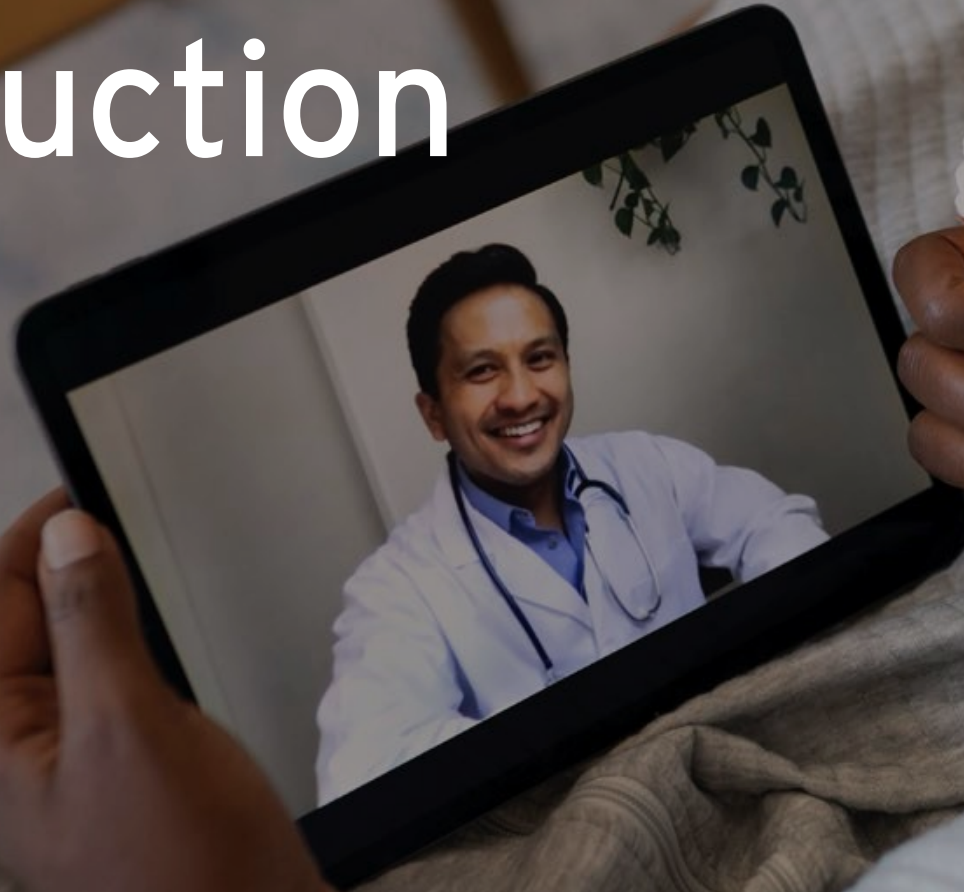


Introduction



Four irrefutable facts are affecting the health care industry and triggering a shift in traditional industry models

Socioeconomic forces

Health care will cost the world **US\$30t** by 2030. WEF.

Care will continue to take an ever larger share of GDP ... will require a greater proof of value.

Required capital efficiency

Waste in Health systems is **20-40%**. WHO.

Pressure moves from productivity and efficiency challenges, to more focused business models and modernized infrastructure ... will require constant productivity assessments.

Technology forces

There will be **41b** IoT devices by 2027. *Business Insider*. Sensors, IoT + AI will enable personalized and preventative care.

Conversion to virtual personalized and preventative models ... will require integration of new capabilities.

Customer centricity

Consumer acceptance of smart devices to receive care will reshape care delivery ... will require a change in business model.



