“No Longer Business as Usual”

Digital Platforms and the Forces of Disruption in Health

June, 2018

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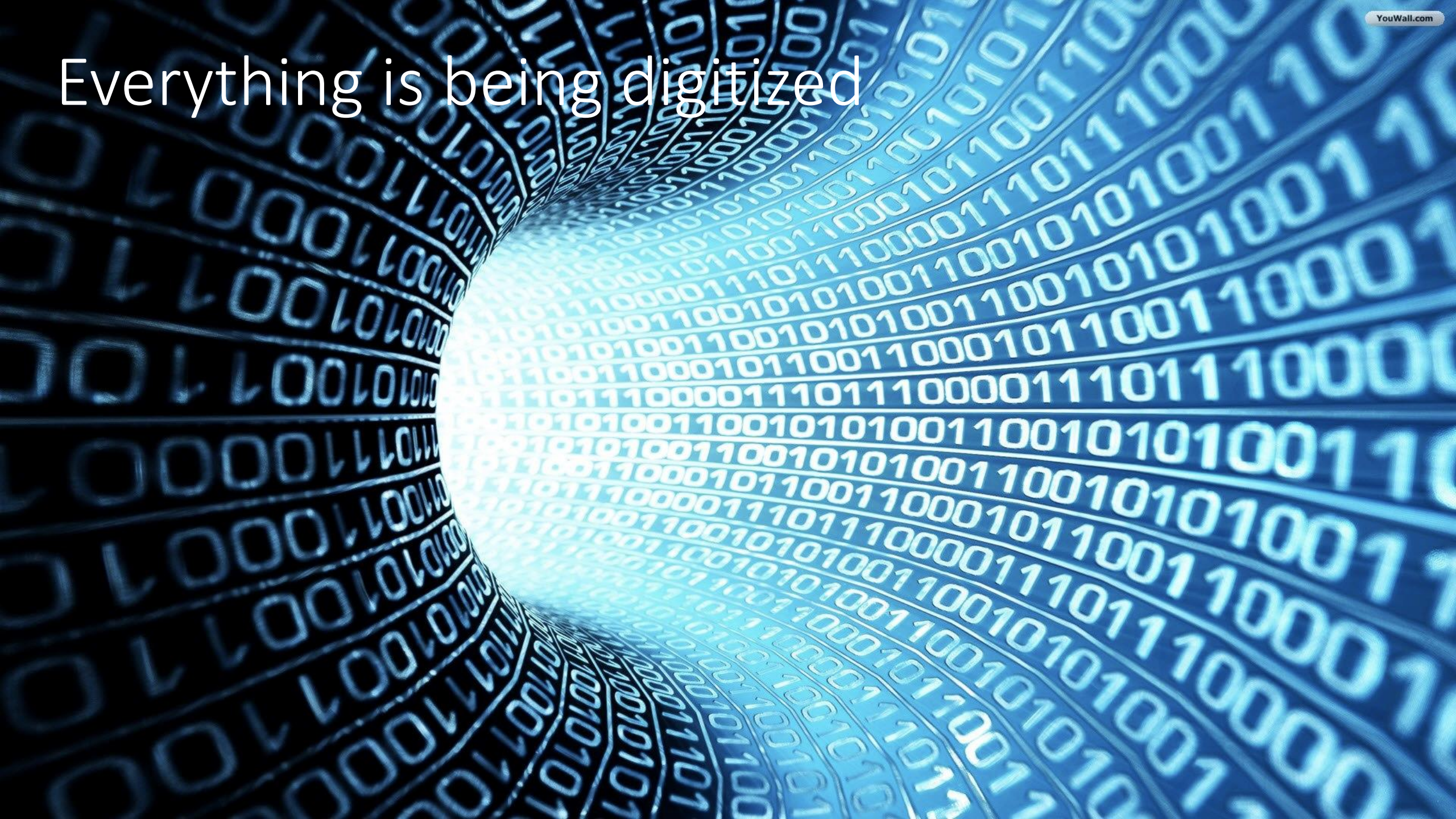
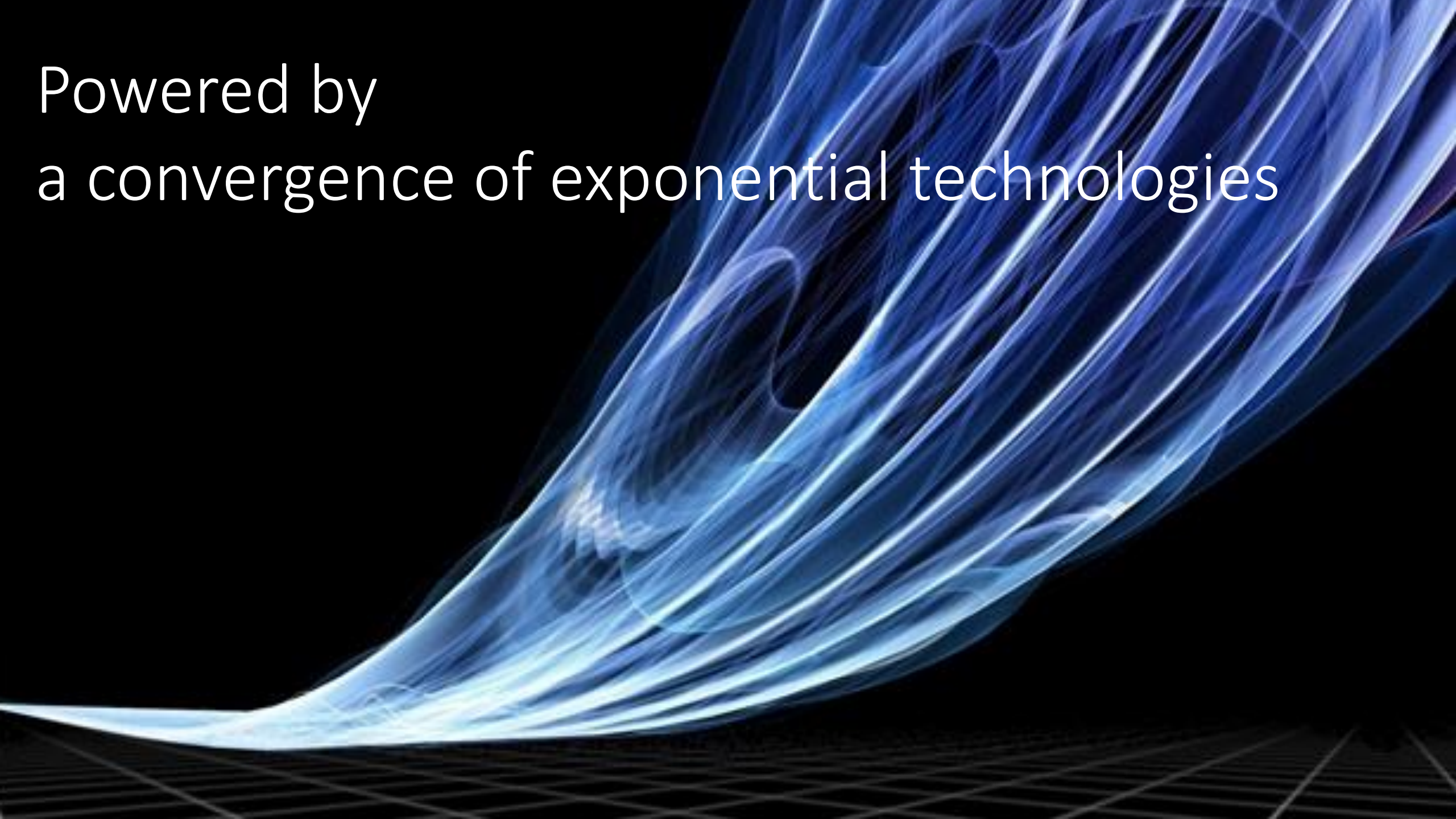
THE PROMISE

Everyone and Everything is Connected
....or soon to be

Everything is being digitized




Powered by
a convergence of exponential technologies

Technology to make sense of this data

and derive real insight

WHAT DOES THAT MEAN IN HEALTH

Out on the edges you see all kinds
of things you can't see from the center.

Big, undreamed-of-things...
the people on the edge see them first.

--- Kurt Vonnegut ---

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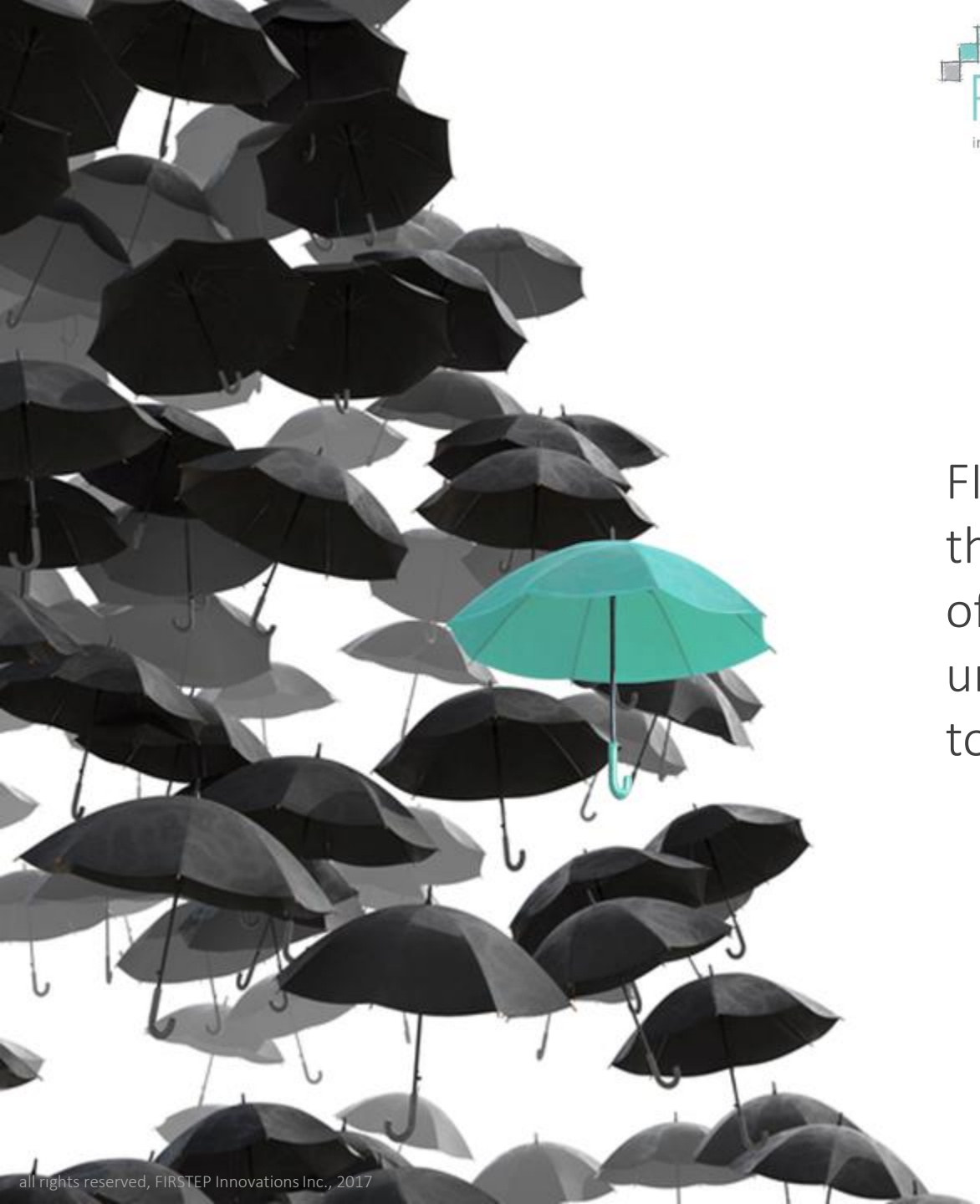

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FIRSTEP helps health organizations view the forces of disruption through the lens of startups and edge innovators... it's a unique and remarkably effective way to tap into startup innovation.

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we believe...

that things are moving so fast that no '*expert*' can tell you what to do.
In this environment, agile strategy boils down to three fundamentals:

1

Decide what you **believe** is true (today)

2

Decide what you **believe** will be true (tomorrow)

(how key forces of disruption are most likely to unfold)

3

PLACE BETS

(based on what you believe to be true)

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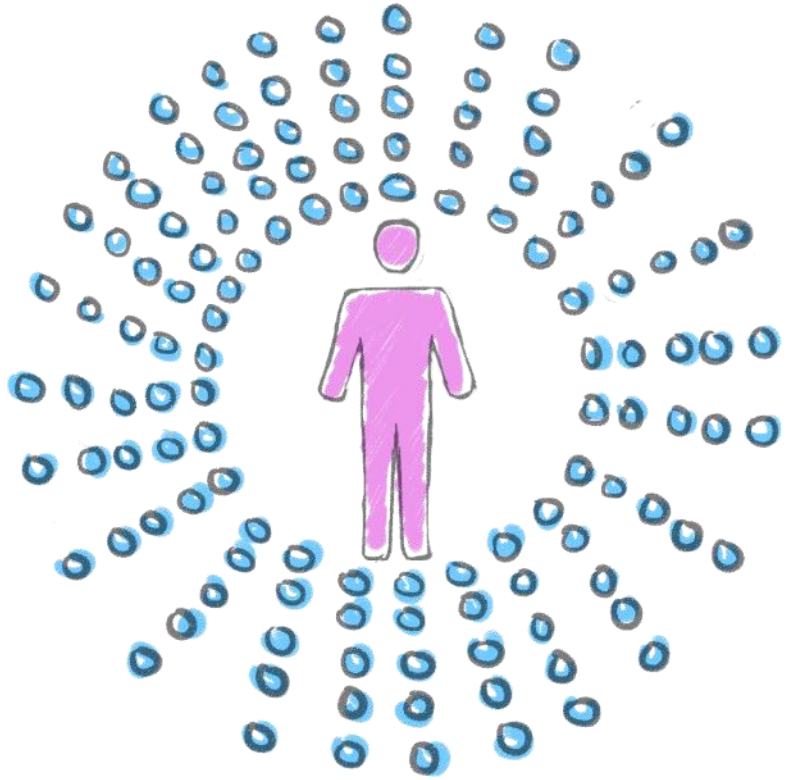
we believe...

That innovation occurs on the edge



As human beings, we are surrounded by an ever increasing number of disruptive forces

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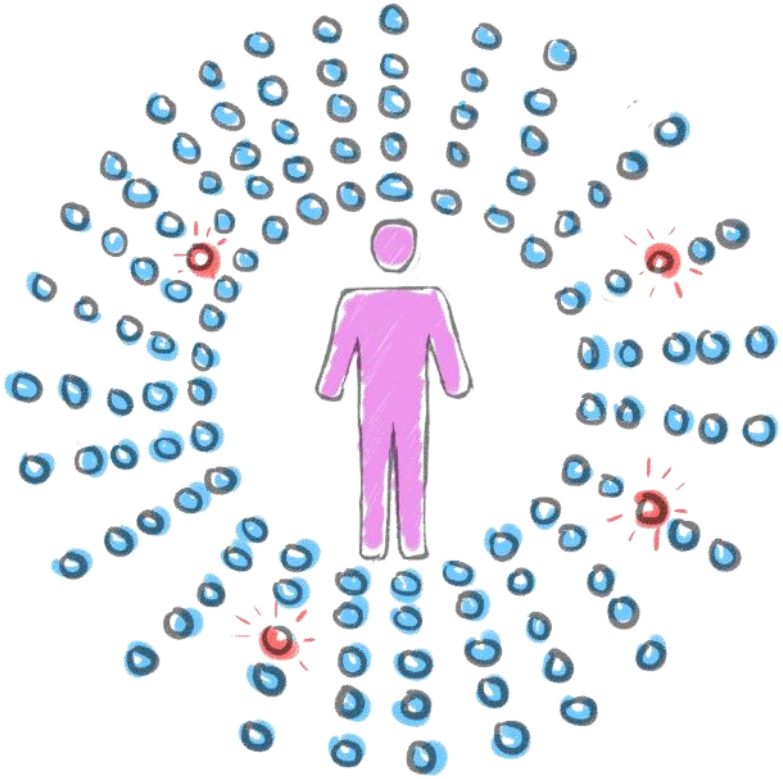
For those with a passion for a specific space, some individual forces inevitably rise above the noise.



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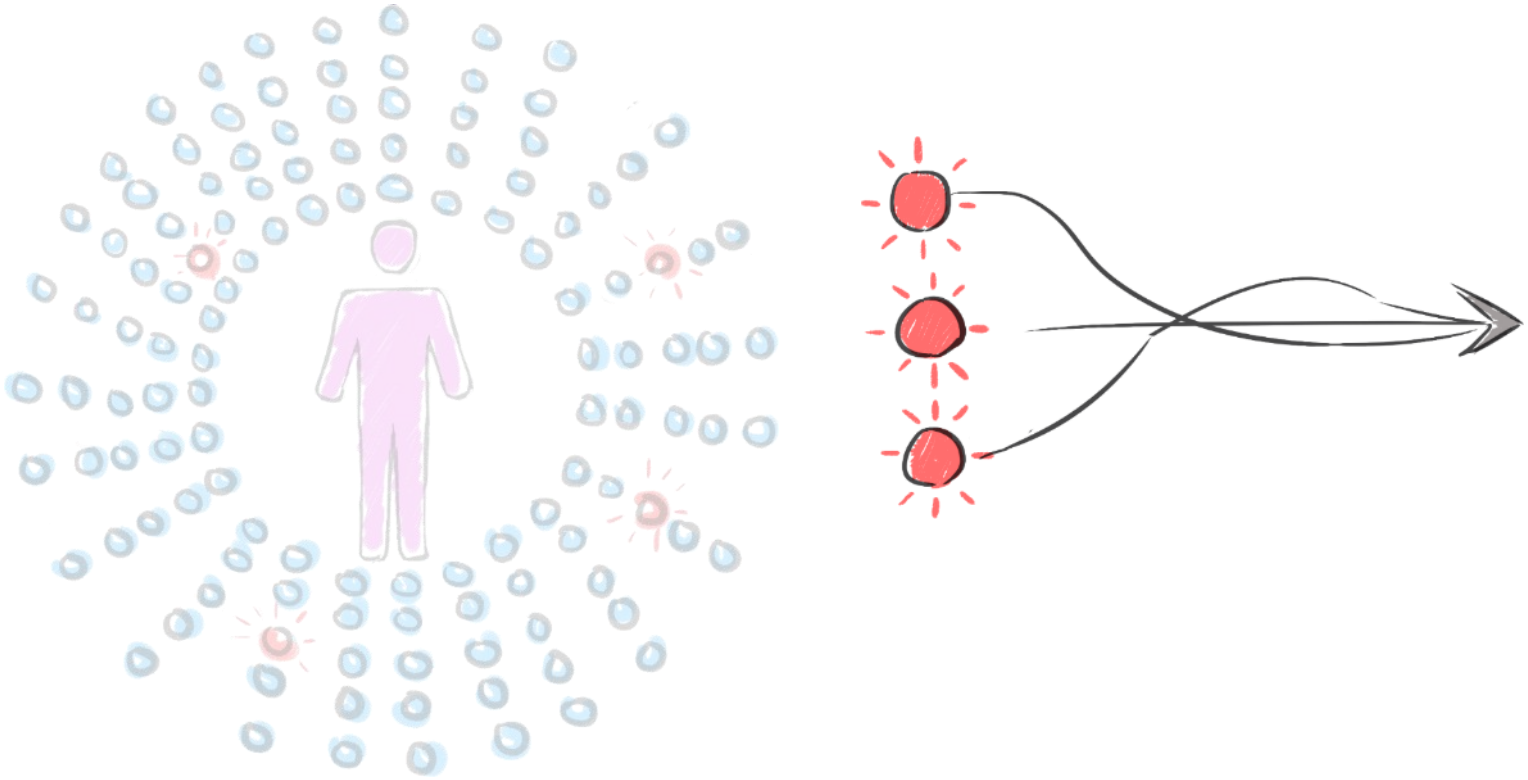
Unconsciously, the patterns emerge, and assumptions are formed about how these forces are most likely to unfold.



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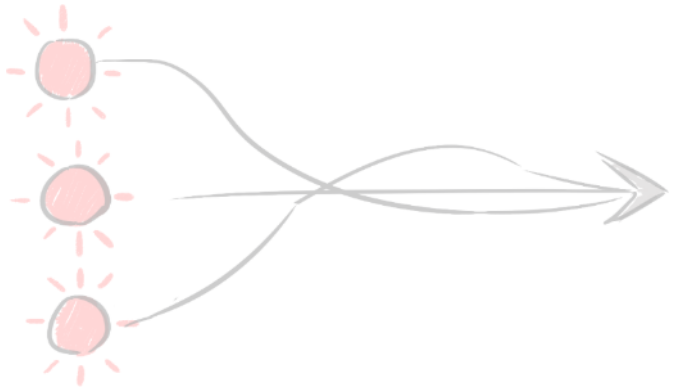
All innovators have a ‘Thesis’

(ie: a passionate belief in how things are about to unfold)



? Which forces have the greatest potential to disrupt this space ?

? How are these forces most likely to unfold ?

