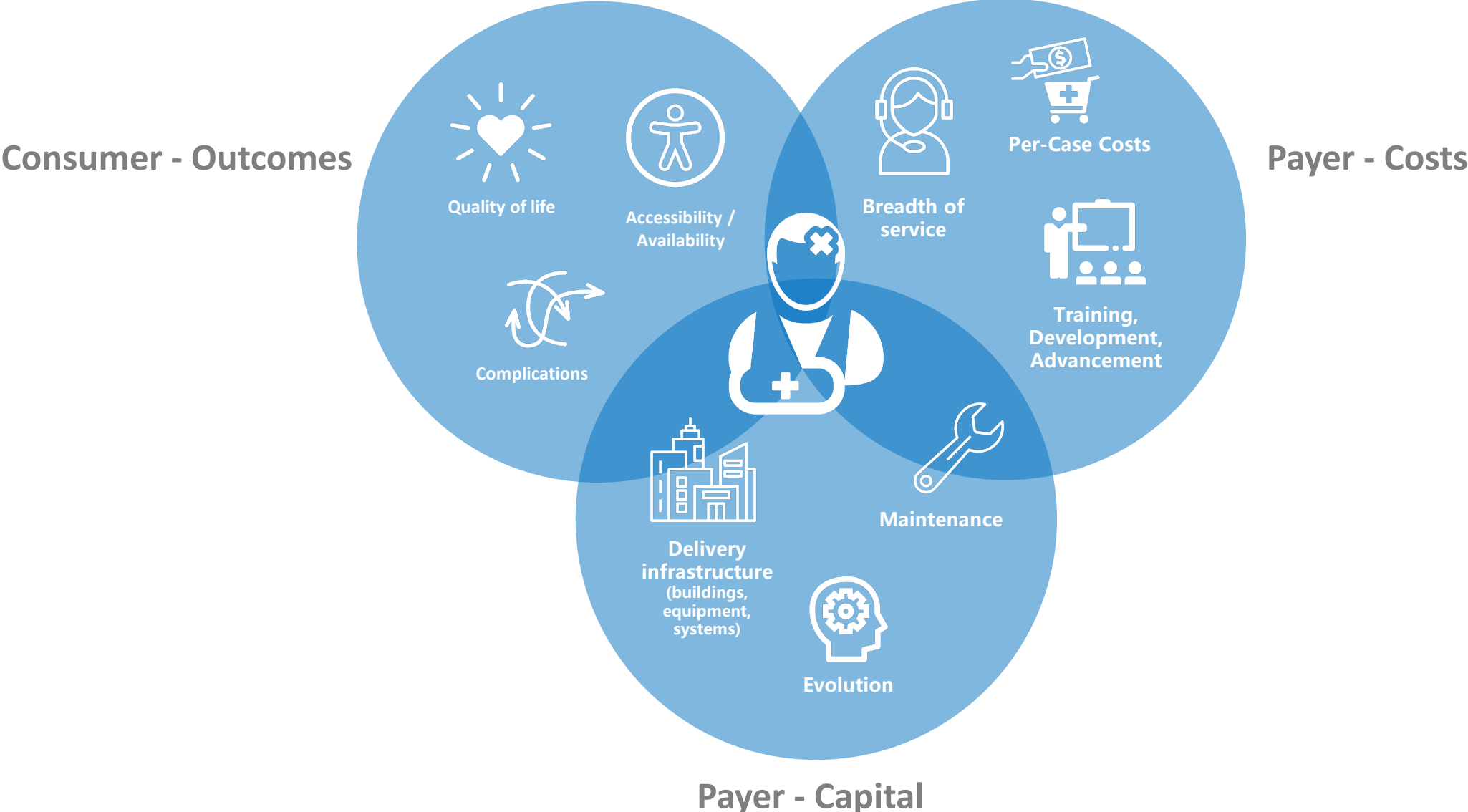
Apple Watch and when direct-to-Watch is coming for Dexcom CGM.