**Post-COVID-19
we expect
industry
transition to be
even faster**

The vision for health systems is not new ... the 'how' and 'when' to invest and collaborate is the challenge

Continue to optimize the business of today

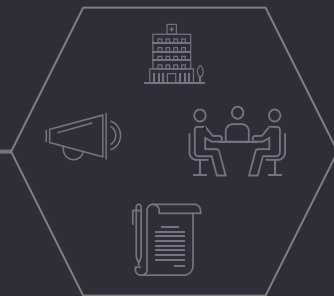
- ▶ Tech-driven improvement in access, efficiency, equity, personalization and quality of care
- ▶ Data liquidity
- ▶ Seamless integration of physical and virtual
- ▶ Preventative and predictive care

- ▶ Hospital-centric, physical and remote care with connected digital systems

- ▶ Some technology enabled solutions, not fully integrated

- ▶ Paper processes, some standalone IT infrastructure

Traditional hospital



Duality of growth

Innovate and grow the business of tomorrow

Smart Health Systems

Integrated patient-centric care that breaks down silos between care settings



Connected hospital

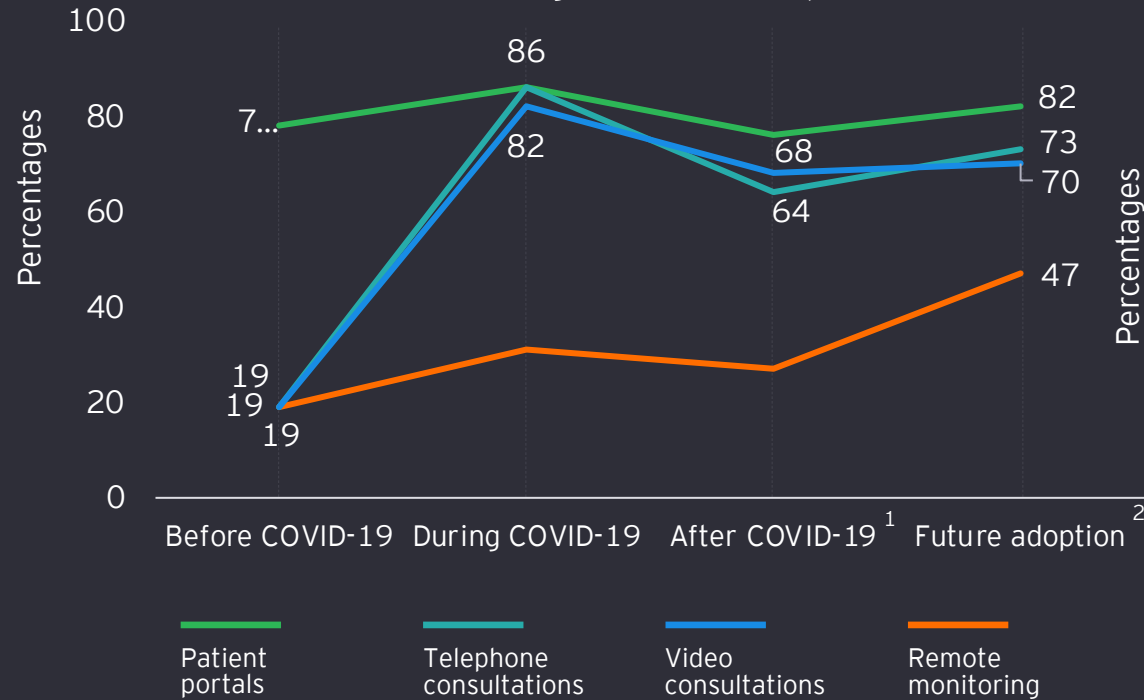


Digitized hospital

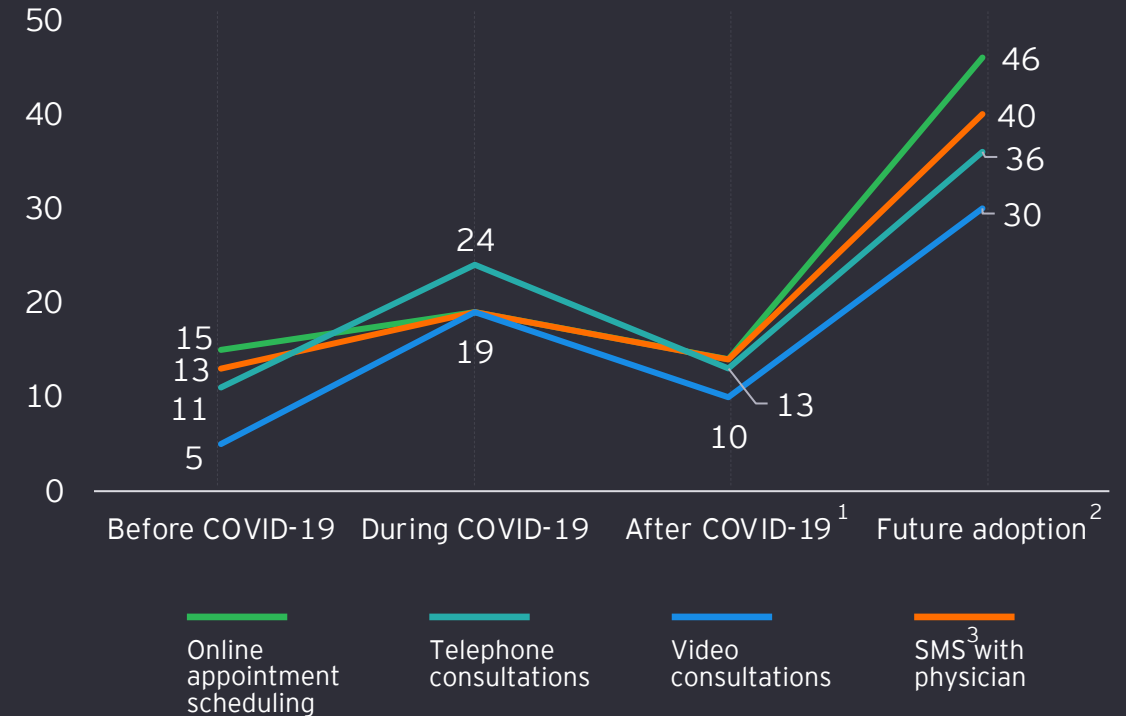


Having had a taste of virtual care, consumers and physicians expect, and will demand more

Adoption of digital health technology by **physicians** before, during and after the pandemic








Adoption of digital health technology by **consumers** before, during and after the pandemic



Source: EY NextWave Health US Consumer and Physician survey, 2020.

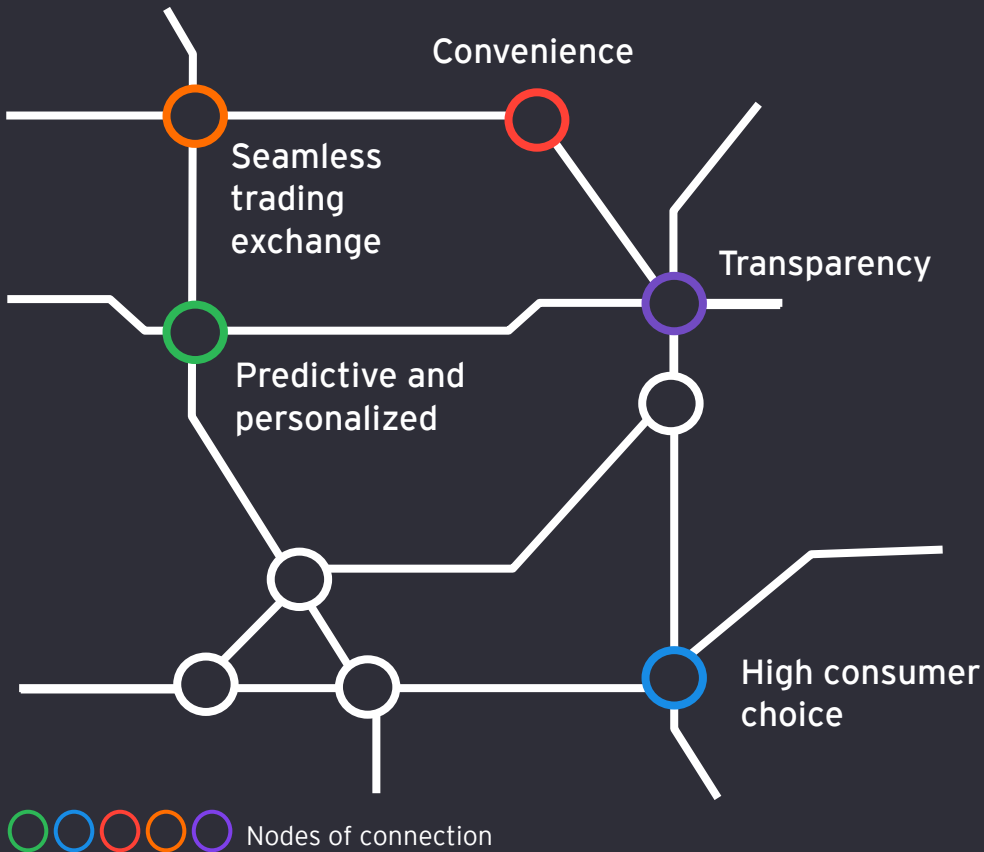
1. "After COVID-19" is based upon current users who are likely to continue using the technology in the future.
2. "Future adoption" is based on adoption by current non-users who intend to use the technology in the future.
3. SMS: short message service; text messages.