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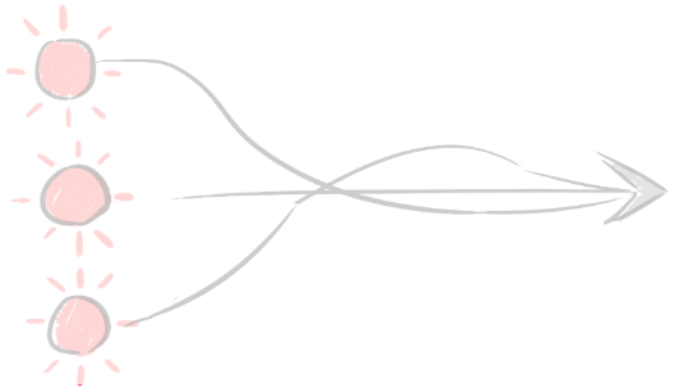
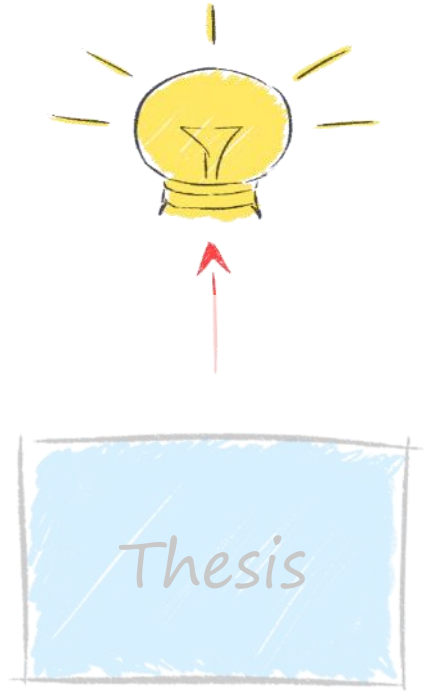
… consciously or unconsciously, that ‘Thesis’
is the inspiration behind their BIG IDEA





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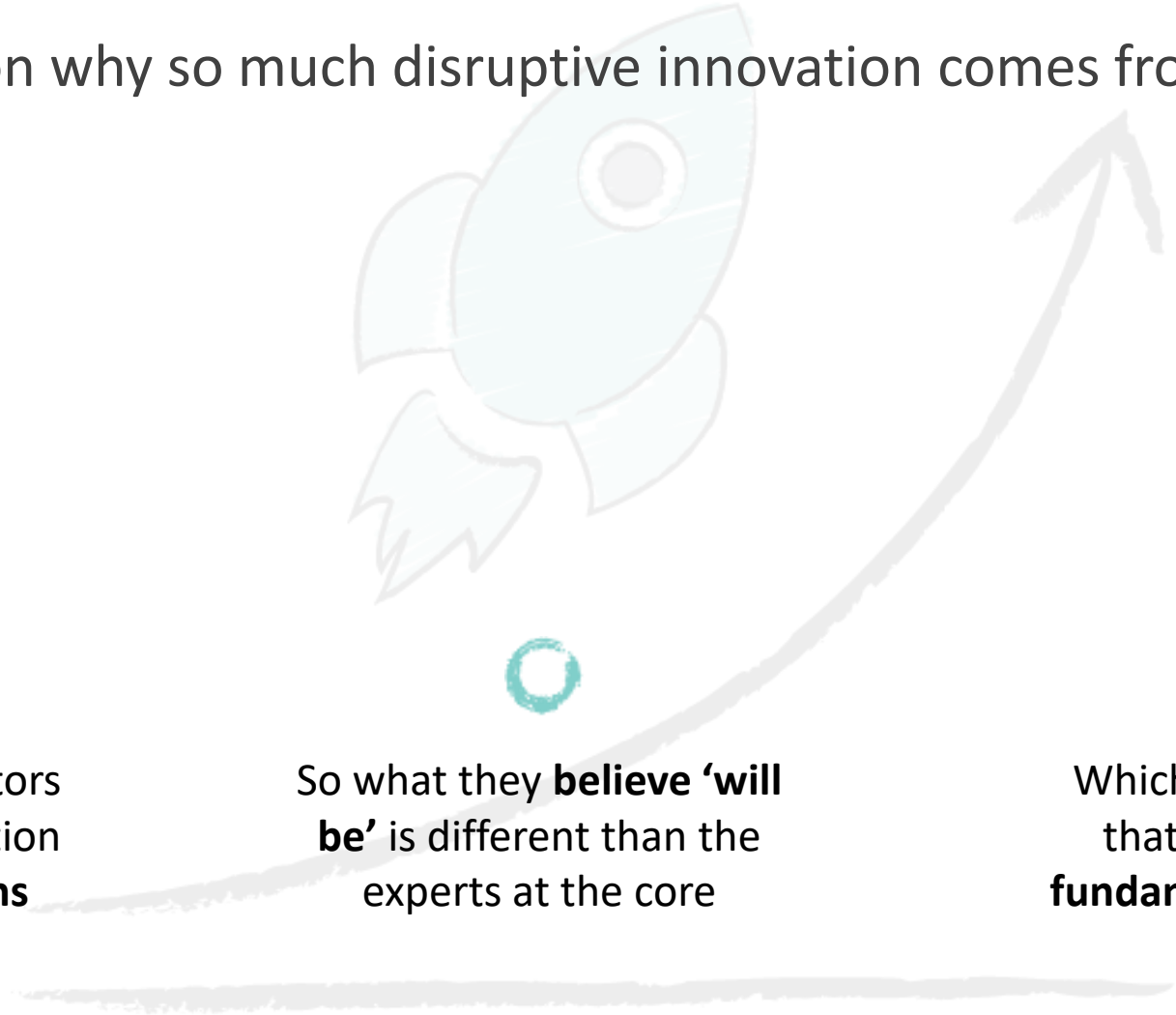
we believe…

there is a simple reason why so much disruptive innovation comes from the edge:



Startups & edge-innovators see the forces of disruption through a **different lens**

So what they **believe 'will be'** is different than the experts at the core

Which is why the bets that they place are **fundamentally different**

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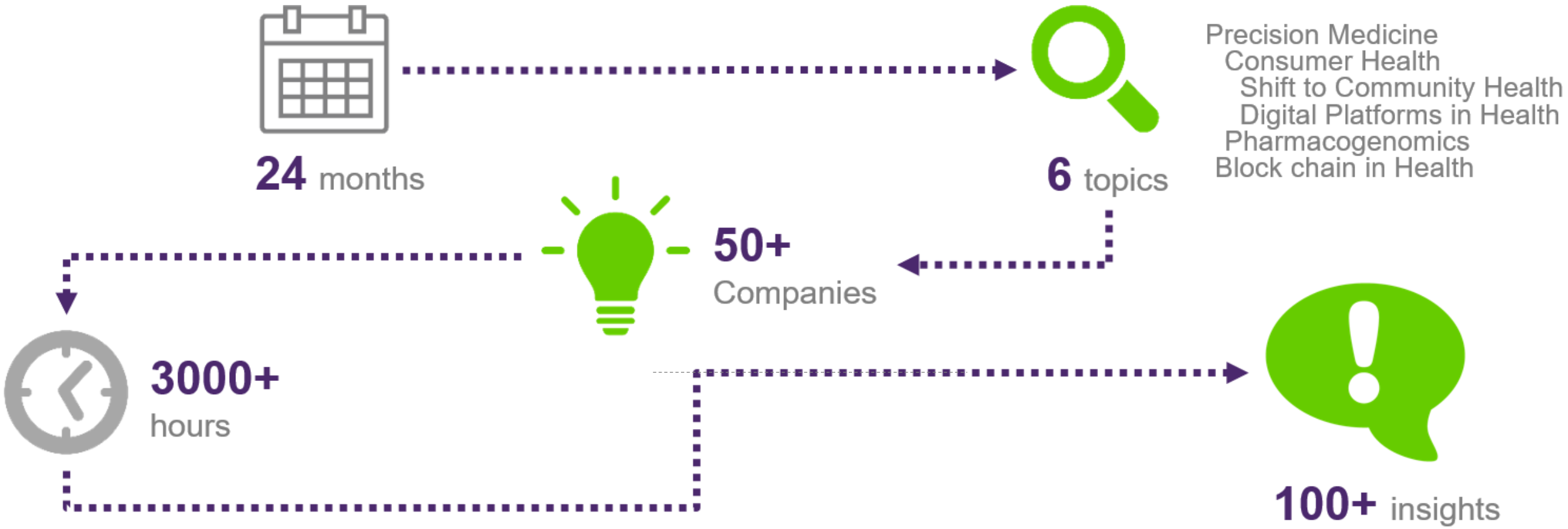
in times of rapid change, an edge perspective becomes a critical strategic input for all organizations trying to reduce disruption risk &/or spark new growth opportunities



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Let’s look a few forces…
Fingerprint
ysiological Data
Context
FIRSTEP
TELUS
CHANGE TRAJECTORY
Multi Dx Modalities
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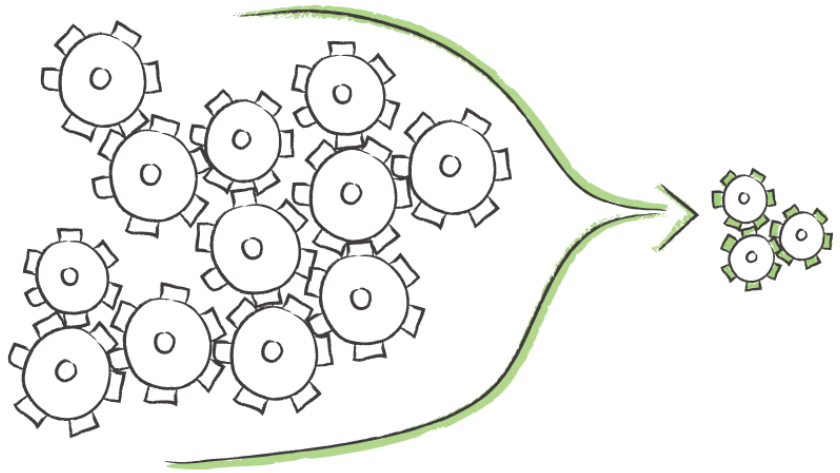
THERE'S AN APP FOR THAT

An explosion of digital apps and services is disrupting almost every business imaginable. The disruption will continue to accelerate exponentially for the foreseeable future.



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PLATFORM EXPLOSION

An explosion of digital platforms is disrupting almost every business imaginable.
Platforms remove friction for apps and service and in so doing, accelerate Appification.
The disruption will continue to accelerate exponentially for the foreseeable future.

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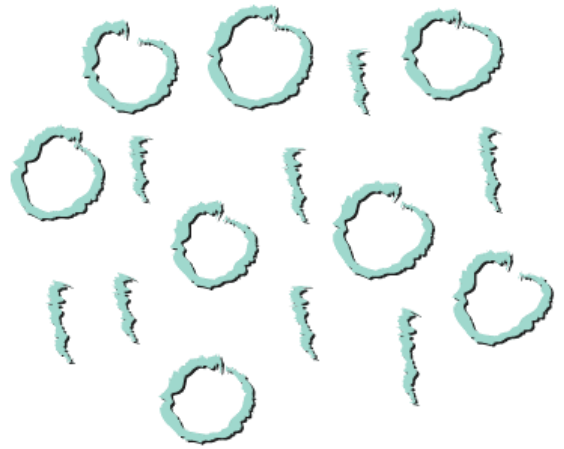
EXPONENTIAL ORGANIZATIONS

An explosion of digital platforms, combined with public cloud services are removing the friction from scaling innovative new businesses. Rather than building all of the pieces, XO's simply plumb together the required layers, swapping out for newer better services as they become available.

Companies that choose to 'build' their own layers are at a serious competitive disadvantage because they are slower, more complicated, more capital intensive and less agile.



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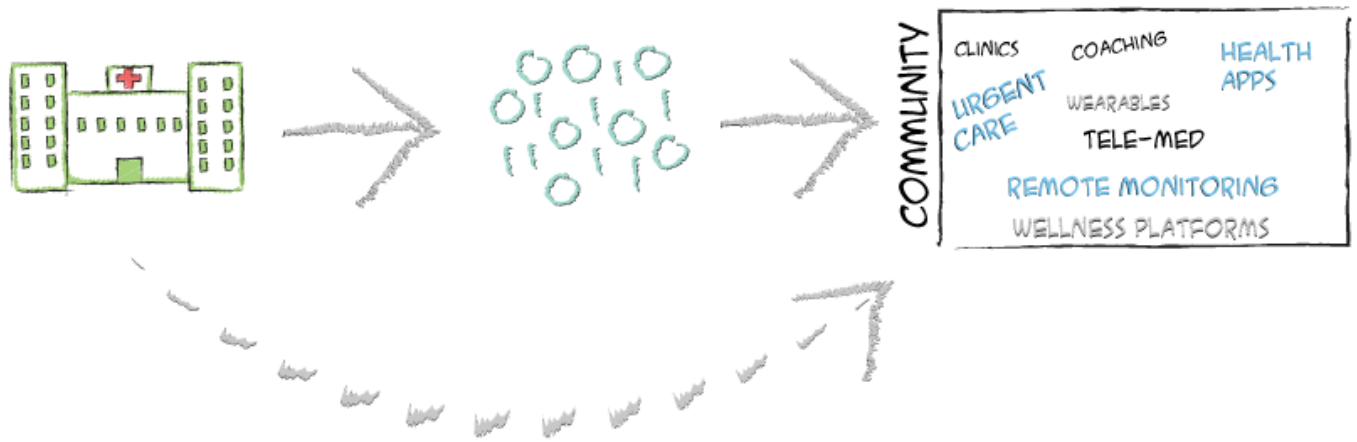
DIGITIZATION of HEALTH

Sometimes lost in the implementation horror stories is the capabilities that DIGITAL brings to an industry:

Reimaging processes transcending

- ***Time***
- ***Distance***
- ***Presence***



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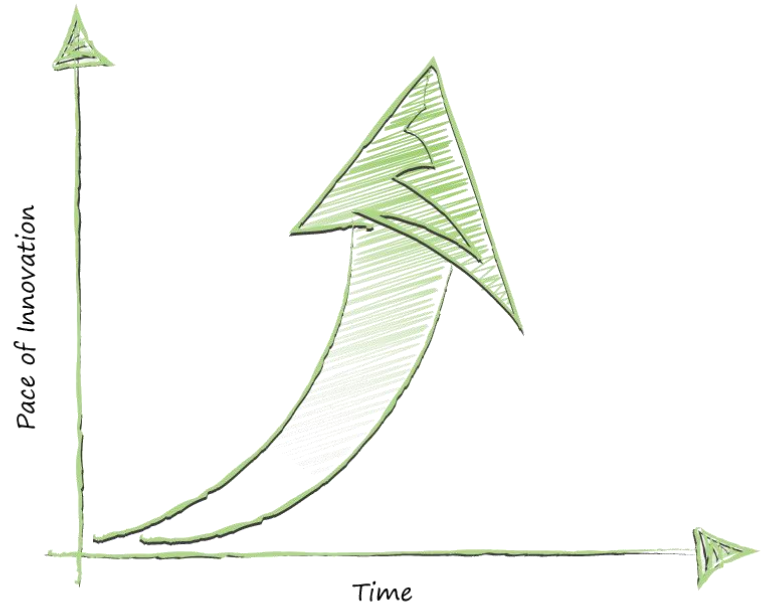
PACE OF INNOVATION IN H.W.B.

The digitization of health is well underway and we believe that the pace of innovation will continue to accelerate well into the future. In our view, the ever increasing supply of new technologies, health apps and services (all promising improvements over other options) will continually increase the level of disruption for the foreseeable future.



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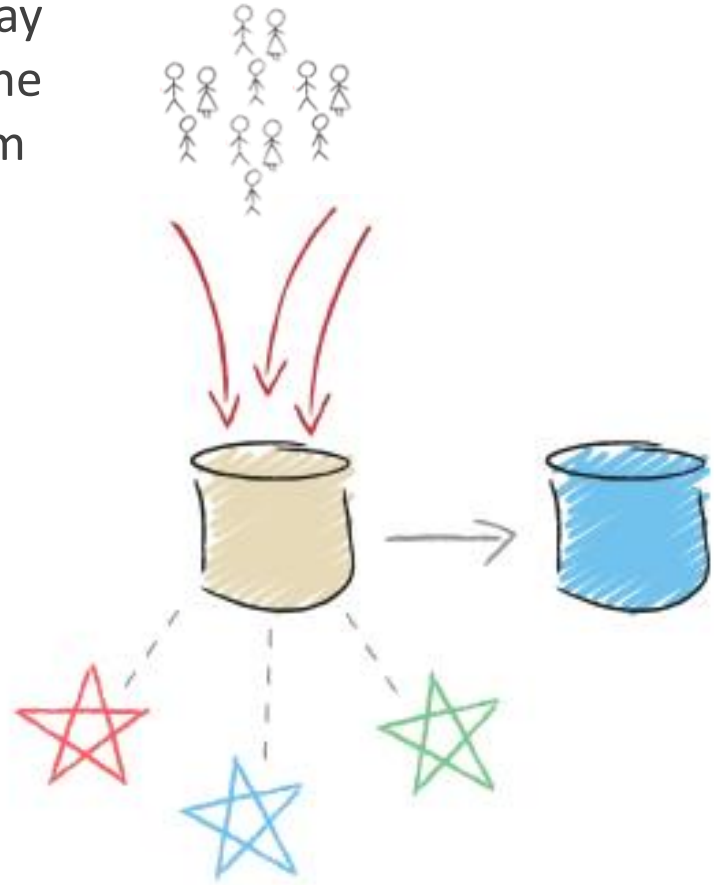
SENSORS IN H.W.B.

Consumer adoption of wearables and stationary sensors (IoT / Ambient Computing etc.) will do more than add data, it will help H.W.B. shift away from a system-centric view toward a consumer-centric view, because the consumer will be the only one with the power to allow data access from an ever widening group of sources.



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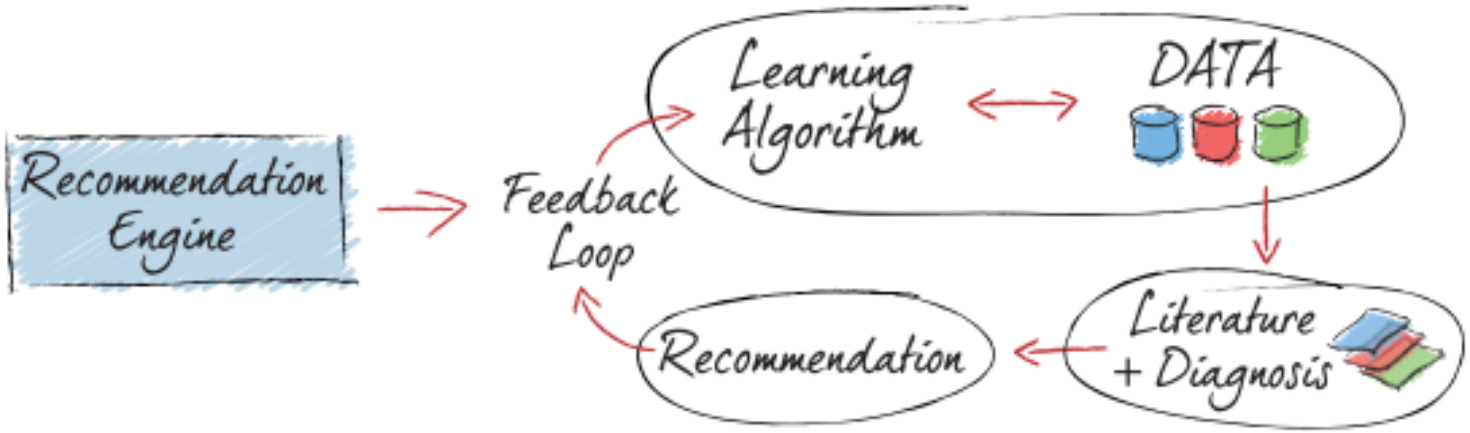
MACHINE LEARNING ALGORITHMS

Learning Algorithms are increasingly critical to help app's and services optimize, not just by cross-referencing data tables, but by actively looking for patterns and insights that elude humans. Learning algorithms have the potential to deliver remarkable improvements to both efficacy and ROI, one health job at a time.



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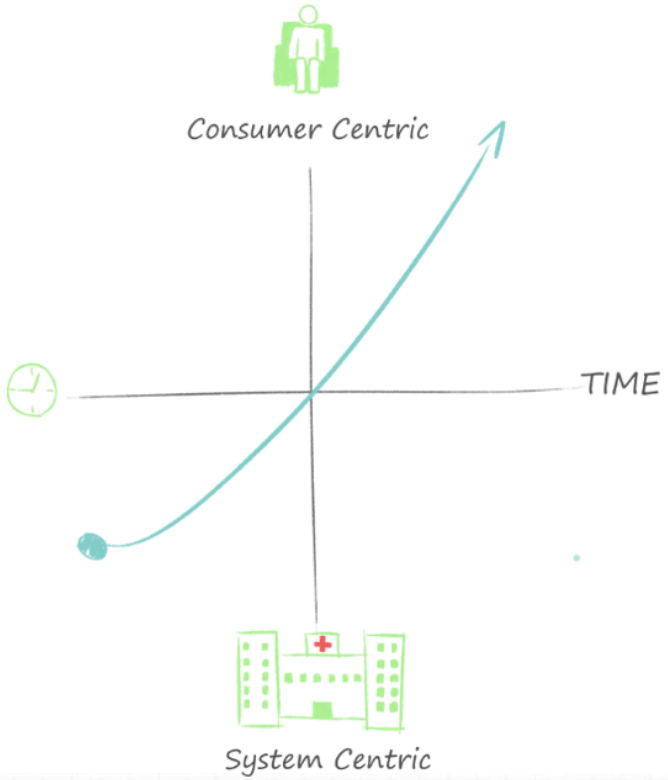
SHIFT TO CONSUMER CENTRICITY

We believe that health systems around the world are increasingly under pressure to shift away from a system-centric view toward a more consumer-centric view. This change will be driven, in a large part, by consumers/patients pushing legacy health systems to both deliver efficacy and an improved user experience.