One Drop's new Chrome blood glucose meter (BGM) can now send blood sugar data *directly* to the Apple Watch Series 2, 3, and 4 via Bluetooth. This means users can log glucose levels and see trends *without* a phone nearby, simplifying diabetes management on-the-go. One Drop is the first diabetes device with direct-to-Watch integration, a trend we also expect to see in CGM – potentially starting with Dexcom in 2019.

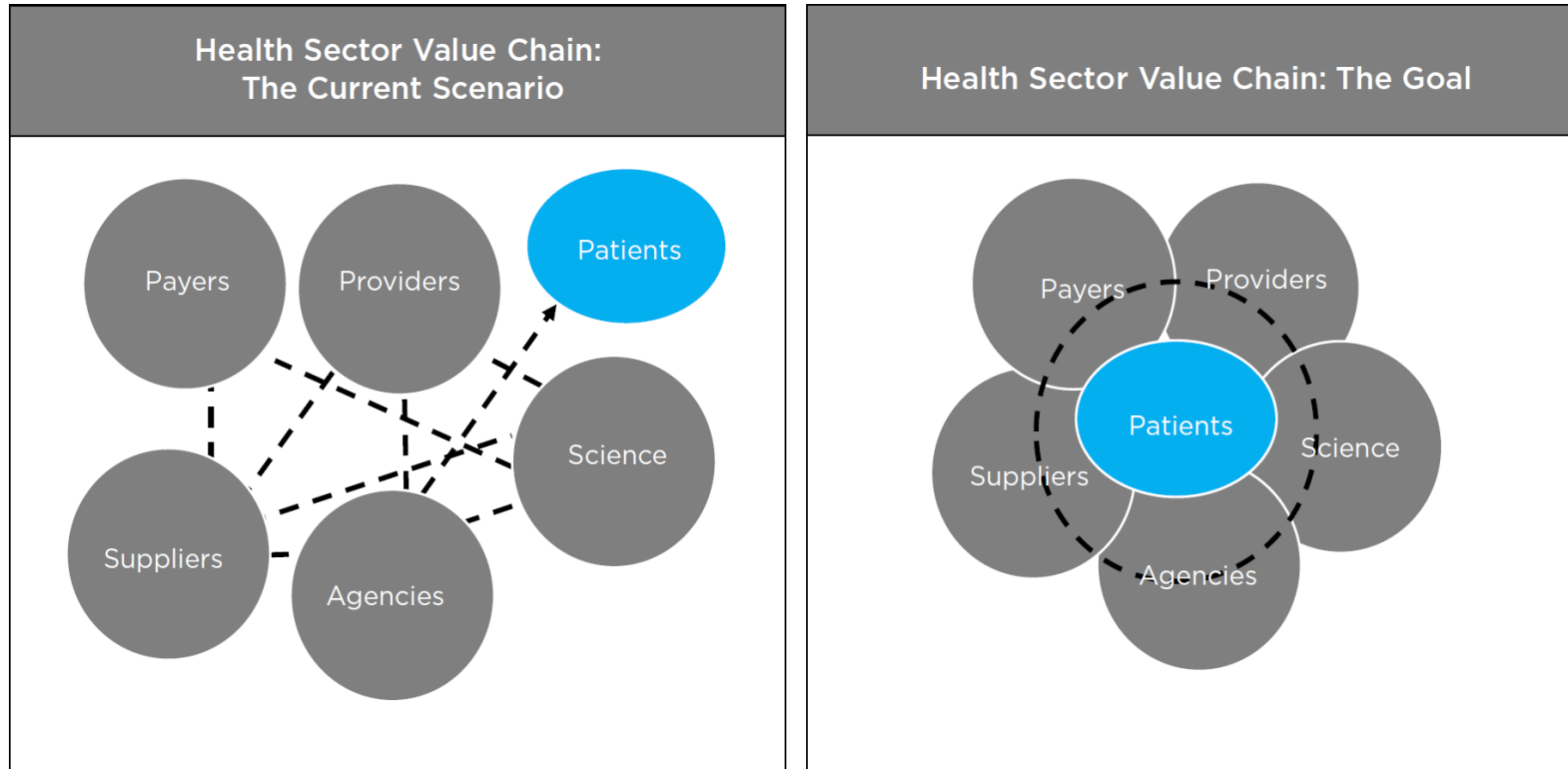


Source: [diaTribeLearn](https://www.diaTribeLearn.com)

THE ECONOMIC ECOSYSTEM



WHAT HAPPENS WHEN WE PUT THE PATIENT BACK IN THE CENTRE?