Across industries, success is driven by platforms that share key characteristics to improve the user experience

Winning characteristics	Amazon	AirBnB	Netflix	Uber
 Convenience	Easy ordering, cost-competitive, rapid delivery	Single interface for all activities	Easy selection/can view on any device	Simple mobile booking and payment
 Seamless trading exchange	Wide range of suppliers in network	Network of available properties for rent	Single point to access content from different media producers	Anytime, anywhere access
 Predictive and personalized	Recommendations based on user history	Search algorithm based on user profile	Recommendations based on past viewing	Recommendations to improve travel time
 High consumer choice	Buying options (used vs. new)	Wide range of accommodations	Vast and expanding content library	Tiered options based on cost and service
 Transparency	Responsive, accountable customer service	Customized interactions between parties	Flat-rate subscription model	Real-time tracking of mobility options

Leveraging these characteristics is key to building a better user experience in smart health systems

Characteristics of future care



Smart Health System

Integrated patient-centric care that breaks down silos between care settings



- Predictive and personalized:** Preventative and predictive care
- High consumer choice:** Tech-driven improvement in access, efficiency, equity, personalization and care quality
- Convenience:** Seamless integration of physical and virtual
- Seamless trading exchange:** Data liquidity
- Transparency:** End-to-end visibility of supply chain

Five trends to assess strategic focus to deliver a better Health Experience (HEX)

Humans at the Center

Consumer acceptance of patient centered technology will reshape care delivery, and redefine health outcomes, value and service ... will require a change in business model



Outcomes

To outperform, companies need to pivot to value based reimbursement using clinical, societal and consumer-reported measures ... will require acceleration of innovative contracts

Data

Companies need to connect and interrogate data to tailor products and services to improve healthcare ... will require access to others' data

Supply chain

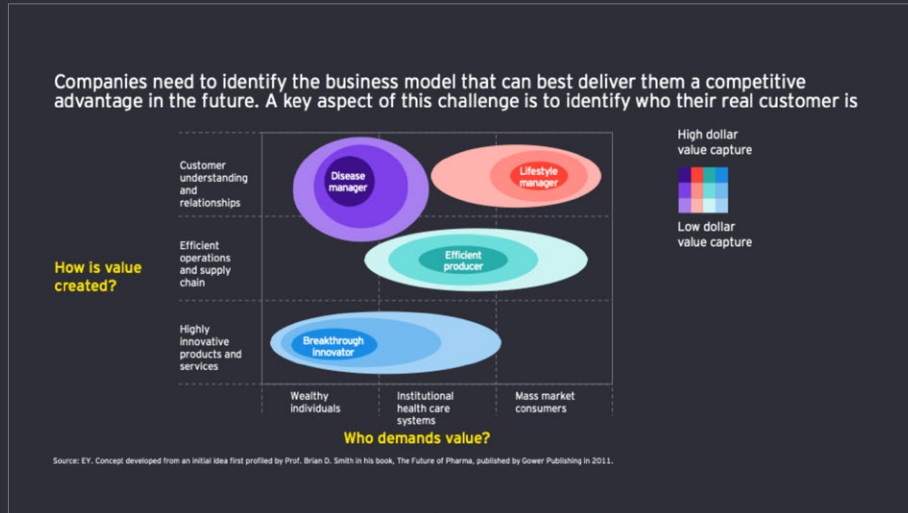
Personalized products and services will increasingly command value ... will require investment in supply chain agility and transparency