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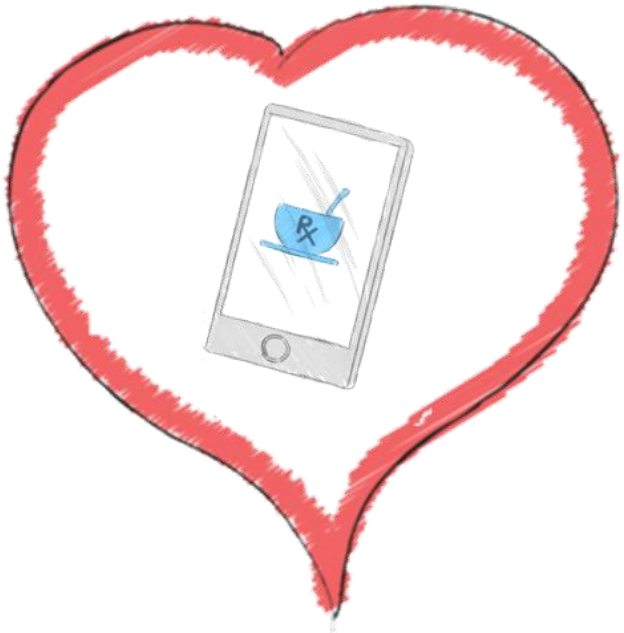
RISING UX EXPECTATIONS

Consumer expectations are rising dramatically, primarily as a result of the user experience that people receive from best of breed digital apps and services. These expectations have been spread beyond digital services, to shopping, travel & financial services, and people increasingly expect the same level of sophistication from their doctors and other health care providers.



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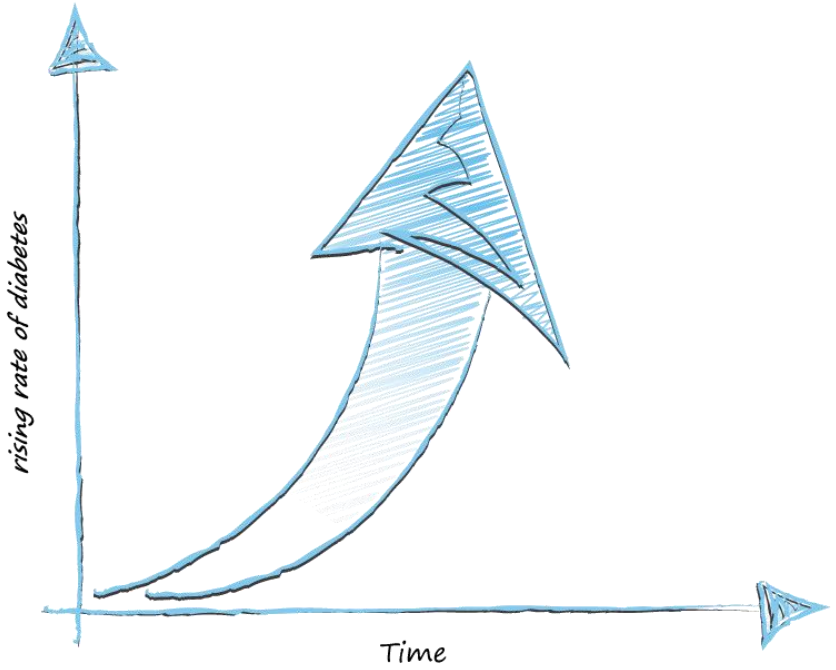
RISING RATE OF DIABETES

The rate of growth for diabetes has been growing steadily and that growth will not slow in the next 3 to 5 years. In fact, the rate of growth will continue to increase at roughly the same rates that we've been seeing for the last 3 to 5 years.



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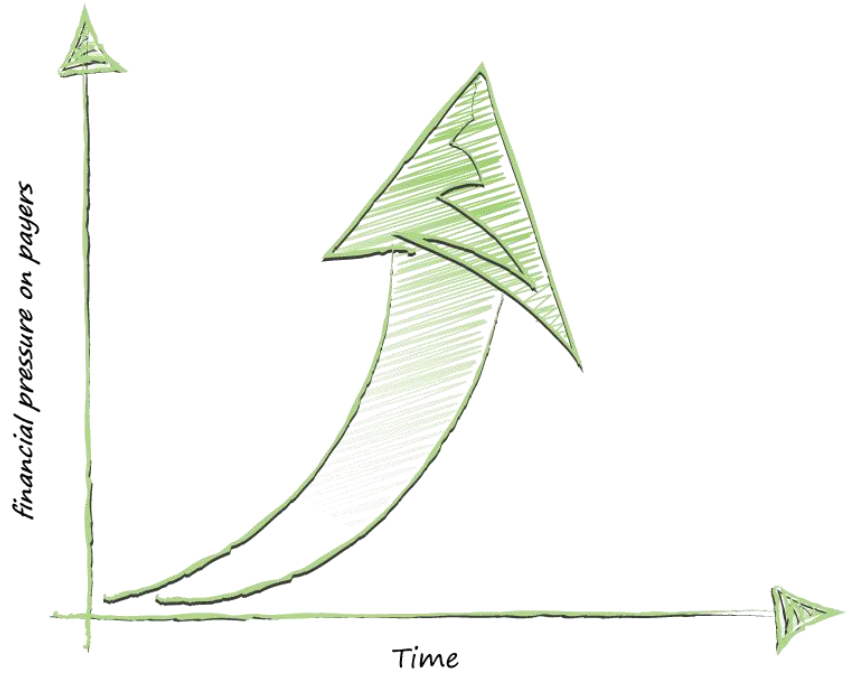
FINANCIAL PRESSURE ON HEALTH PAYERS

For health payers, both the scope of what they have to pay for, and the cost of diagnosis/treatment are rising together, with no clear end in sight.



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SHIFT TO VALUE-BASED CARE

We expect to see continued growth in the shift to value-based care, and with it, continued growth in the level of interest for activities & solutions that improve efficacy and ROI.

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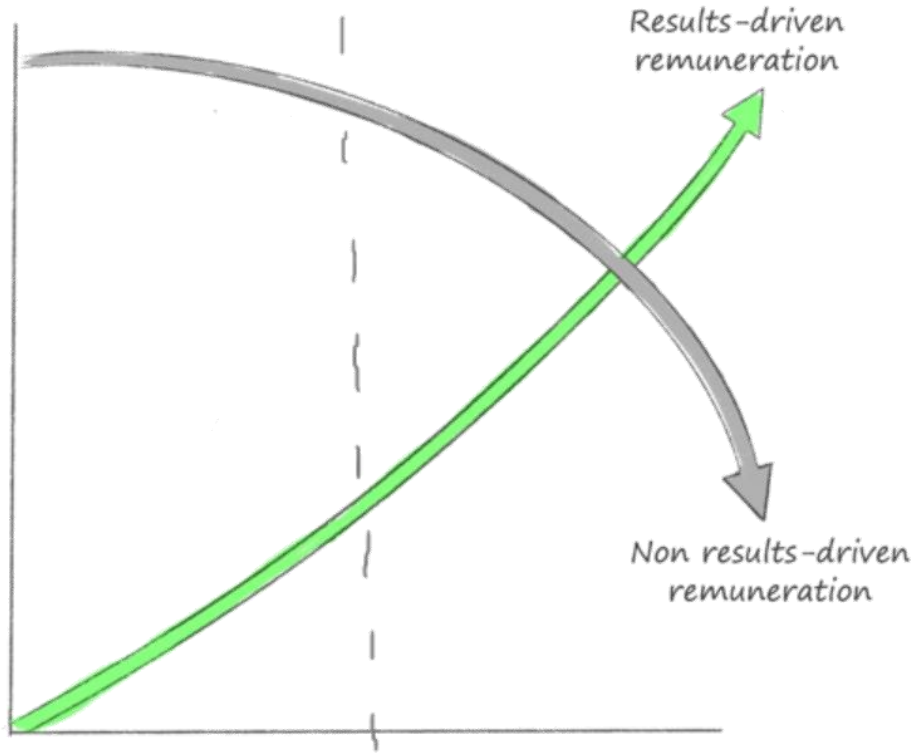

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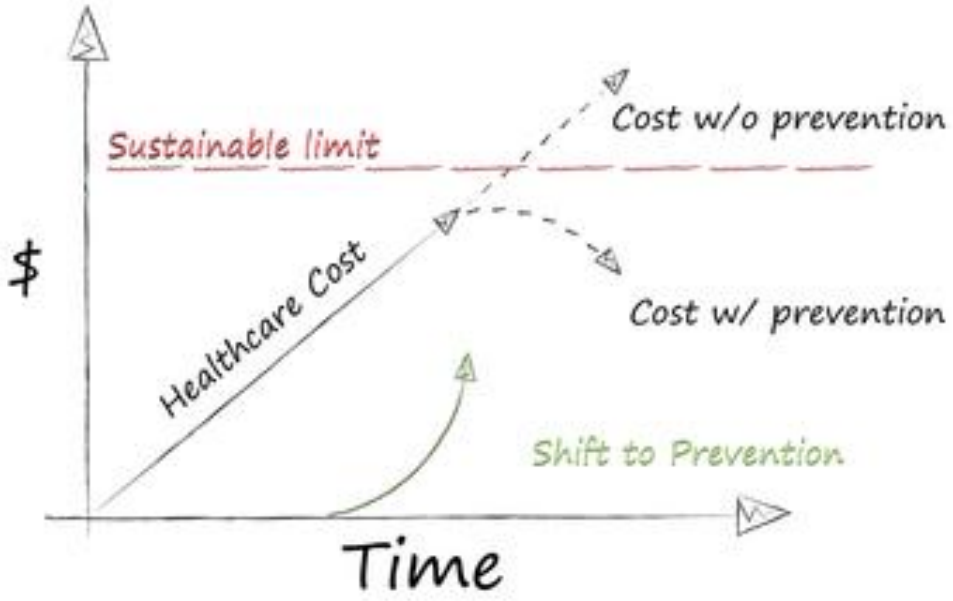
SHIFT TO PREVENTION

Given the rising burden of chronic disease, and ever-increasing resources expended once disease is in full progression, stakeholders across health are realizing the need for prevention strategies that prevent or even reverse chronic disease.



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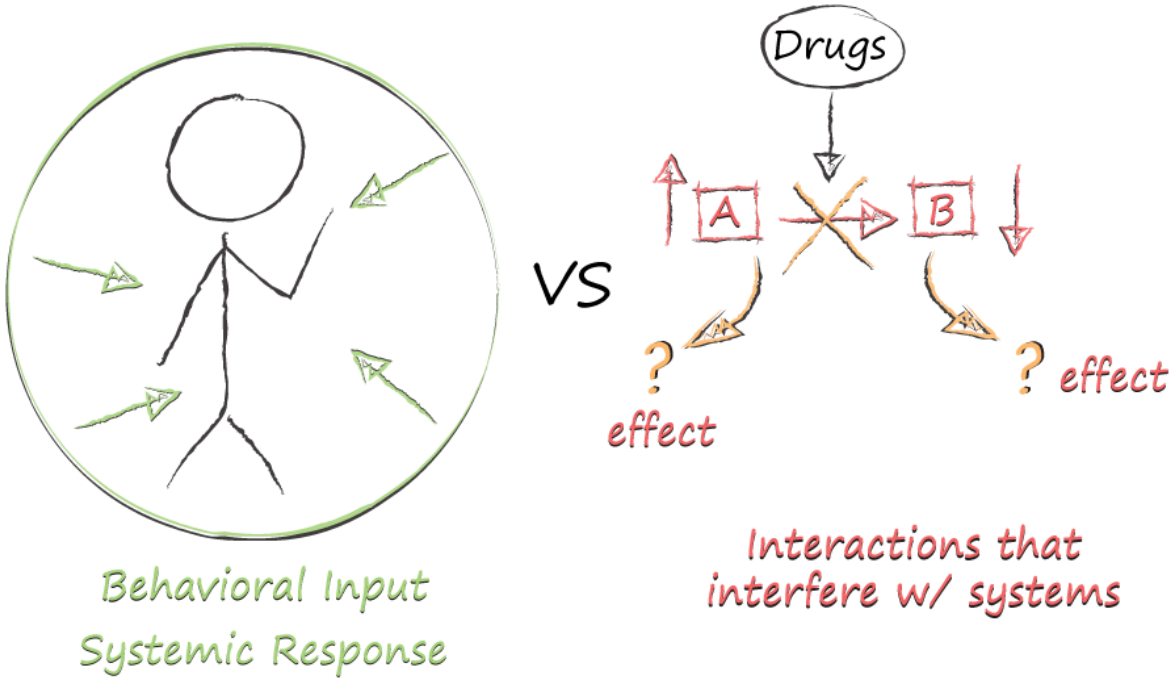
LIFESTYLE/BEHAVIORAL APPROACH TO HEALTH

Most of the disease burden in our society have roots in lifestyle behaviors – these behaviors are the natural inputs to change the interdependent biological systems that when they dysfunction cause disease



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COACHING EXPLOSION

With so much information available to consumers, many will turn to trusted coaches to personalize and make sense of the information available. These coaches help with accountability and provide a human interface to the complex health system.

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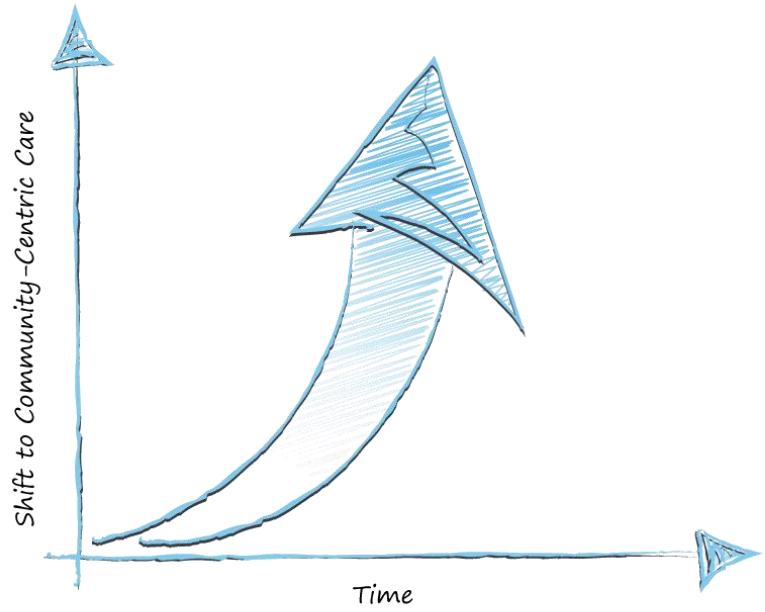
SHIFT TO COMMUNITY-CENTRIC CARE

In most developed nations, the need for care has outgrown existing capacity (hospitals / emergency departments etc.) and the combination of demographics and rising chronic disease virtually guarantee that demand will continue to accelerate for decades to come. It's not practical for healthcare systems to build enough capacity, so they will increasingly commit to shift care delivery away from a central model toward a more community-centric approach.



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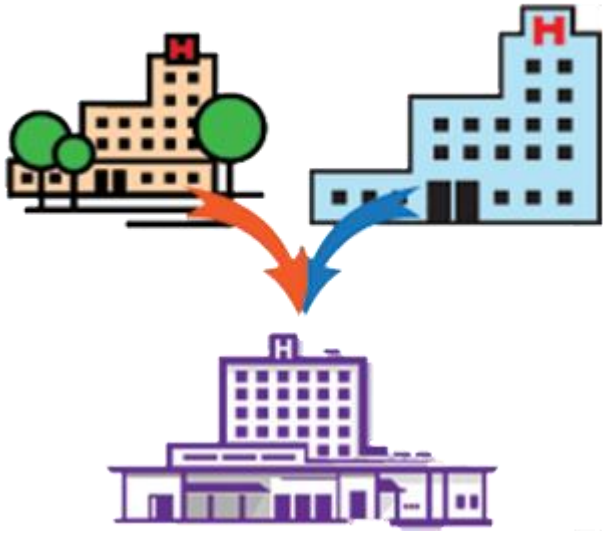
SHIFTING COMPETITIVE LANDSCAPE IN HEALTH

The number, size and competencies of major competitors is shifting rapidly:

- 84% of fortune 50 companies are placing bets in health
- Mega-Mergers reshaping ‘retail health’
- Shift to Consumerism is sparking a tsunami of Retail Health initiatives
- Reinsurance is on a trajectory to force a major shift to prevention



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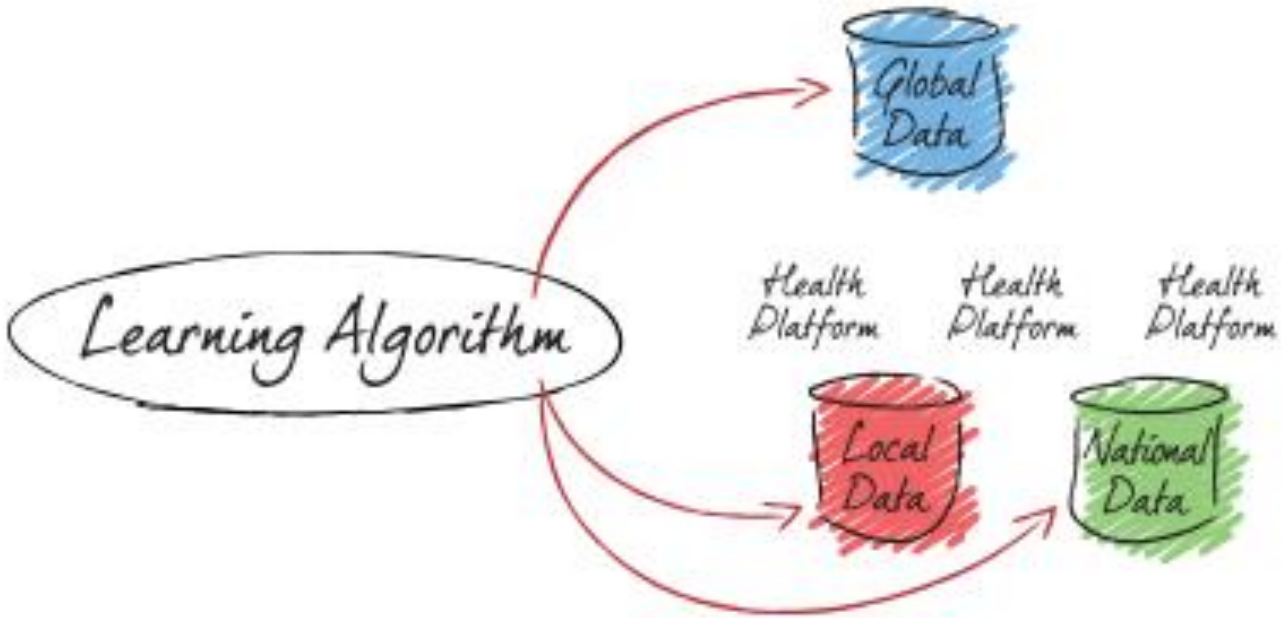
SILO'd DATA

Learning Algorithms have an insatiable appetite for massive amounts of data, but healthcare data remains fractured between a multitude of regional, national and global datasets, while Wellness, Betterment and IoT data is trapped in corporate silos.



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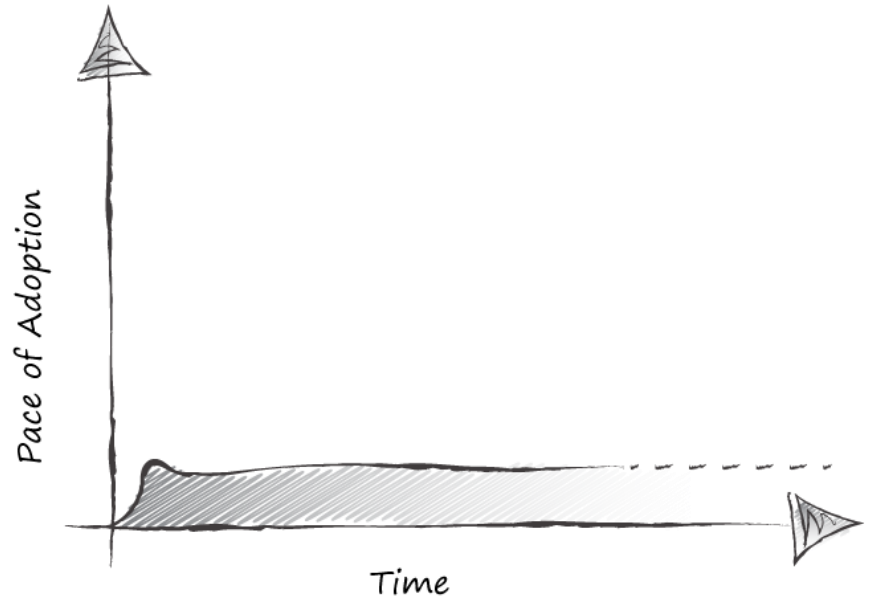
HEALTHCARE CULTURE

Clinical care inevitably involves a person and one or more practitioners. The reality is that practitioners are deeply integrated into the healthcare system which is in turn provider-centric. Practitioners workflow is optimized for current standard of care and remuneration policies. Unless those change, practitioners lack meaningful incentives to adopt innovations of any sort.