Source: Rotman Management Magazine Winter 2019 Ed.

THE FORMULA IS NOT SO SIMPLE ANYMORE

The new healthcare ecosystem requires a high level of **resiliency to adapt** to rapidly changing human, technological and economic ecosystems.



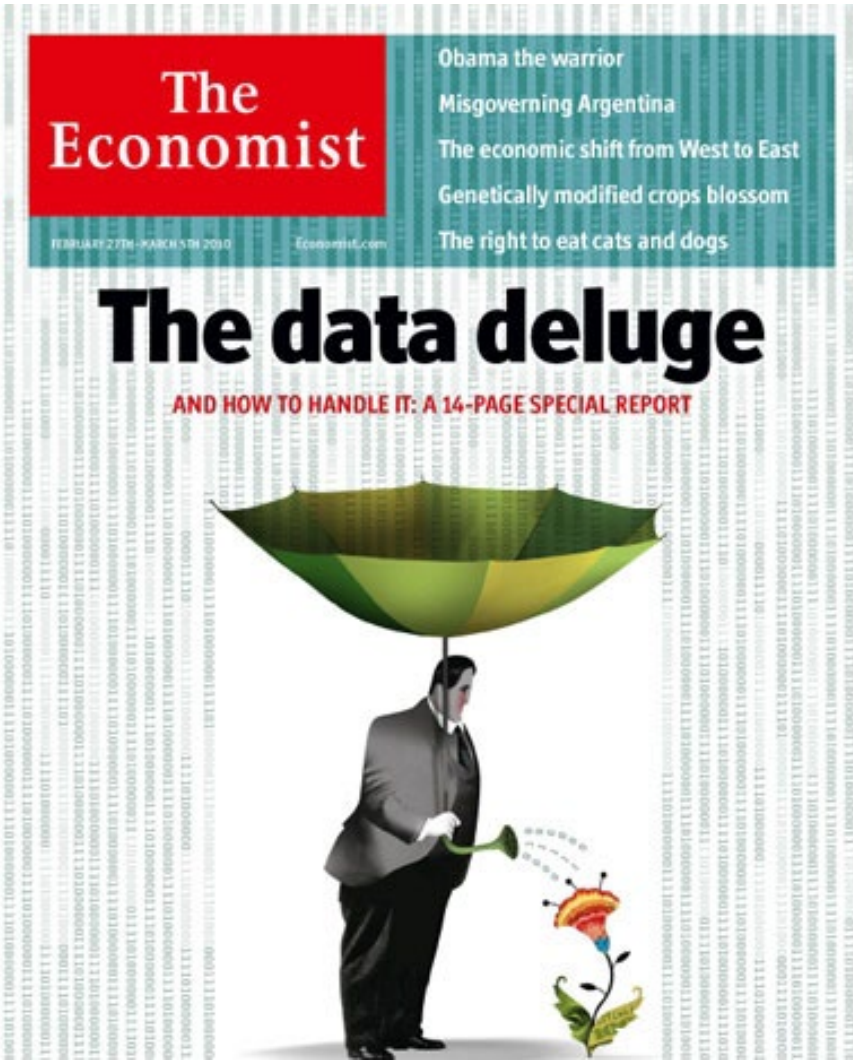
INDEED, PEOPLE'S WANTS AND NEEDS CONTINUE TO EVOLVE...