Sustainability

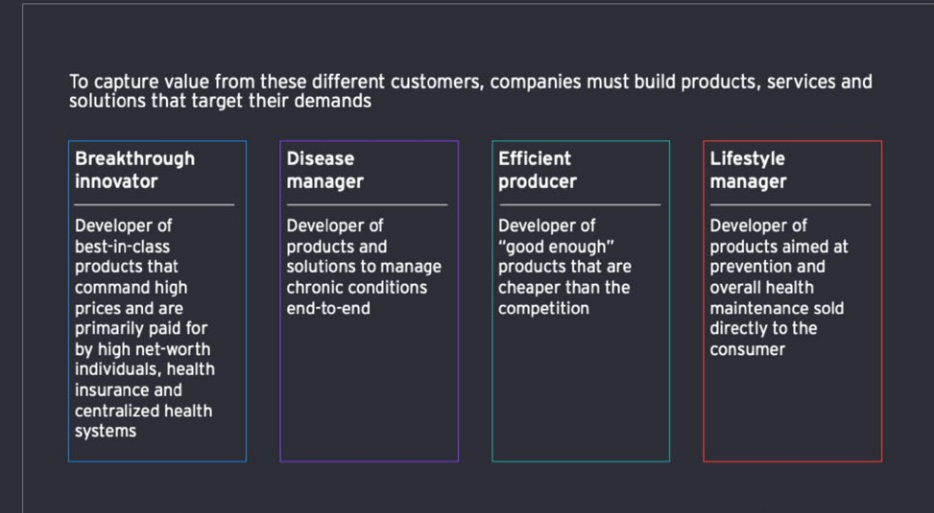
Sustainable practices are critical to an organization's long term value and access to the capital markets ... will require measures to demonstrate environmental, economic and social contributions

We explore these five trends in the context of four business models, which require different investment decisions to optimize performance