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HEALTH DATA IS SOVERIEGN

The need to protect the data is not going away.

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The term ‘sovereign data’ is particularly relevant in health, where some countries literally view health & genomic data as a matter of national security.

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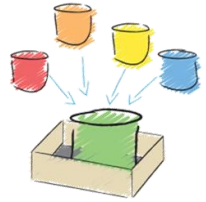
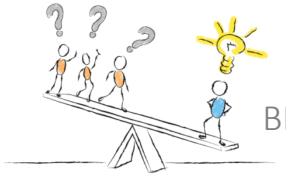
THIS IS NOT BUSINESS AS USUAL

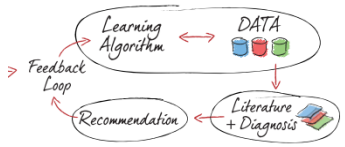
ALGORITHM COMPLIANCE



PRESSURE TO UNLOCK DATA

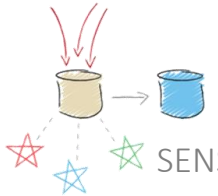


BENCHMARKING

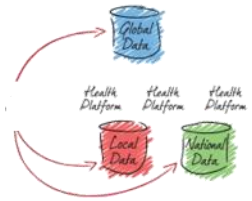


MACHINE LEARNING

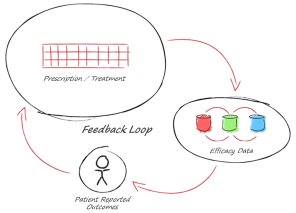
ATTRIBUTION



SENSORS / IoT



SILO'd DATA



FEEDBACK LOOPS

APPIFICATION

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AN EDGE PERSPECTIVE

1st PRINCIPALS

First Principals:

1. Health, Wellness & Betterment

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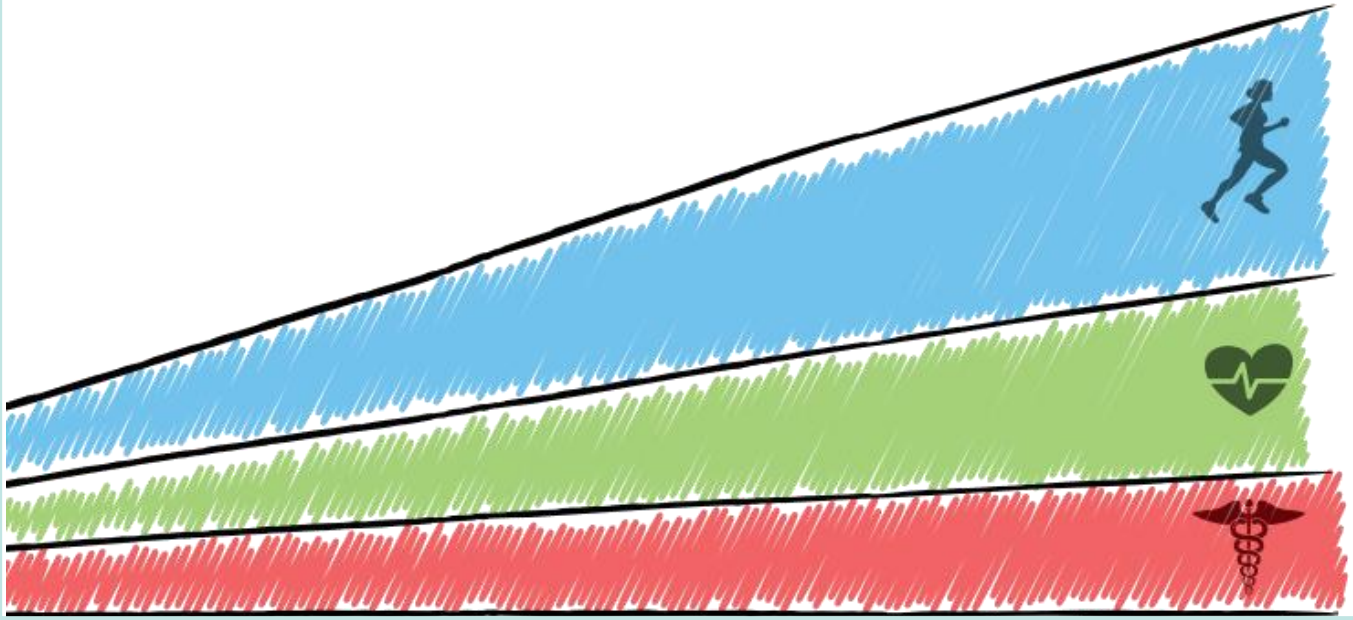
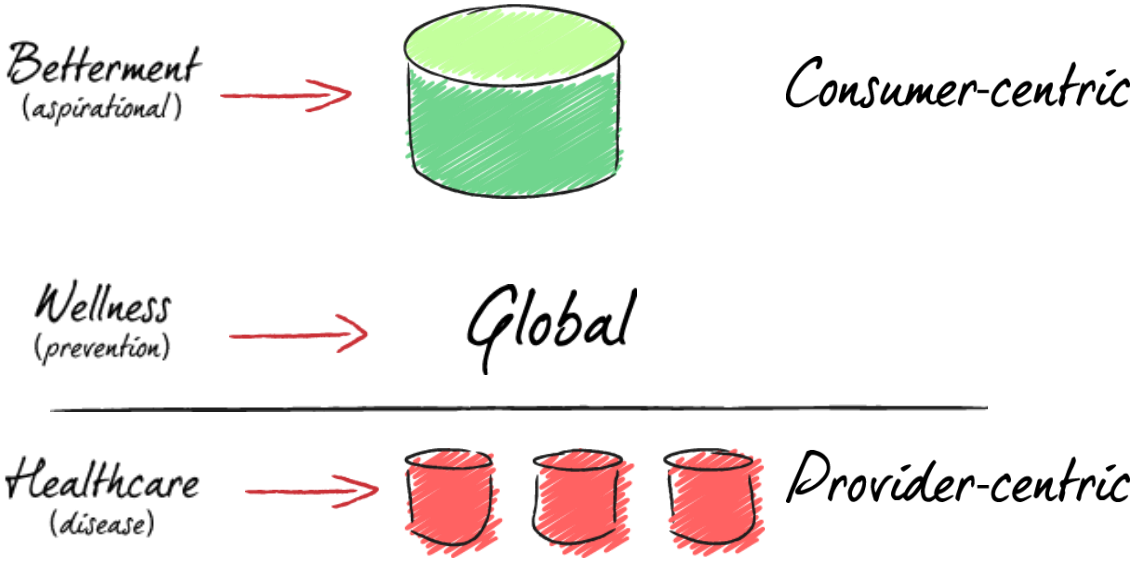
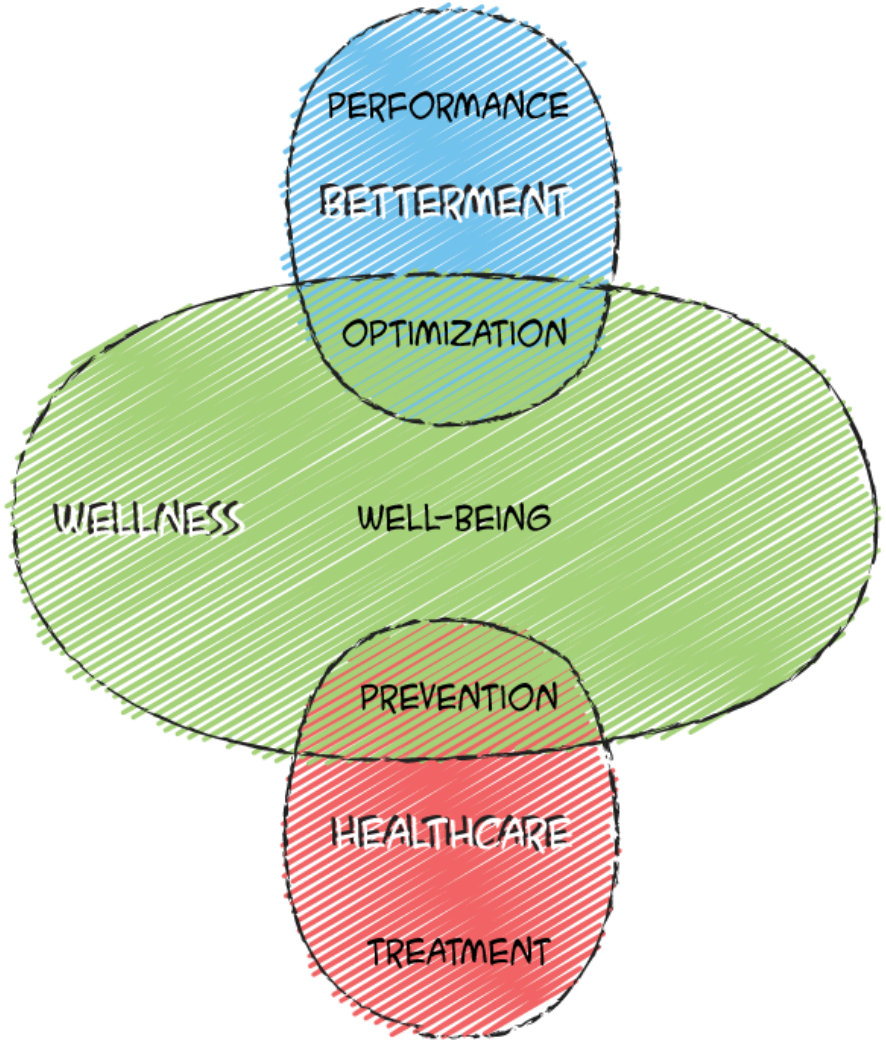
HEALTHCARE, WELLNESS & BETTERMENT

Our work has convinced that the traditional view of ‘healthcare’ makes it difficult to envision the full scope of impact from digitization.





Health is more than the absence of disease…



…it is a state of complete physical, mental and social well-being

THE COMPLIANCE PENALTY

App's, Services and Platforms that restrict themselves to health (ie: exclude wellness & betterment), are at a significant disadvantage because they will be unable to match the growth users, data & iteration of their competitors who operate on both sides of the line.

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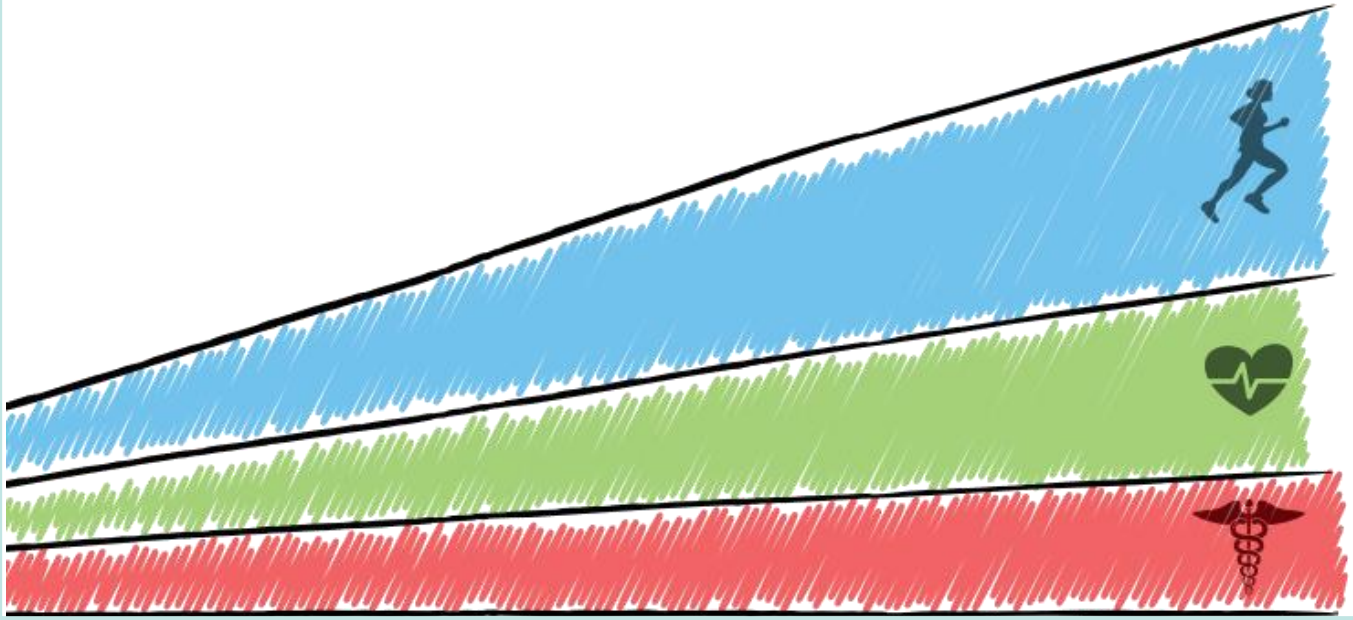

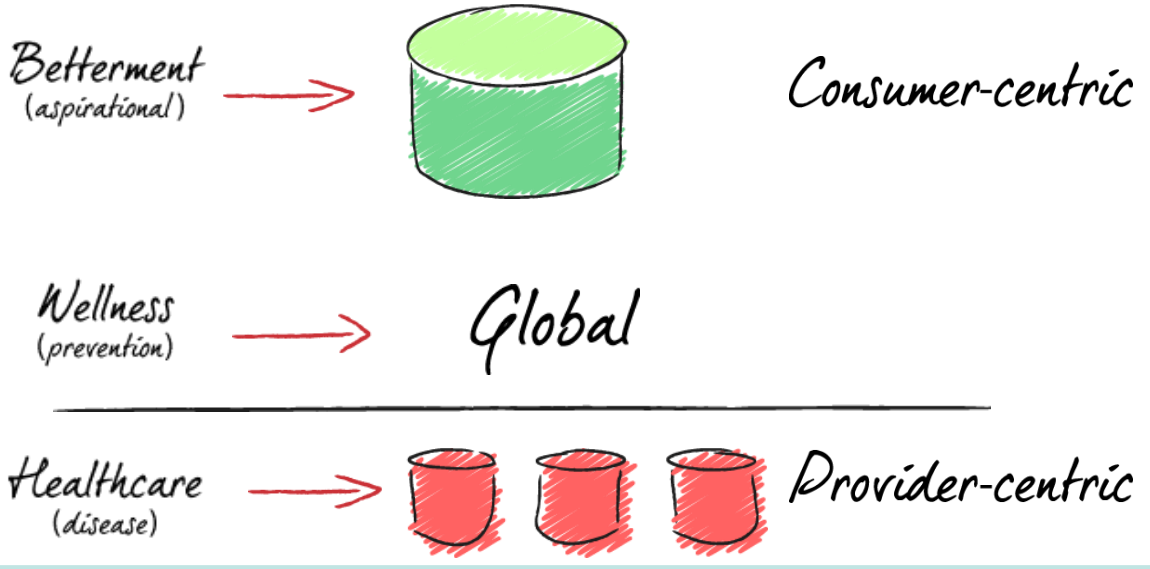

THE COMPLIANCE PENALTY

App's, Services and Platforms that restrict themselves to health (ie: exclude wellness & betterment), are at a significant disadvantage because they will be unable to match the growth users, data & iteration of their competitors who operate on both sides of the line.

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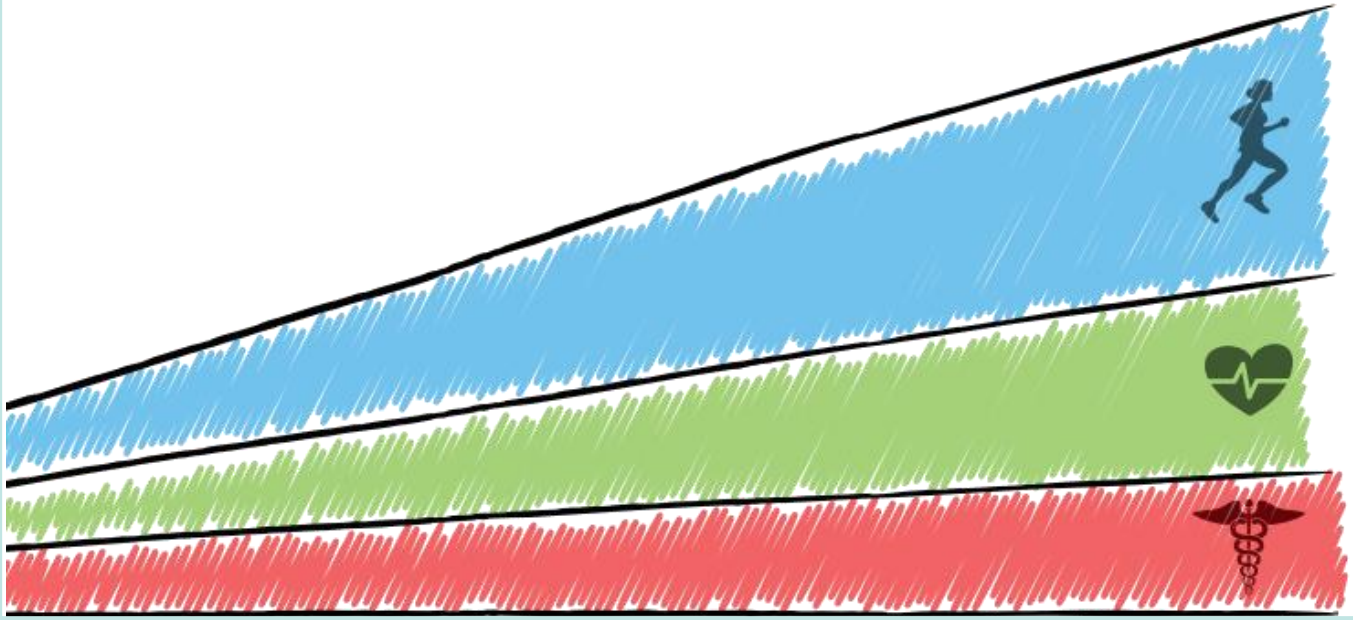

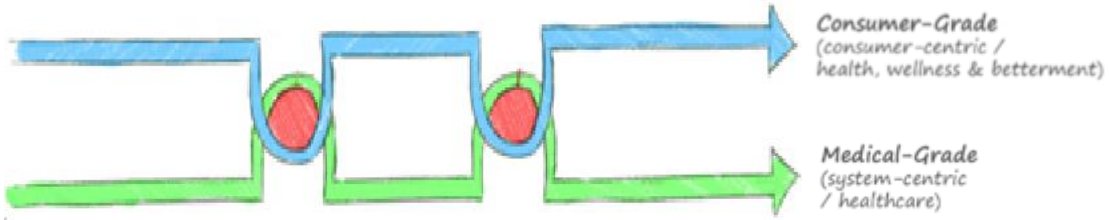

First Principals:

2. Health Jobs

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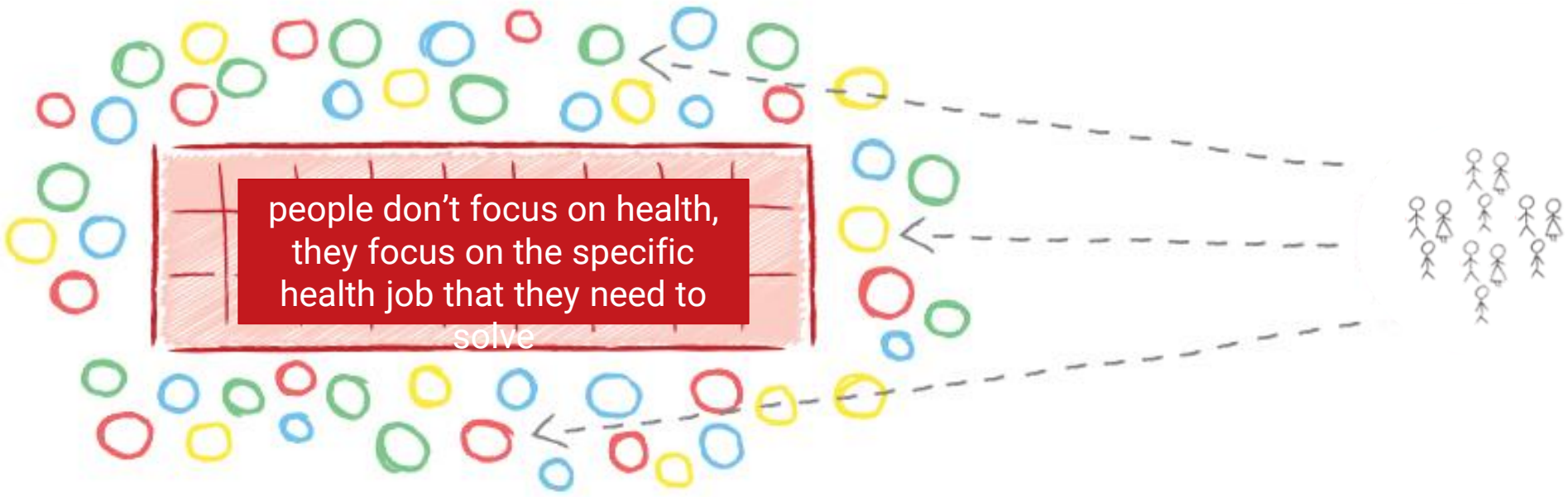
INDIVIDUAL HEALTH JOBS

All H.W.B. activities are made up of a collection of discrete tasks, and we believe that individual apps / services will emerge to solve individual health, wellness and betterment (HWB) jobs.