... SO HOW CAN WE PREDICT WHERE THE **FUTURE
OF **HEALTHCARE** IS HEADED?**



BIG DATA

(AND LITTLE DATA)



**THERE IS SO MUCH DATA
OUT THERE.**

**HOW CAN WE POSSIBLY
UNDERSTAND IT ALL?**

BIG DATA IN HEALTHCARE



Demographics (e.g. aging population, urbanization)



Genomic medicine



Public health measures (wellness & disease management)



Delivery strategies

LITTLE DATA IN HEALTHCARE



Evidence-based design



Operational practices of providers



Impacts of technology



Internet/social media

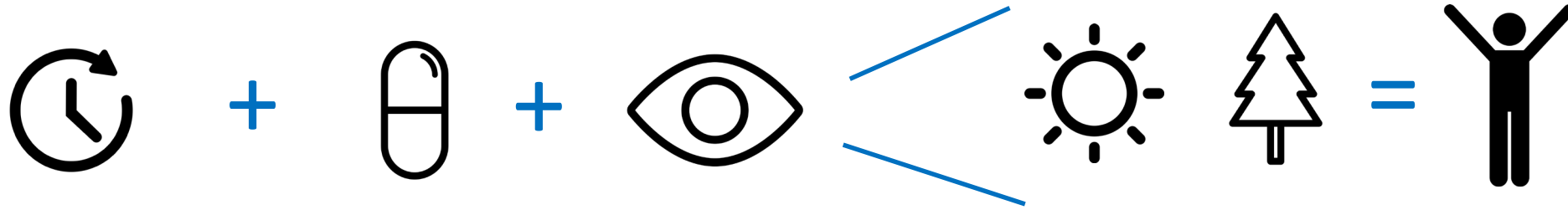


Qualitative insight

EVIDENCE-BASED DESIGN (EBD)

The deliberate attempt to base **building decisions** on the **best available research evidence** with the **goal of improving outcomes** and of continuing to monitor the success or failure for subsequent decision-making. **EBD is a process, not a product.**

EBD: TESTING HYPOTHESES



The most famous example is a study by Roger Ullrich from the 80's. He found that recovery times and the use of pain medication in bedrooms with light and view were both improved than identical rooms and care with diminished room light and view.

EBD: DESIGN SOLUTIONS SUPPORTED BY EVIDENCE

Milton District Hospital, Canada. In addition to light and view, EBD principles include infection studies, fall prevention, patient environmental control, low noise/stress, family support, and uniformity in working environment.



THE NEUROSCIENCE OF PAIN

Brain imaging is illuminating the neural patterns behind pain's infinite variety.

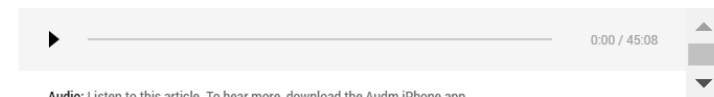
By Nicola Twilley

HARNESSING DATA TO UNDERSTAND CARE WITHIN THE CULTURAL CONTEXT

Understanding people requires an understanding of culture. **Research and evidence** is best understood within **context** and a **blend of quantitative and qualitative data**.



Research is illuminating the neural patterns behind pain's infinite variety. Illustration by Anna Parini



Audio: Listen to this article. To hear more, download the Audm iPhone app.

On a foggy February morning in Oxford, England, I arrived at the John Radcliffe Hospital, a shiplike nineteen-seventies complex moored on a hill east of the city center, for the express purpose of being hurt. I had an appointment with a scientist named Irene Tracey, a brisk woman in her early

QUALITATIVE INSIGHT

QUANTITATIVE DATA TELLS YOU WHAT. **QUALITATIVE** DATA TELLS YOU **WHY**.



AT HOME



MAKING THE APPOINTMENT



IN TRANSIT



ARRIVAL & CHECK IN



THE EXAM



CHECK OUT

Do I need to come in?

Anticipation and fear

Hurry up and wait

Lack of privacy

Low perceived value

Who should I see?

Duplication of tasks

Impersonal interactions

Loss of dignity

Billing & payment issues

How much will it cost?

Out of my control

Lack of follow up



EMPOWERED



UNCERTAIN



ANXIOUS



FRUSTRATED



DIMINISHED



DISENFRANCHISED

DATA + ANALYSIS = EVIDENCE

WHAT IS THE EVIDENCE TELLING US ABOUT THE FUTURE?

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