Click on image to zoom



Click on image to zoom



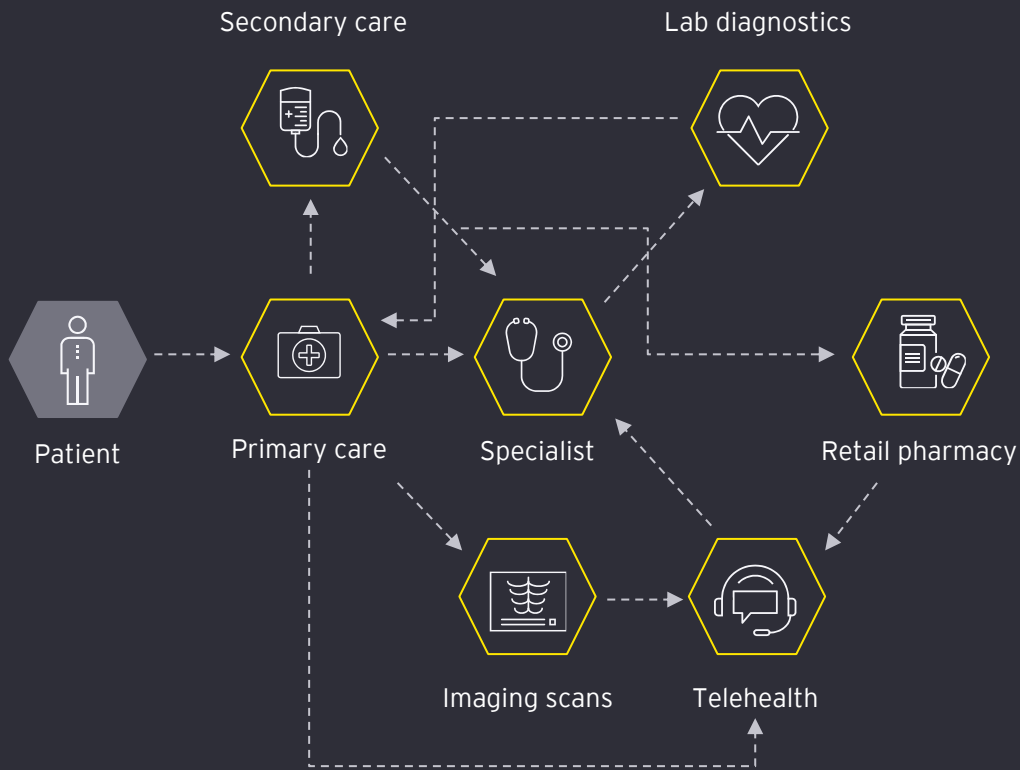


Humans at the Center

Companies need to integrate patient-centered technologies in their business

Currently, patient-consumers must fit into a disparate and inconvenient health infrastructure siloed, provider-driven, and supply-oriented; in the future this infrastructure will be rebuilt around connected and personalized patient experiences

Current health system



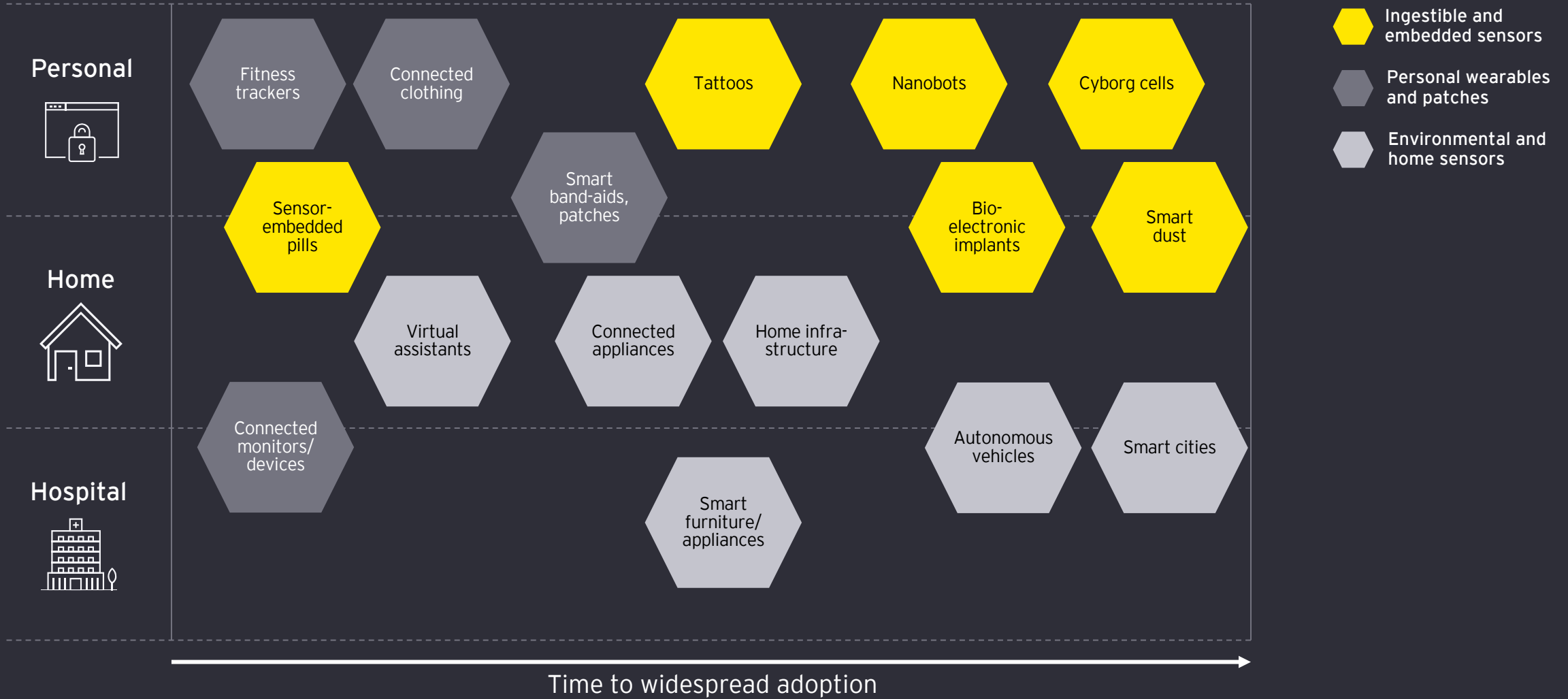
Humans at the center future health system