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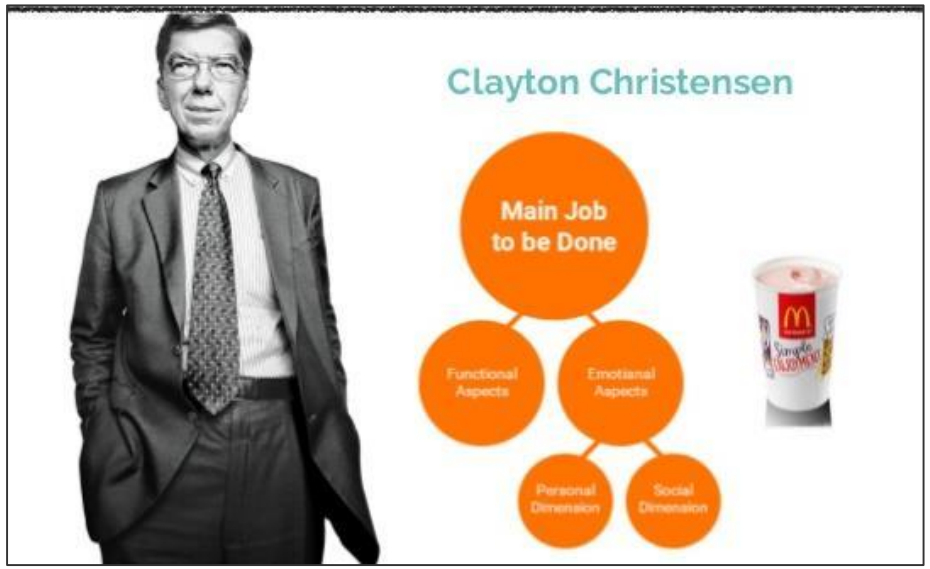
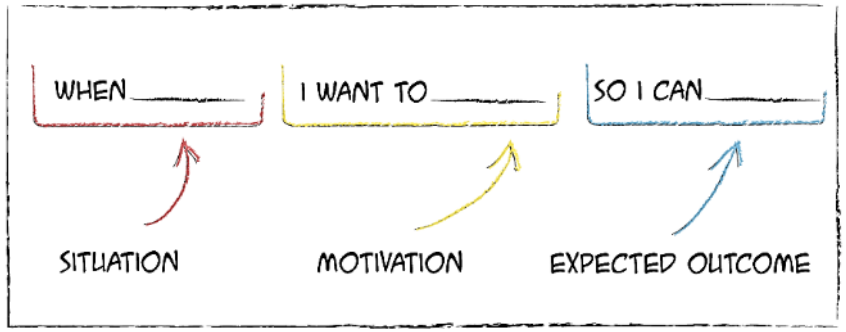
HEALTH JOBS = Jobs to be Done



HEALTH JOBS = Jobs to be Done



- When I have a mole, I want to know whether it is serious or not, so that I can stay well
- When I have diabetes, I want to control my blood sugars, so I can avoid complications
- When I have high blood pressure, I want to control my blood pressure, so I can avoid having a stroke
- When I have a sore throat, I want to know whether it is bacterial or viral, so I can take antibiotics if I need them
- When I have a headache, I want to know if it is serious, so I can effectively treat it as soon as possible
- When I have cancer, I want the best treatment, so that I can stay alive as long as possible
- When I break a bone, I want the best treatment, so that I can fully heal, as quickly as possible
- When I need a surgery, I want to be as prepared as possible, so that I can heal as quickly as possible

First Principals:
3. Consumer Health Journey

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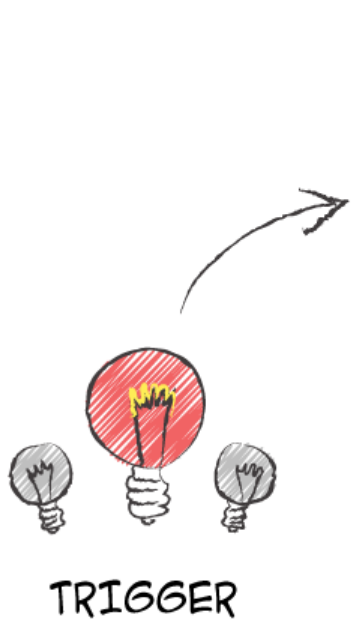
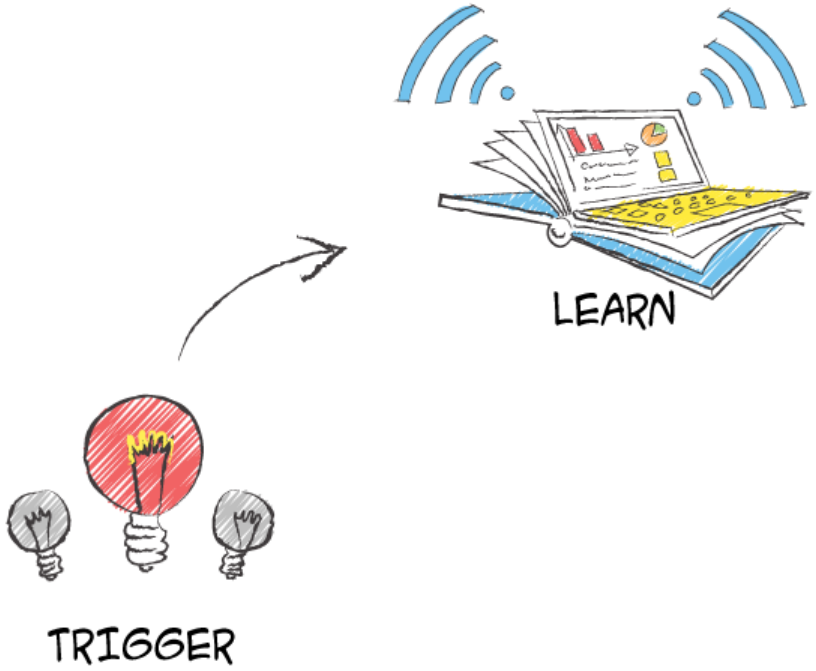
CONSUMER JOURNEY



Nothing happens until there is a trigger

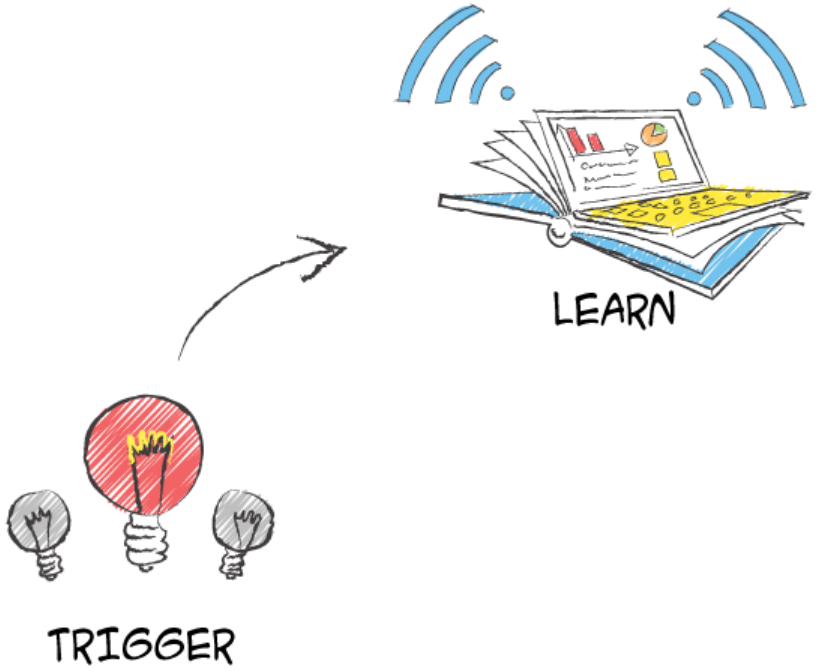
CONSUMER JOURNEY

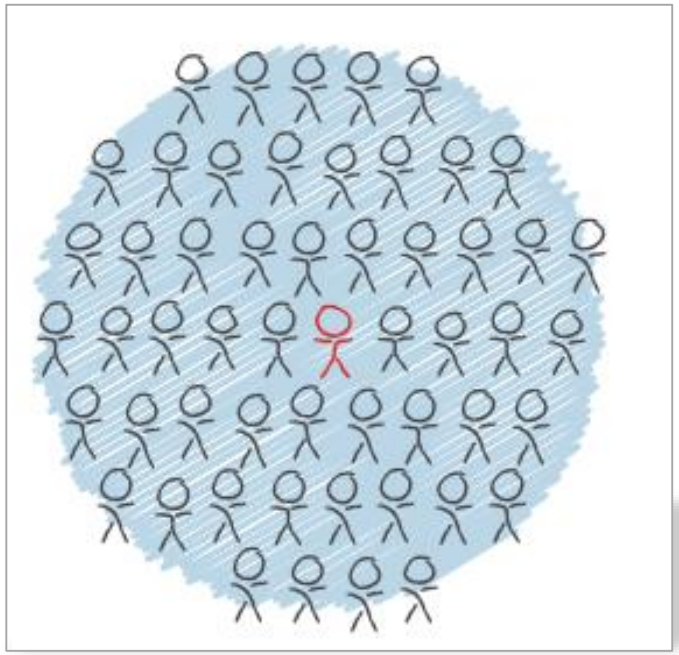


MANY LEARNING PATHS
Web Search
Social Search
Ask - family
- friends
- doctor / practitioner
Documentaries
Books
Events
Ad's
Magazines

First task is to learn what is possible

CONSUMER JOURNEY

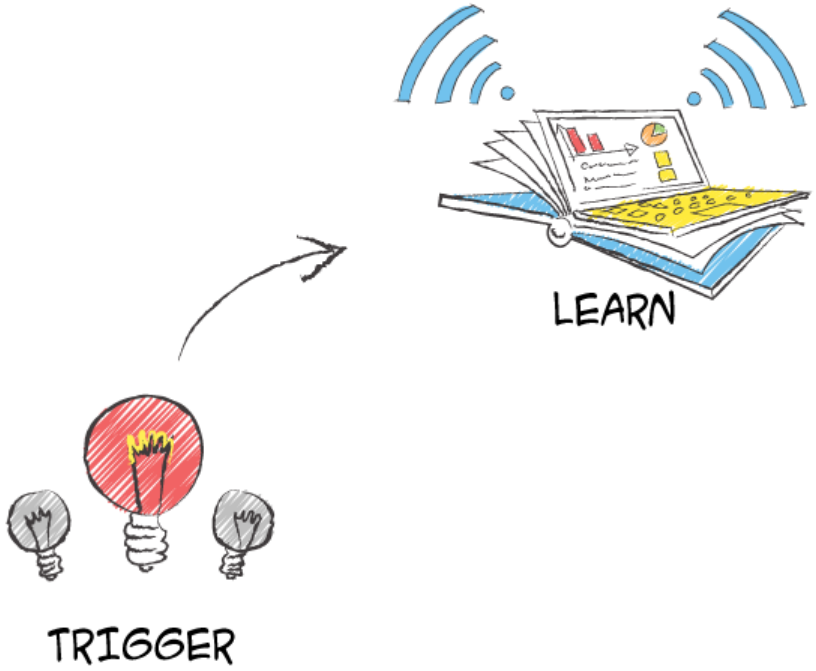




DISCOVERY

a solution is irrelevant if it can’t be found

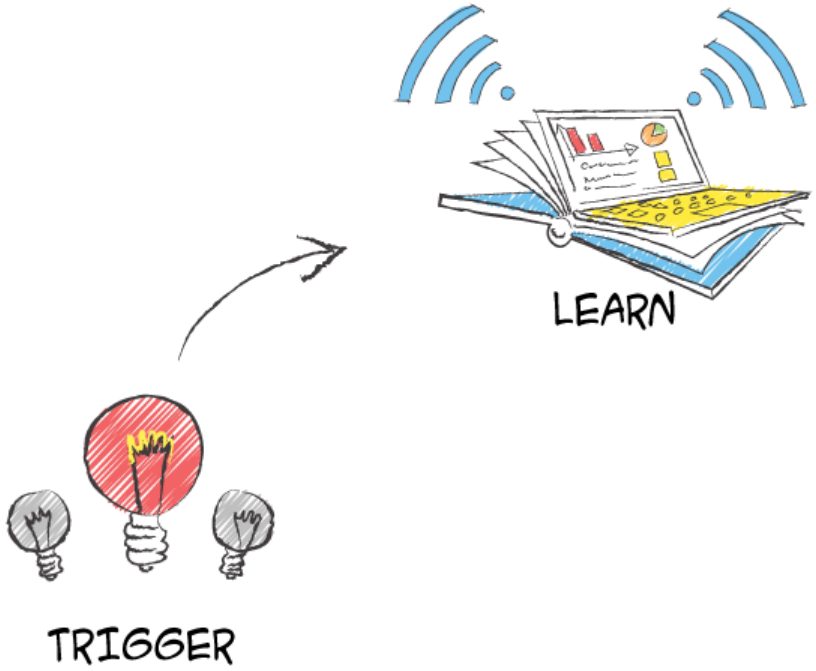
CONSUMER JOURNEY

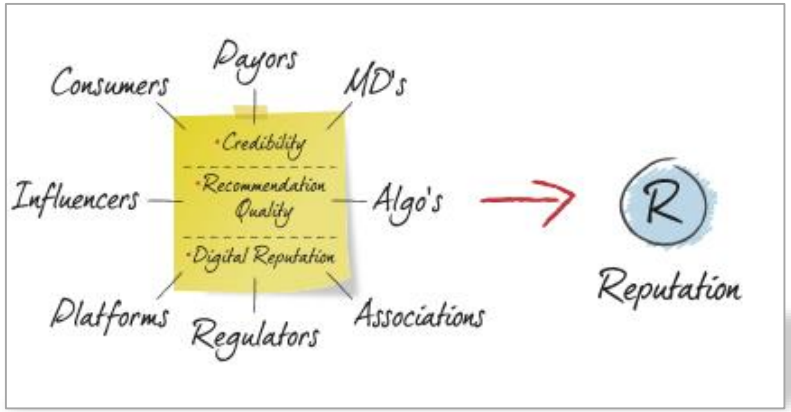


LEARNING = BIAS

Influencers shape the consumer journey

CONSUMER JOURNEY

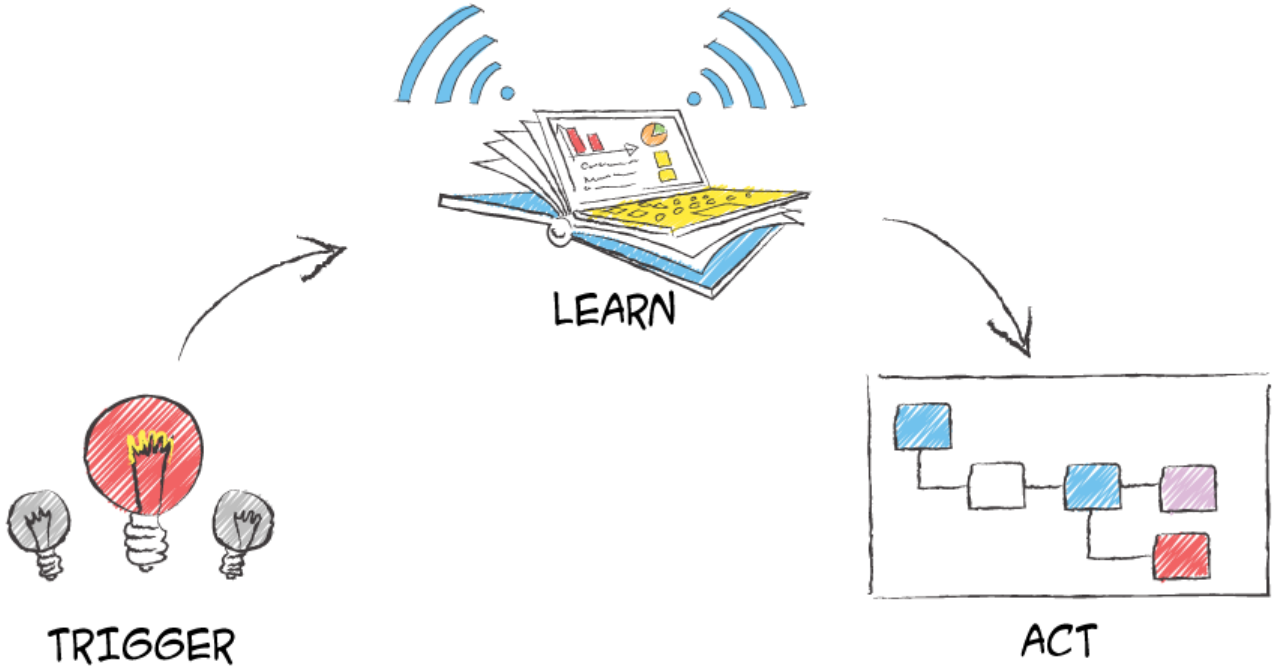




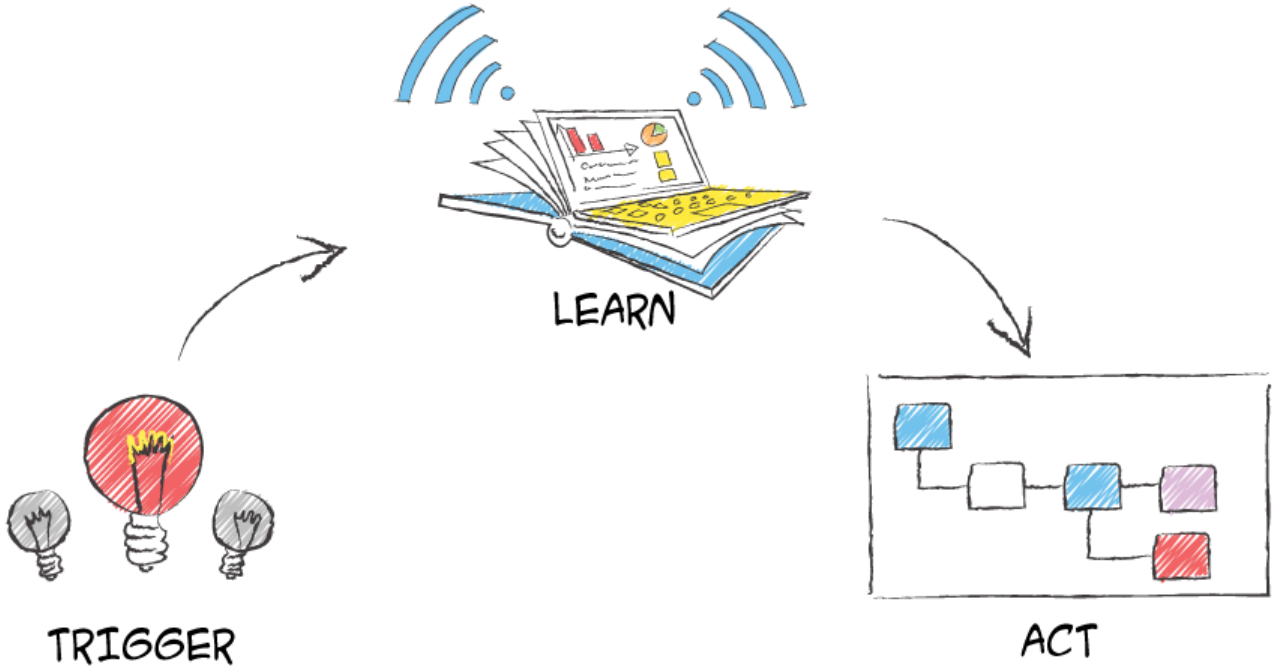
REPUTATION

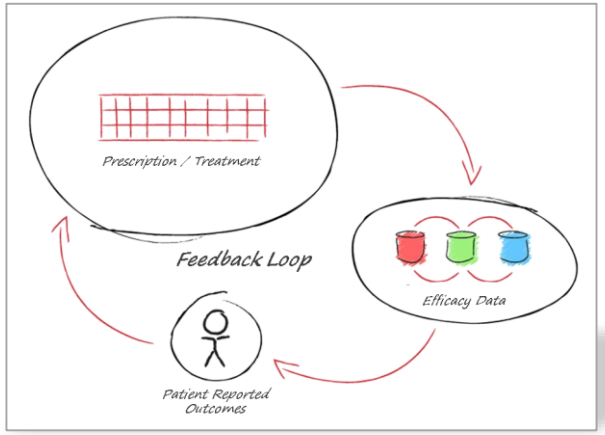
Learning = Trust

CONSUMER JOURNEY



CONSUMER JOURNEY

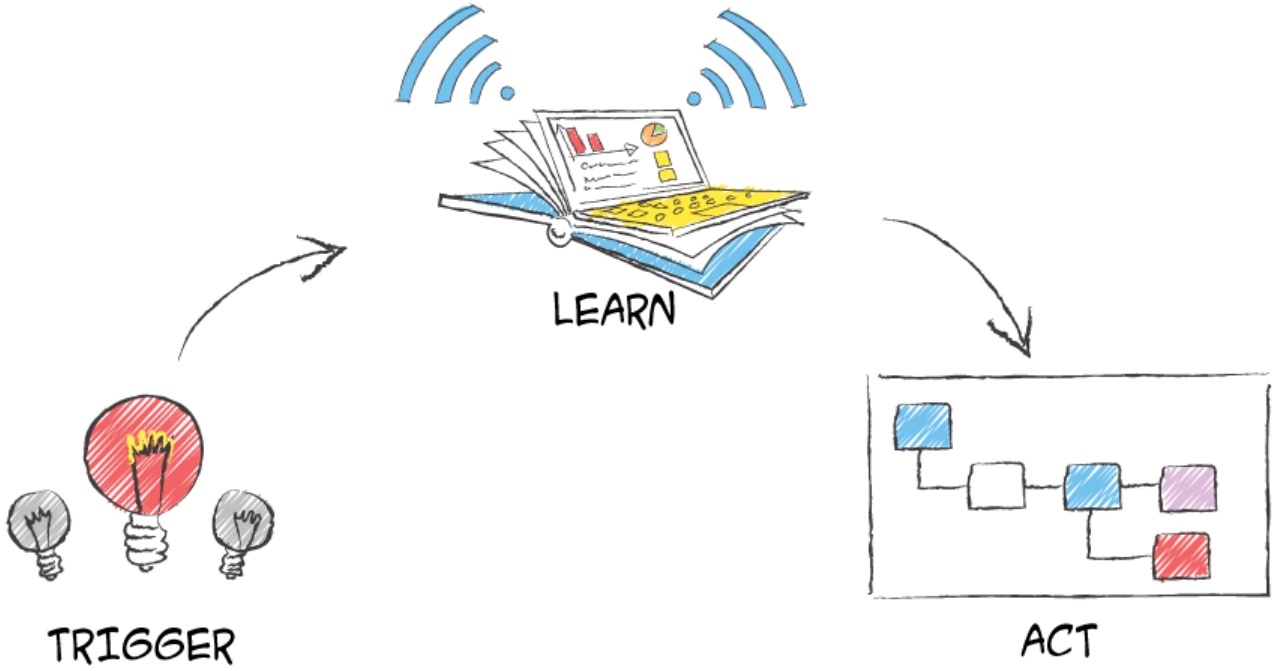


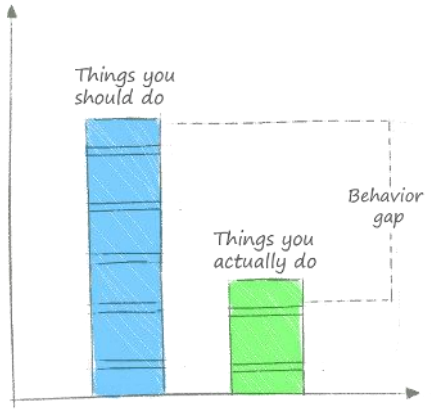


FEEDBACK LOOPS

Optimization requires feedback from outcomes

CONSUMER JOURNEY

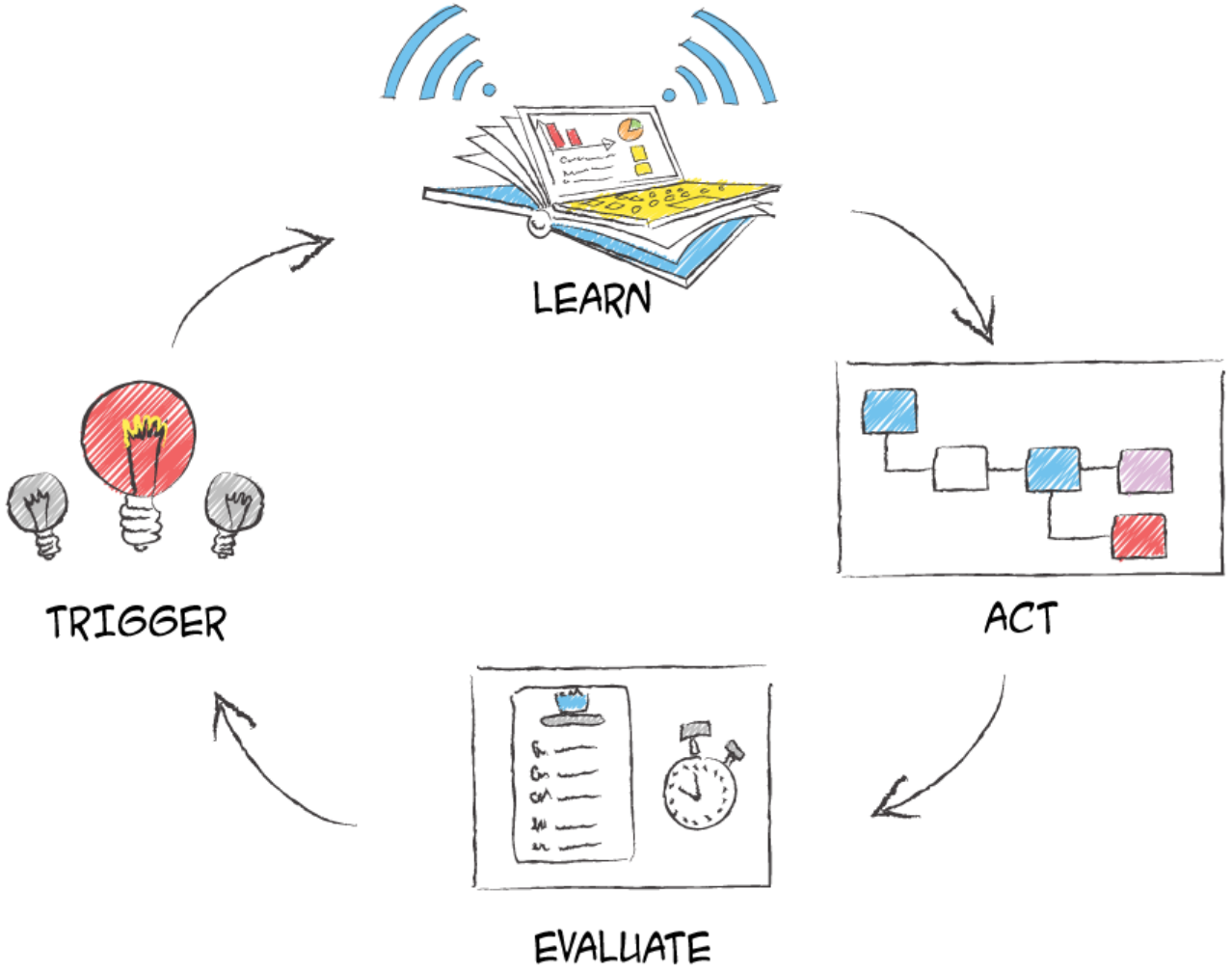




BEHAVIOR CHANGE

Actions will fail without behavior change

CONSUMER JOURNEY



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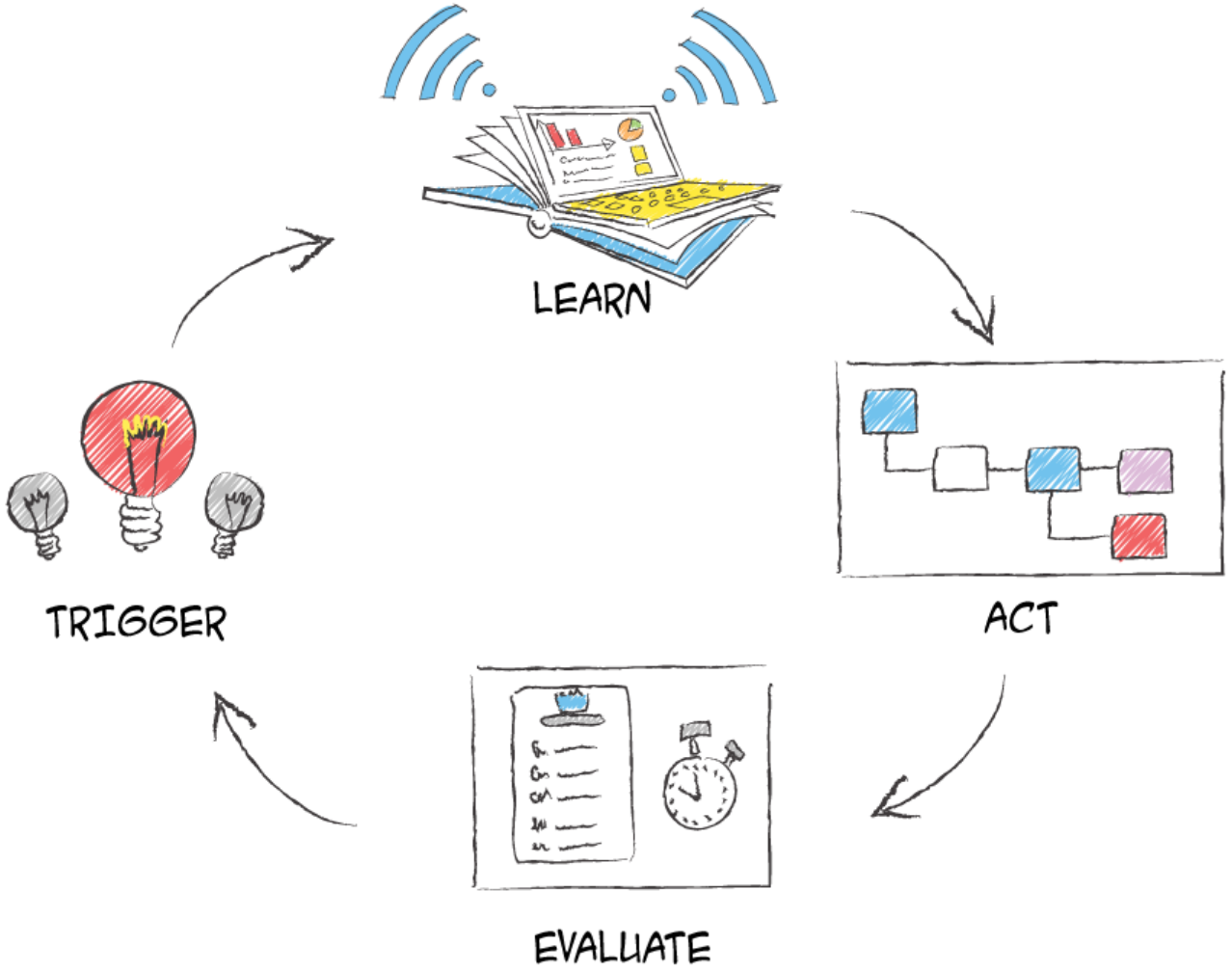
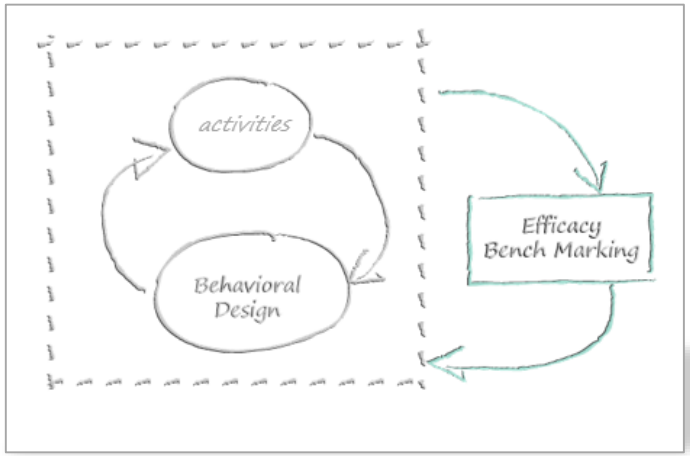
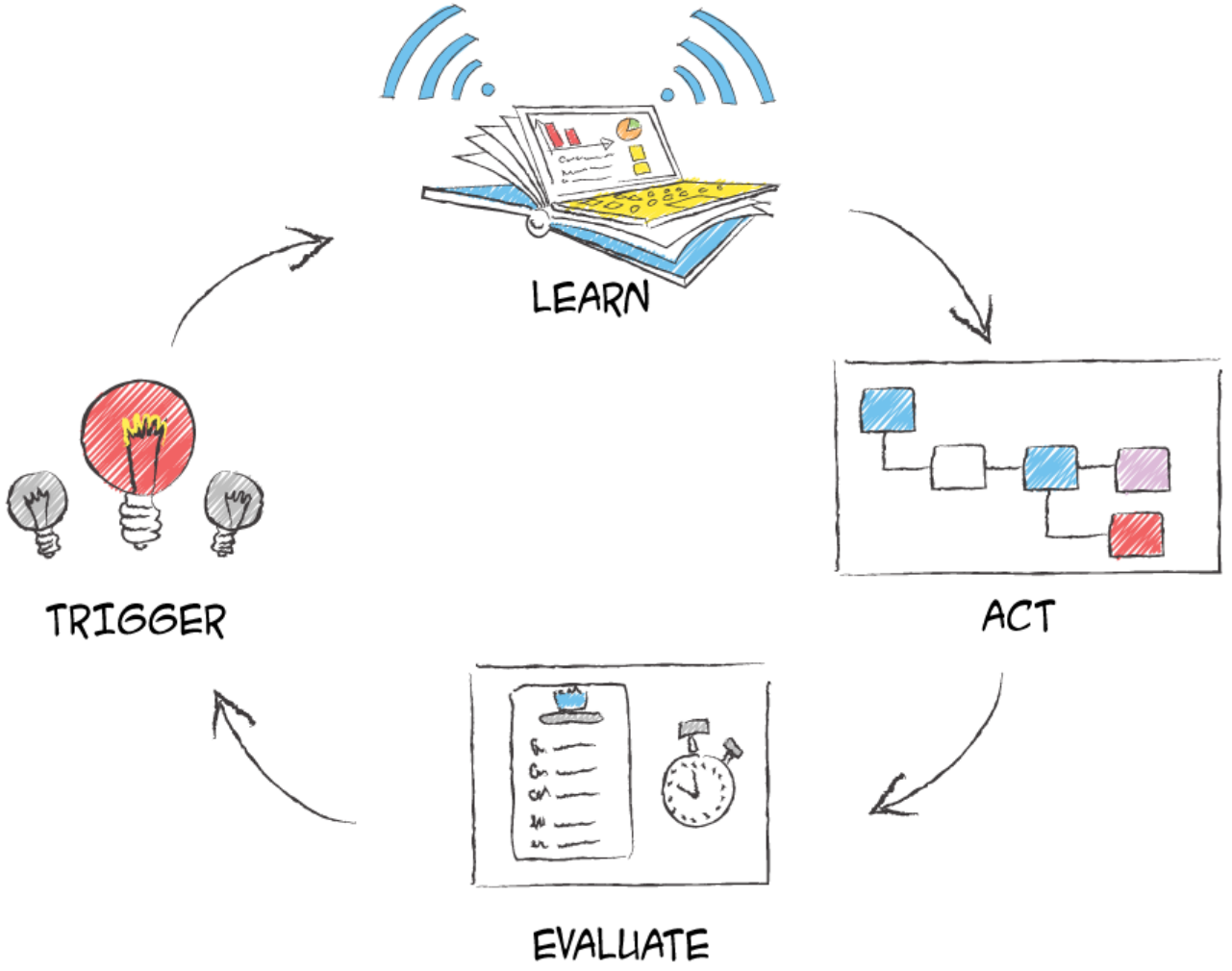
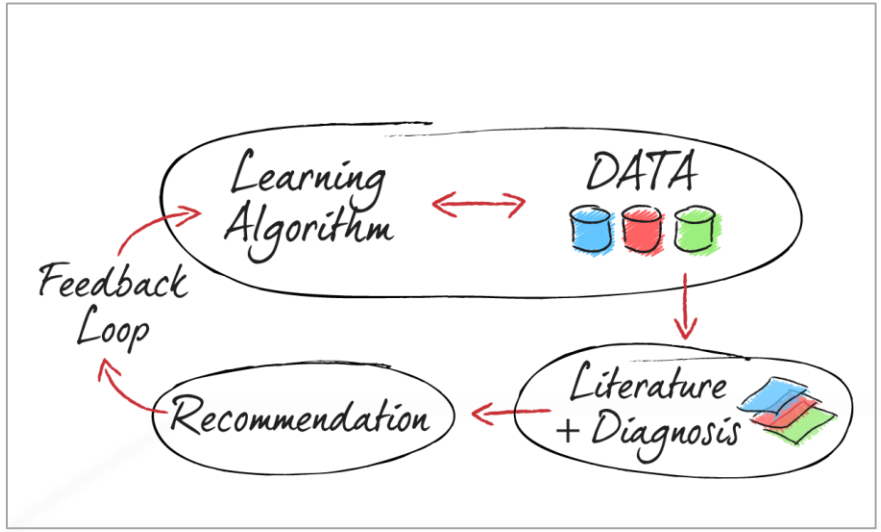




MEASURABILITY (efficacy / ROI)

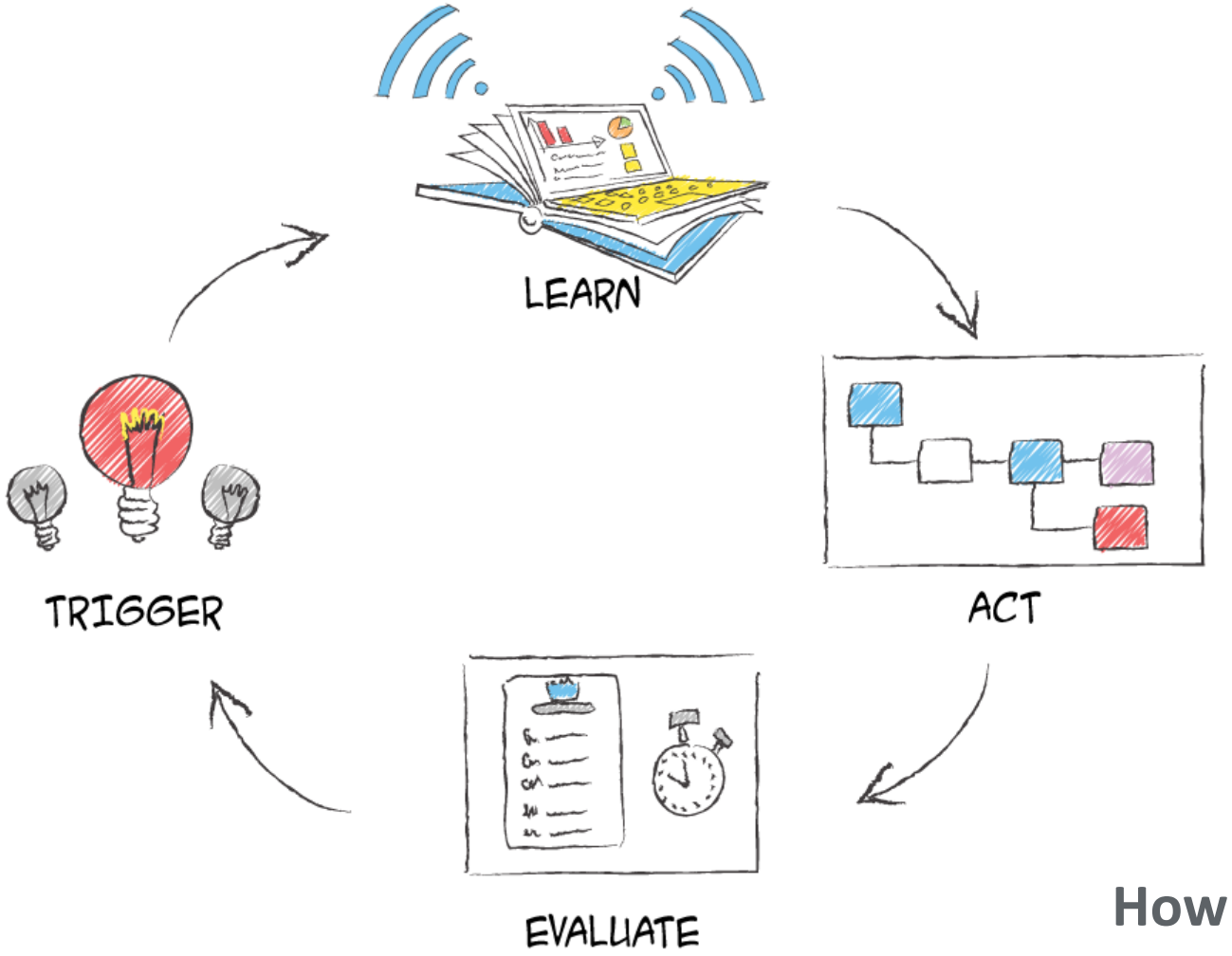
CONSUMER JOURNEY

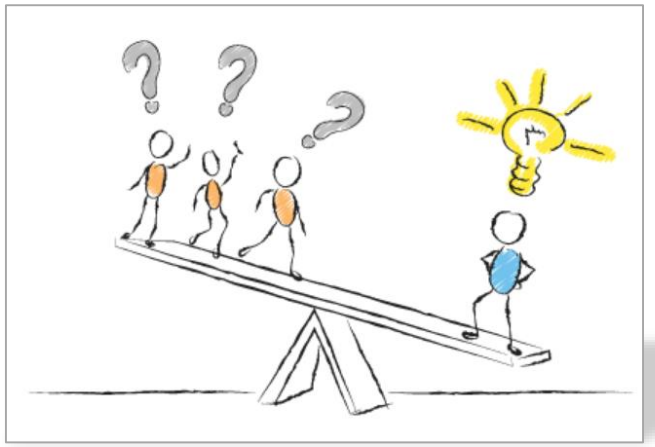




OPTIMIZATION

CONSUMER JOURNEY





BENCHMARKING

How do you know what is better if you don’t benchmark

First Principals:

3. Platforms

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PLATFORMS ARE INEVITABLE

We have come to believe that H.W.B. has so much friction that it's inevitable for platforms to emerge. In addition to typical platform functions, they will be expected to make it easy for apps and services to access data silos and to remain compliant with all of the rules around privacy, security, encryption etc.

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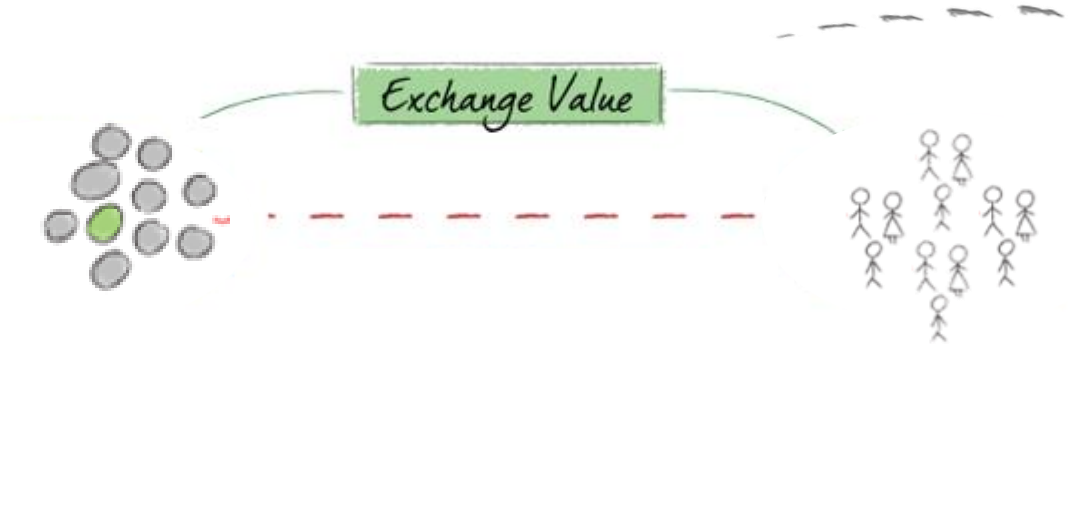
PLATFORMS HAVE 3 JOBS

1. ENCOURAGE VALUE EXCHANGE



Connect people who want to learn about, or solve a *health job*, to apps and services that solve that specific job.

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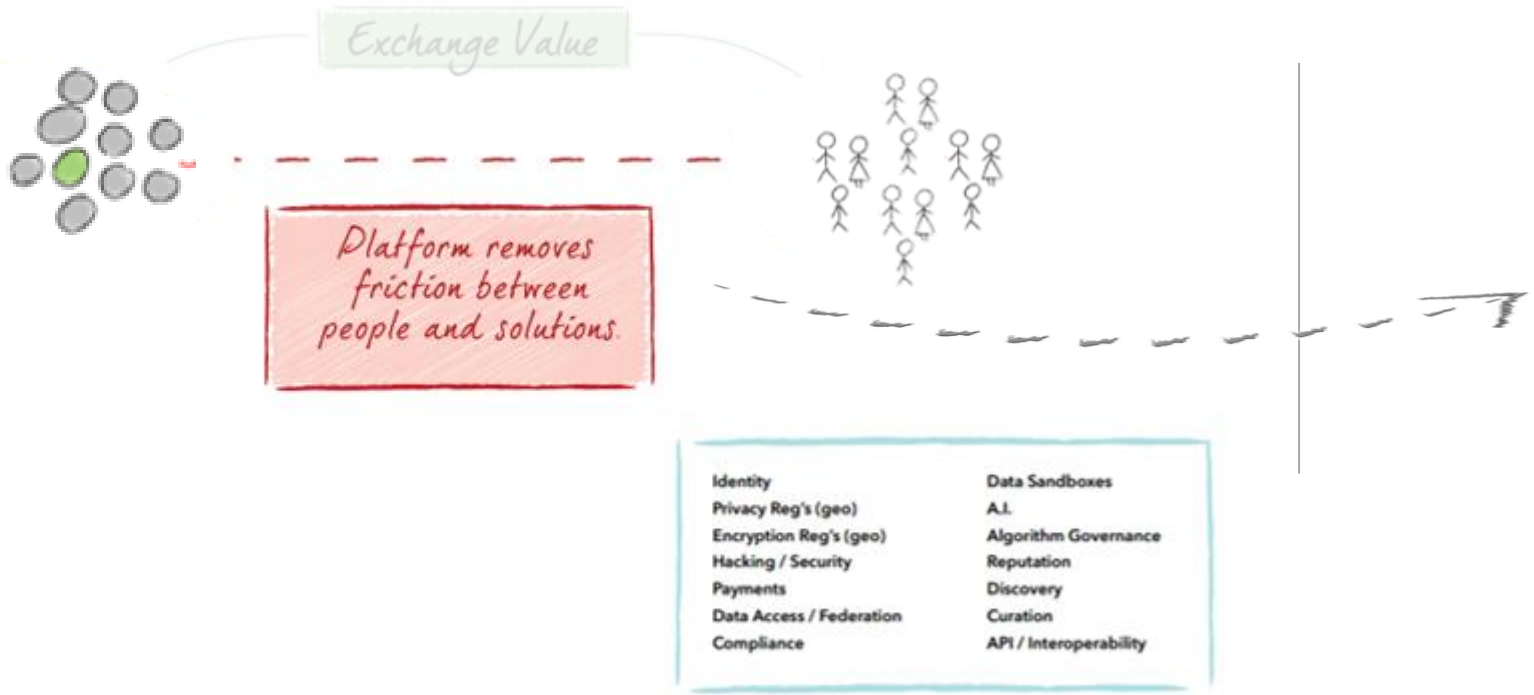
PLATFORMS HAVE 3 JOBS

1. ENCOURAGE VALUE EXCHANGE
2. **REMOVE FRICTION**



Identity / Privacy / Security / Compliance
Payments / A.I. Sandbox / Discovery
Reputation / Governance / Community / API

Data Access / Interoperability / Federation
Portability / Compliance / Privacy / Attribution
/ encryption / Micro-payments / Privacy Reg's

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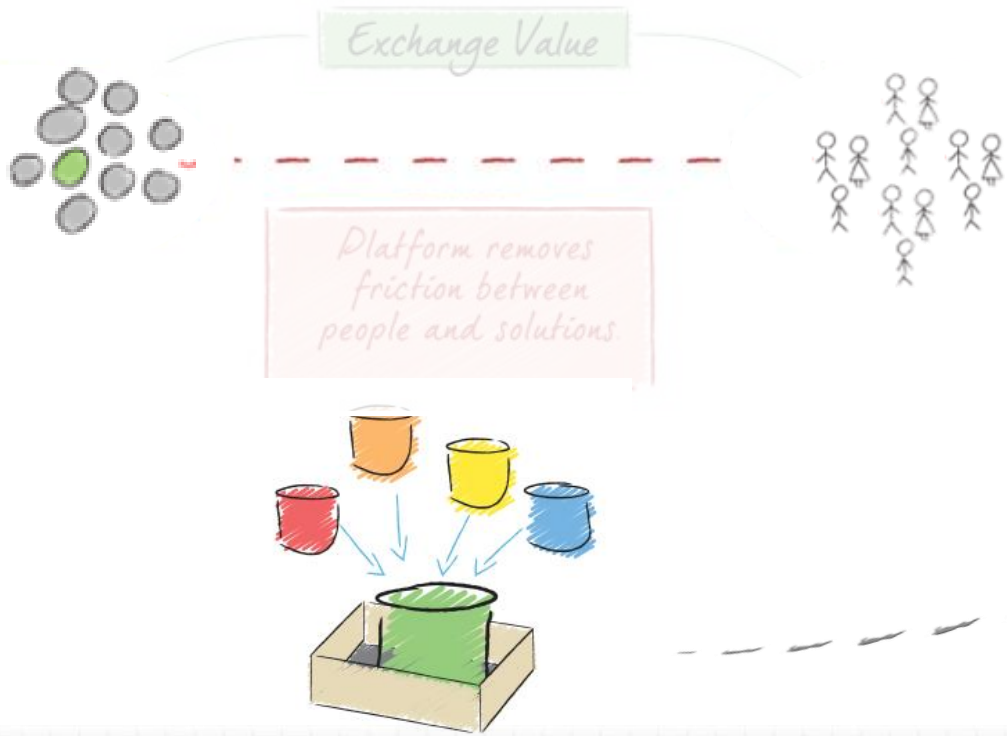
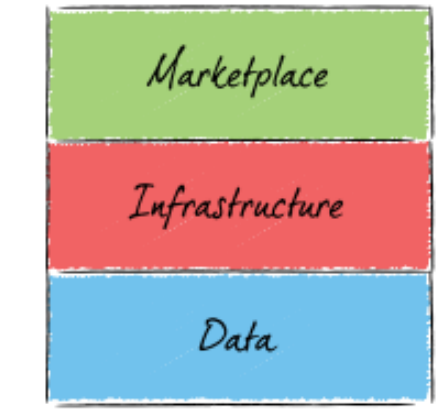
PLATFORMS HAVE 3 JOBS

1. ENCOURAGE VALUE EXCHANGE
2. REMOVE FRICTION
3. **PLATFORM DATA** (meta)





Data Access / Interoperability / Federation
Portability / Compliance / Privacy / Attribution
/ encryption / Micro-payments / Privacy Reg's

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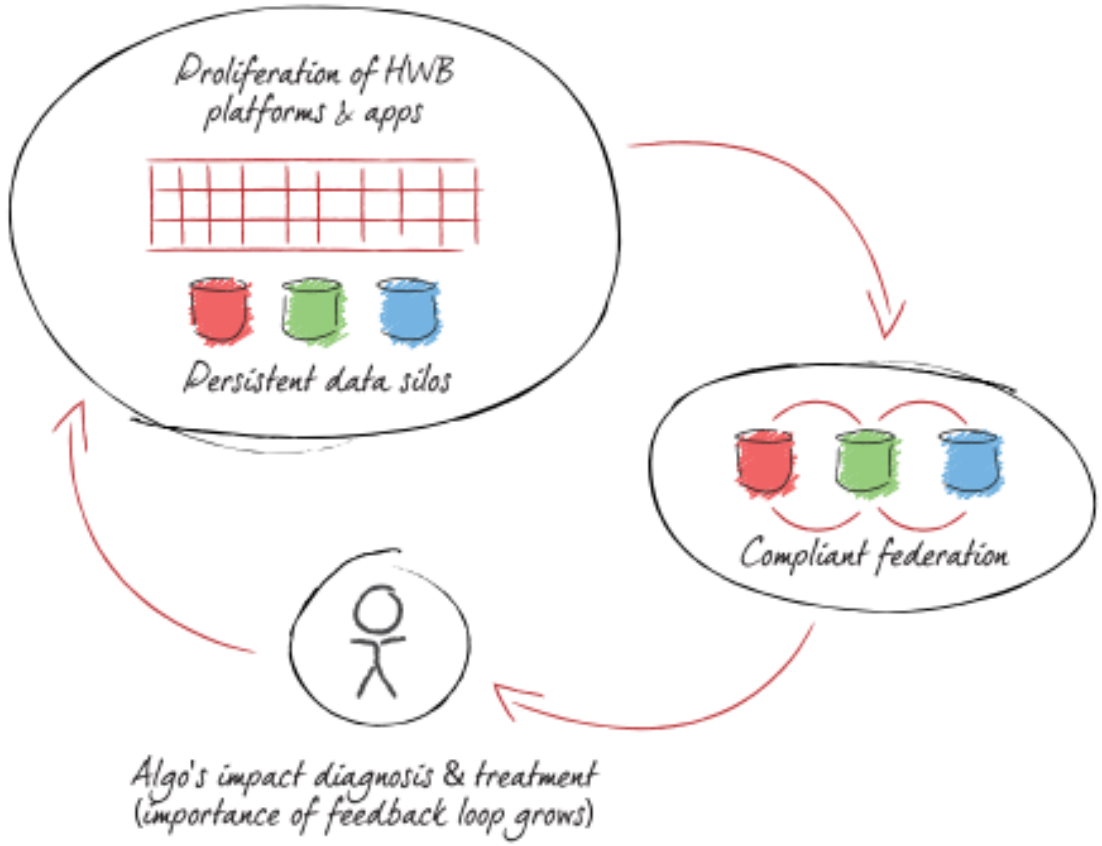
TELUS Ventures™ | DIAMOND PARTNER

PLATFORMS NEED DATA

We have come to believe that the ability to federate data will be critical for all digital health, wellness and betterment platforms.



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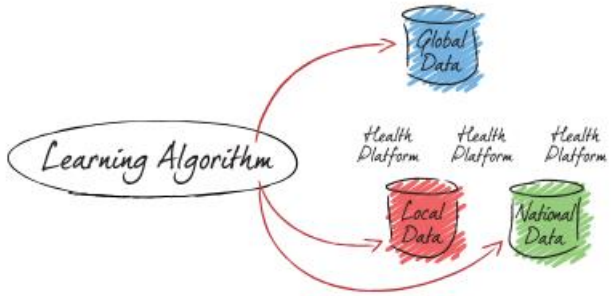
DATA MUST FLOW

The pressure to enable data access across silo's if growing:

- Data silo's are a direct impediment to apps & services to operating across multiple platforms.
- Data silo's are a direct impediment to machine learning algorithms since they require access to massive amounts to unlock their full potential.
- Data silo's are a direct impediment to the use of sensors and other devices to create the feedback loops that machine learning algorithms require to improve.

We believe platforms will take the lead in finding a data-federation solution.



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PLATFORMS NEED MEASURABILITY (efficacy & ROI)

After numerous cohort discussions, we have come to believe that the next phase of evolution in digital health, wellness and betterment (3 to 5 years) is first and foremost about measuring impact on efficacy and ROI. This is a necessary step that virtually every digital HBW app and service will need to progress through before they can hope for broad

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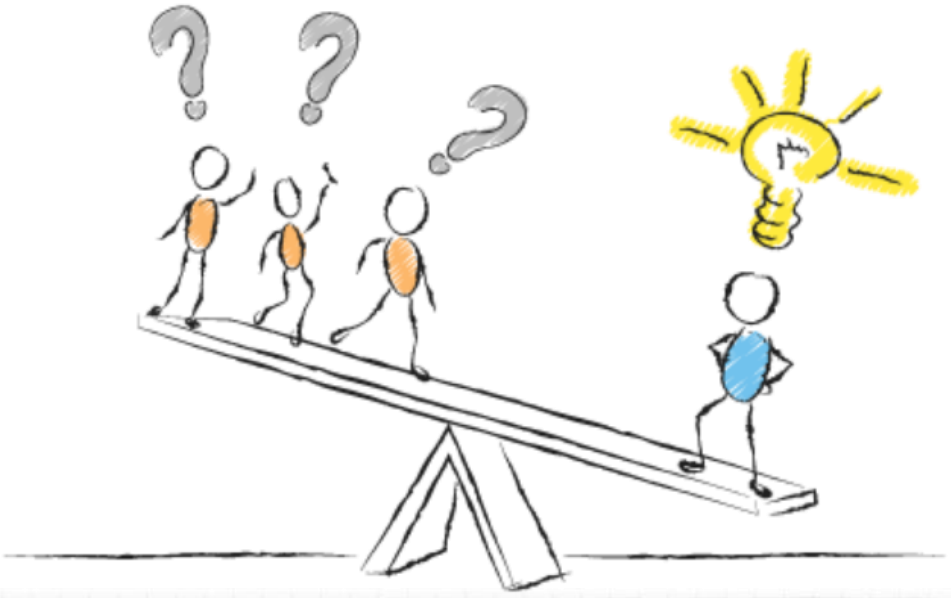
PLATFORMS NEED BENCHMARKING

Incumbents are unable to adopt change without credible proof that it's better than the legacy approach.

We have come to believe that the industry has entered into a multi-year phase where benchmarking is the core activity, not just for health organizations, but for health innovators as well. Credible data is one of the primary bottlenecks, made worse by the fact that efficacy and ROI data is scarce for most legacy solutions



Credible benchmarking is one of the biggest impediments to the adoption of innovation

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PLATFORMS NEED ATTRIBUTION

Without the ability to tap into multiple datasets, administrators can't hope to gain insights into the impact (positive or negative) of individual algorithms

ALGO COMPLIANCE

... nor can they determine algorithm compliance,

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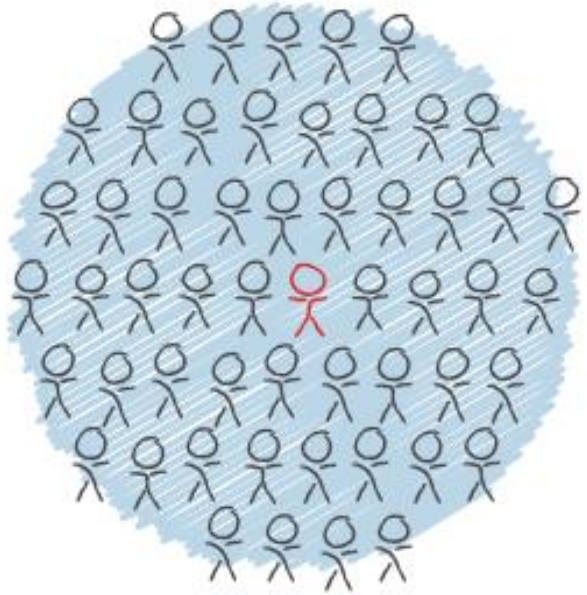
PLATFORMS NEED DISCOVERY

As health jobs get digitized, there will be an explosion of competitive offerings, and with it, a huge increase in online noise as everyone clamours for attention.

Understanding the language used is critical to developing the ability to rise above the noise and be discovered (in search, social, HWB Platforms etc.)... this will become a critical competency for all digital health, wellness and betterment solutions.



Your solution is irrelevant
if it can't be found.

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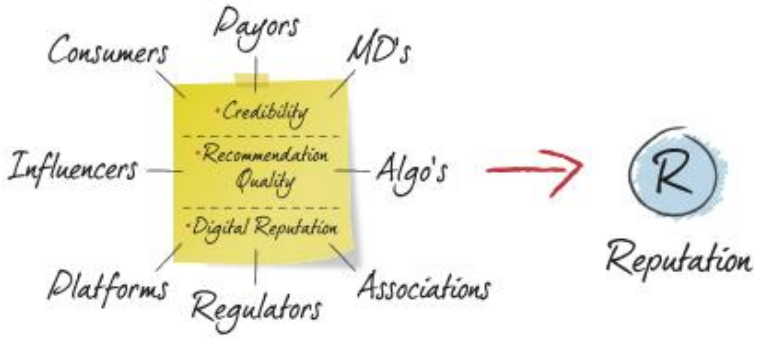
PLATFORMS NEED REPUTATION

During the learning process, the reputation assigned to various influencers (through search engines and other platforms) has a direct impact on what's discovered and in turn, directly impacts the persons bias around which solutions to trust.

DIGITAL REPUTATION

If the Reputation that one platform assigns is out of sync with other platforms, there is a significant risk to the parent brand.



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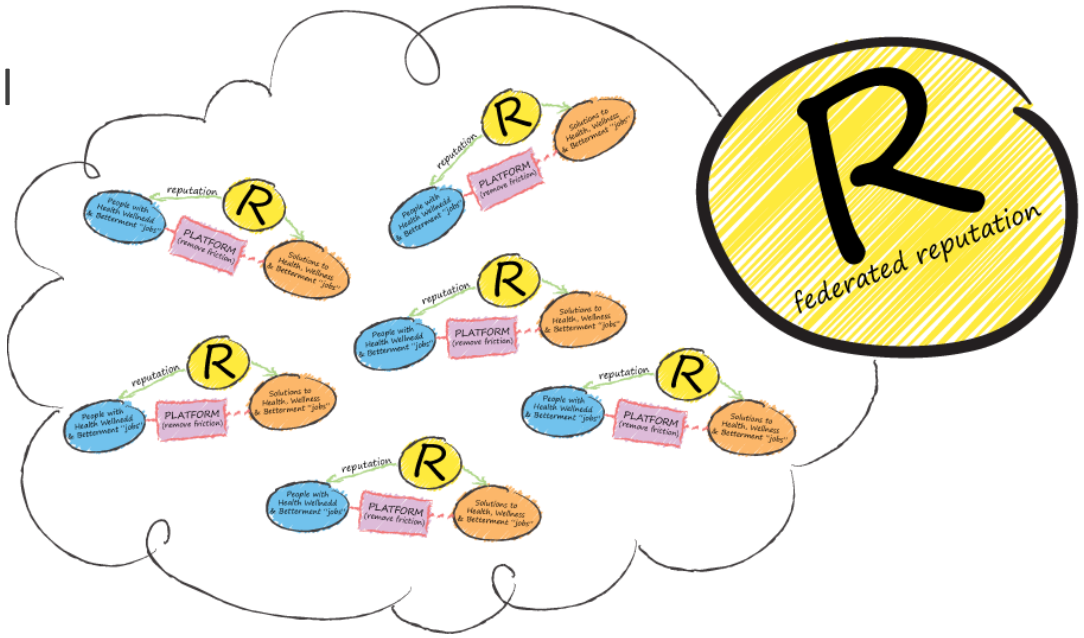
FEDERATED REPUTATION

We believe that some form of federated reputation mechanism will emerge in health over the next 3 to 5 years.

In health, digital reputation mechanisms will need to be far more robust to include safety, efficacy etc. What's more, in a world where apps and services operate on multiple health platforms, each with their own reputation mechanism, conflicting reputation scores will add noise/friction to the marketplace.



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PLATFORMS NEED SOCIAL

Social interactions have a such a profound impact on people's health and wellness that we believe that all H.W.B Platforms will need some level of social / community to thrive.

Influencing behavior in condition centric communities is likely to entail specialized competencies

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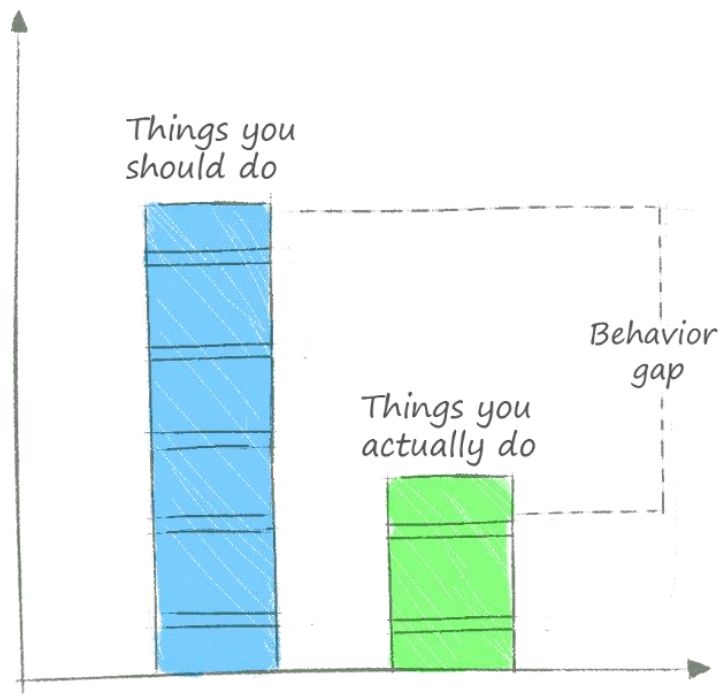
PLATFORMS NEED BEHAVIORAL CHANGE

Without behavioral change technology, H.W.B. apps and services will fail, and with them, H.W.B platforms. We believe H.W.B. platforms will include behavioral change technology in order to reduce the risk of under-performing apps and services.



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First Principals:

5. Health will be Multi-Platform

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MULTI-PLATFORM ECO-SYSTEM

Incumbent health systems are, by definition, a platform (ie: they connect solution providers with solution users).

Admittedly, they may not be very good at removing friction, but in our view, the chances of them giving up their role and abandoning their community is near zero.

Assuming this is true, a multi-platform health landscape is inevitable (which means that leading health apps & services will operate across multiple platforms).

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First Principals:

6. Health will be Multi-Platform, and Multi-Cloud

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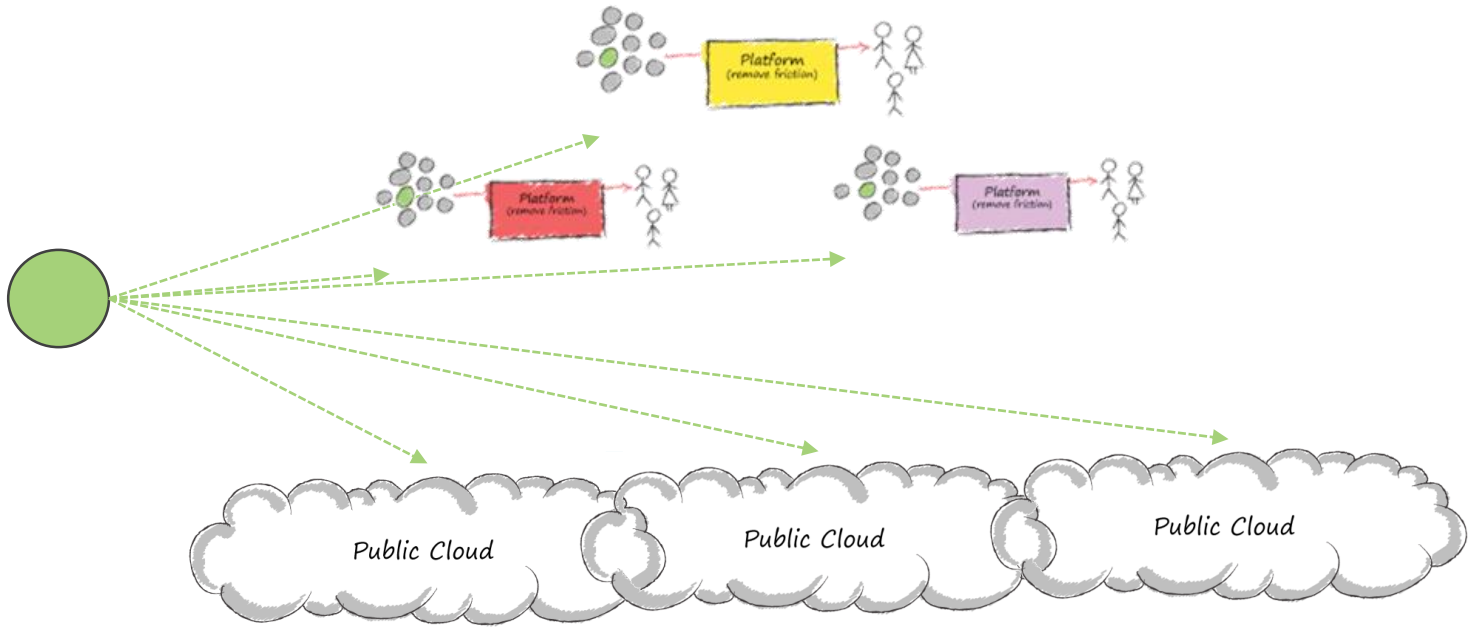
MULTI-PLATFORM / MULTI-CLOUD

We believe that health will be a multi-platform landscape,
and that H.W.B. apps & services will be forced to interoperate across:

a) Multiple H.W.B. Platforms

b) Multiple Public Clouds



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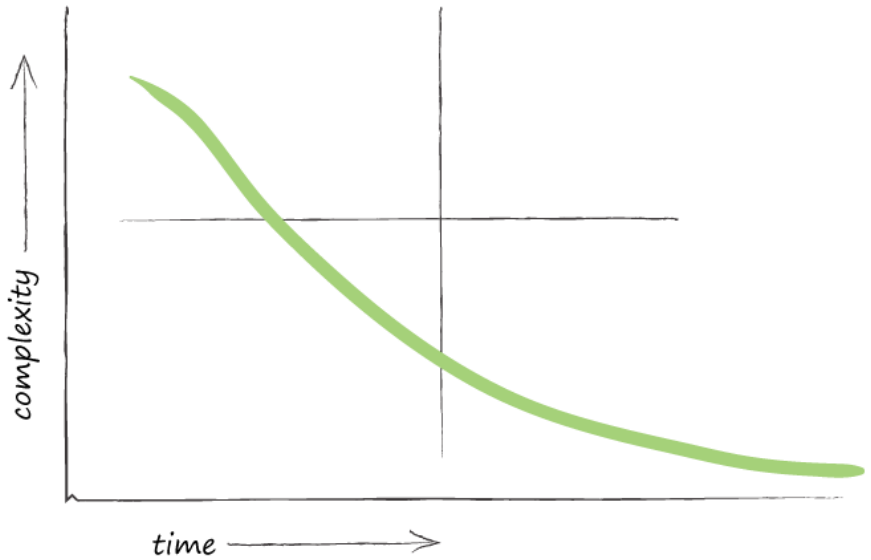
LADDER of ABSTRACTION

The ongoing removal of complexity (ladder of abstraction), most notably the broad adoption of cloud computing, is a well established trend in technology, and we believe it is certain to take place in digital health.



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REDUCING COMPLEXITY IN A MULTI-PLATFORM / MULTI-CLOUD WORLD

To create complete solutions for health jobs, apps have to build a complete stack of technology, even though their value comes from a limited set of functionality

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The Public Cloud removes some of the friction, but health has many challenges that public cloud does not address.

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So specialized Health Platforms will emerge to remove friction

platforms make it easier for health apps & services to comply

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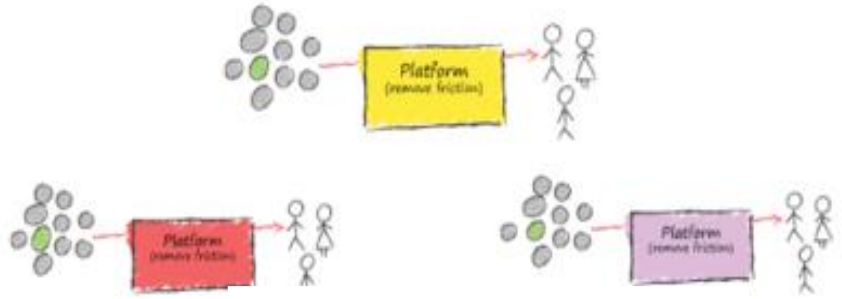
But health, wellness & betterment will be a multi-platform ecosystem
(global, national, regional, local)

... operating across multi-cloud systems



Leading apps will be on multiple platforms, & multiple clouds... that's complex (especially in healthcare)

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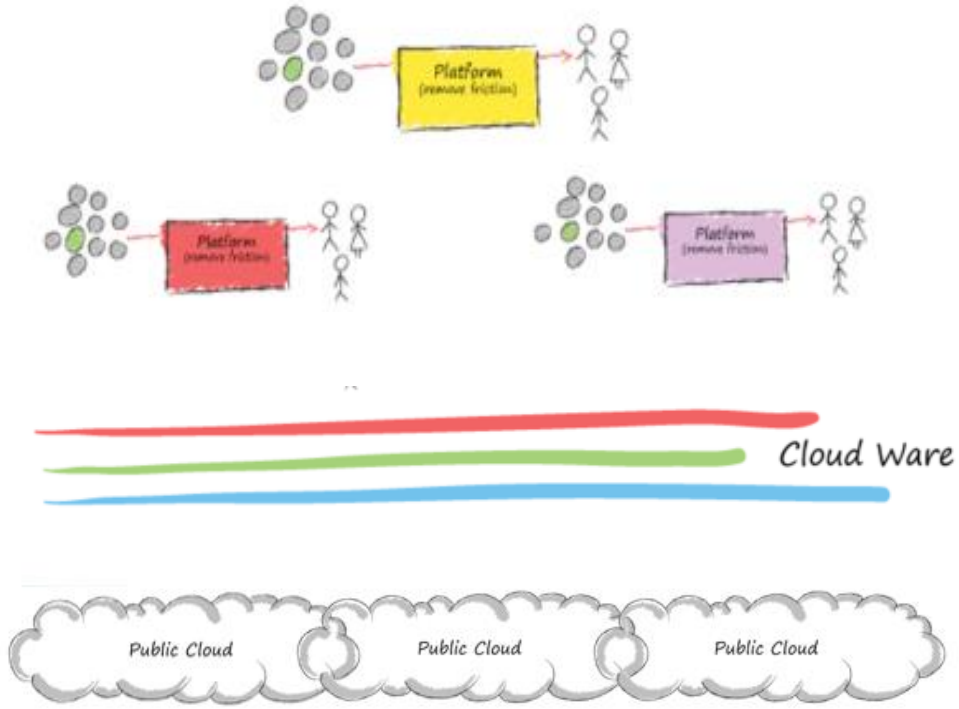
we believe that a middle layer will emerge to remove the friction for health apps operating on multiple platforms.

We believe that the middle layer in health will differ from other verticals so many unique attributes to health)



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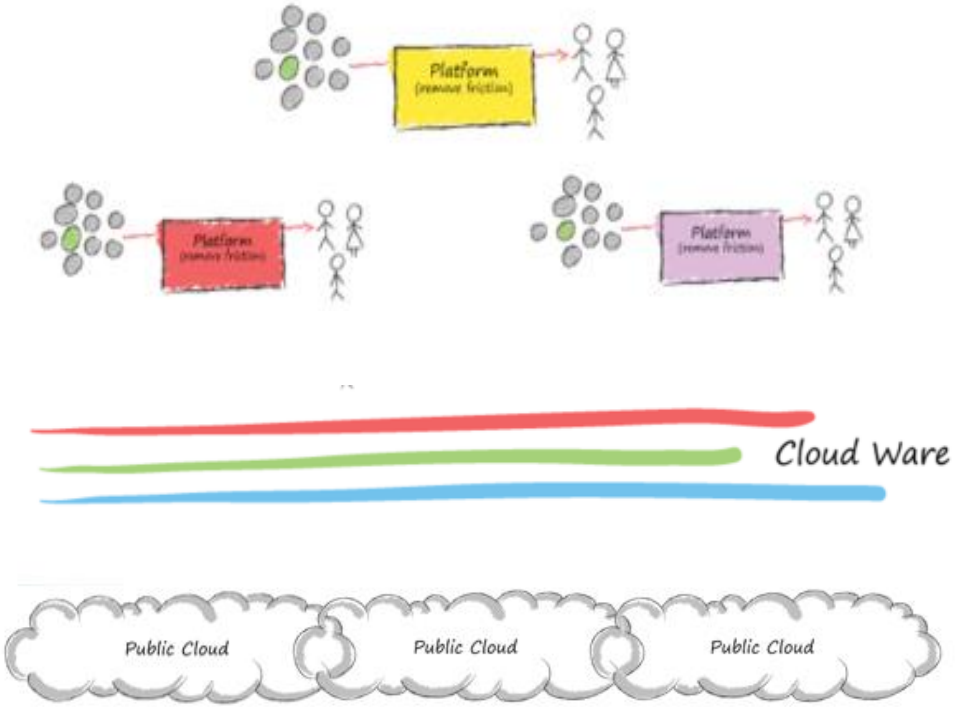
Cloudware will go beyond abstraction, providing compliant computational functionality across these environments.

Boundaries between H.W.B. platforms and the public cloud are not yet clear.



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First Principals:

6. There will be massive pressure to unlock data

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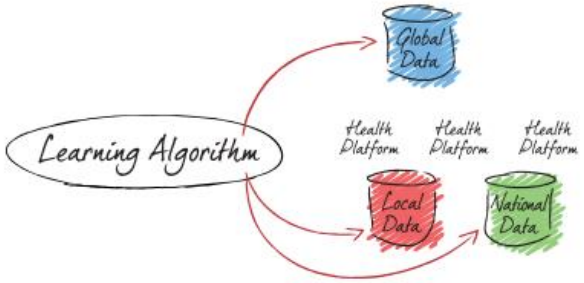
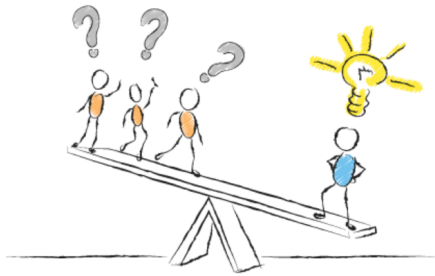
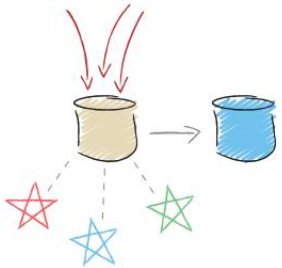


LEARNING ALGORITHMS



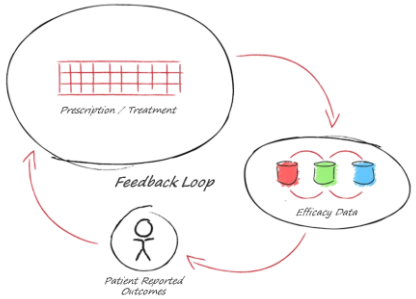
BENCHMARKING

OMICS



SENSOR EXPLOSION

SOVERIEGN DATA



FEEDBACK LOOPS

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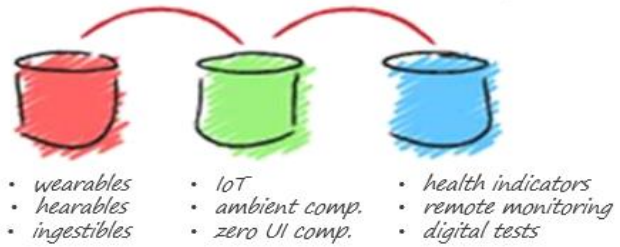
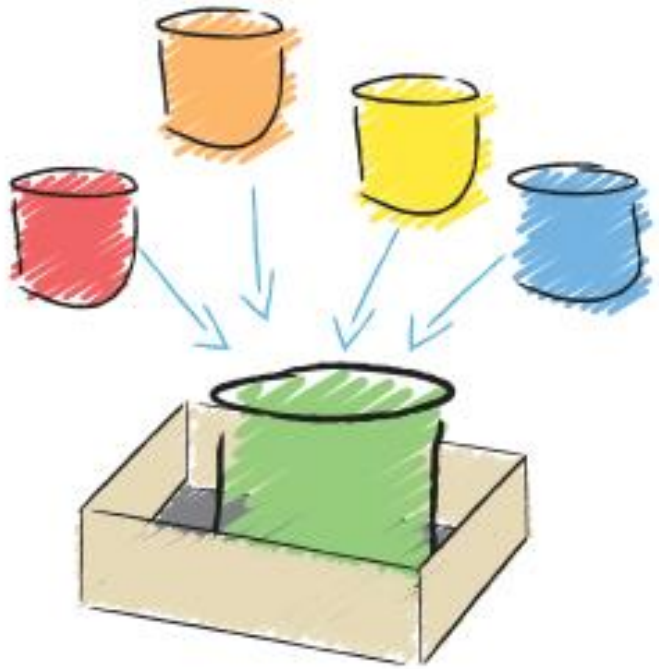
MASSIVE PRESSURE TO UNLOCK DATA

There are so many forces at play that the pressure to connect health data will become overwhelming.



The promise of learning algorithms (to measurably improve efficacy and ROI) is too compelling to ignore... we have come to believe that the problem will be solved.



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DISTRIBUTED BLOCKCHAIN PROTOCOLS

We believe that built-in transparency, embedded rules & immutable records give Blockchain a significant advantage for collaborating on projects designed to add value to data. Further, we believe that in applications where mutual trust is critical 'Distributed' BlockChain (ie: no central control) has a distinct advantage over Centralized Blockchain.

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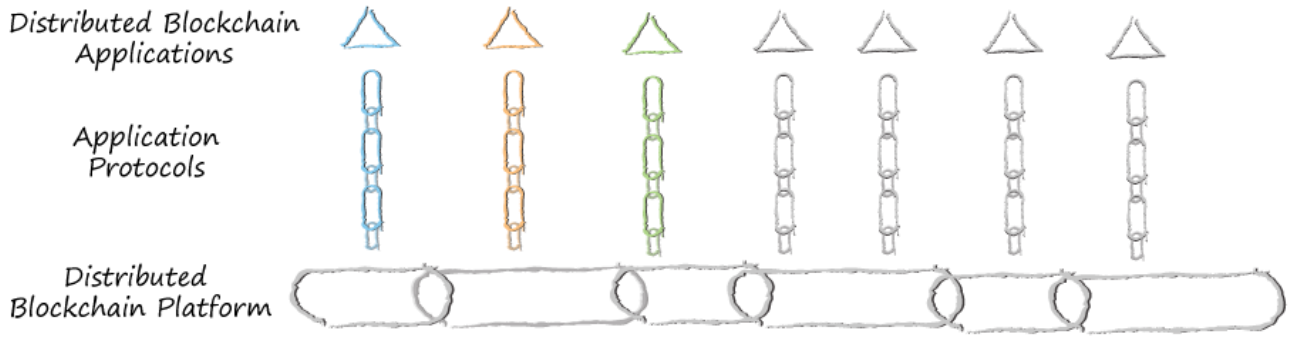
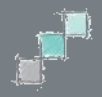


TOP 10 PLATFORM RECOMENDATIONS



1. Blur the boundary... cover the Consumer Health Journey across the full spectrum (H.W.B)
2. Focus on specific ‘Jobs’ (H.W.B)
3. Ensure data rights to measure efficacy
4. Include Behavioral Change Tech
5. Provide Discovery & Influence tools for the app’s/services on your platform
6. Ensure feedback loops
7. Embrace benchmarking
8. Ensure the reputation algo’s on your platform sync with other credible platforms & influencers
9. Provide broader reputation optimization tools for the app’s/services on your platform
10. There will be a leading whitelabel platform for Health Orgs

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THE BIG QUESTION

THE BIG QUESTION

WHAT ARE THE KEY FORCES THATWILL SHAPE YOUR ORGANIZATION and how are they most likely to unfold over the next 3 to 5 years?

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Honing your foundational thinking on this topic has the potential to drive significant value for you...

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