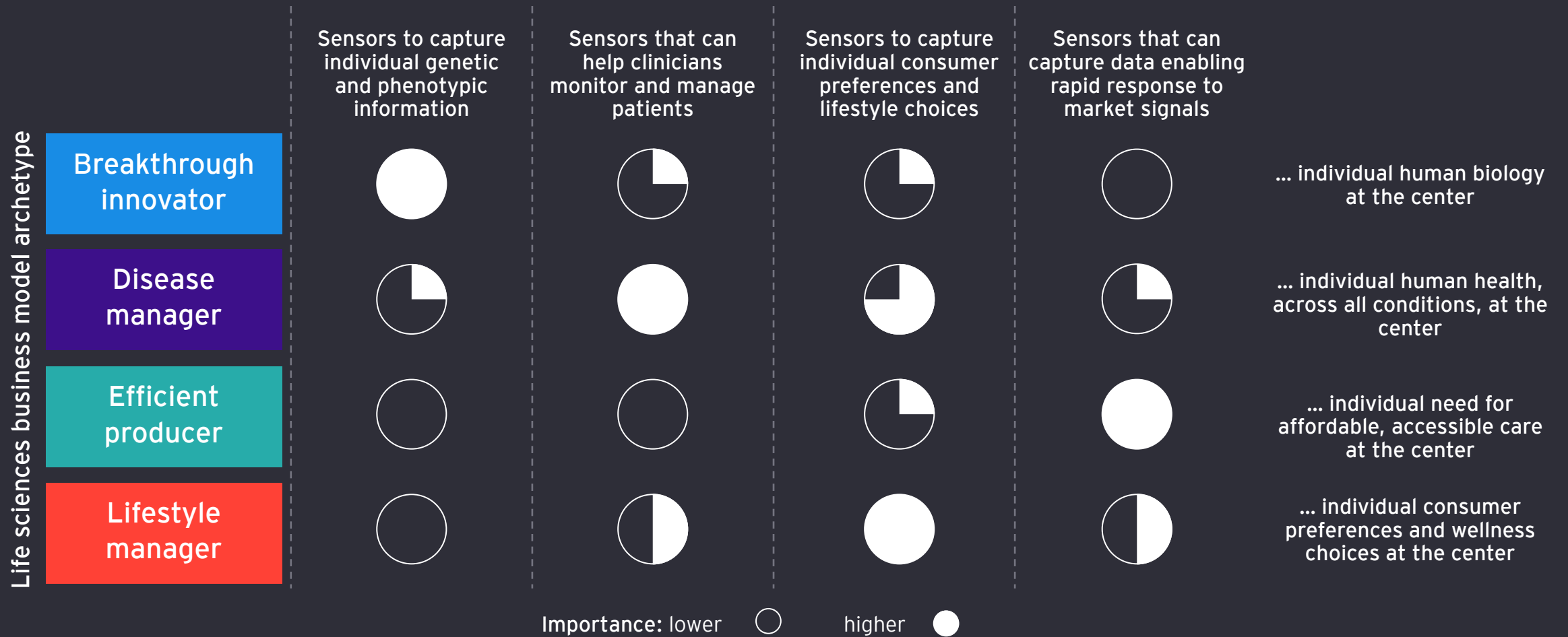
Some are already going beyond selling 'a product' and delivering not just better care but a better care *experience*



Sensors, linked via 5G to AI-based algorithms, will create the rich, continuous data streams that put humans at the center of the care experience



Different sensor technologies will power each business model's shift toward putting the human experience at the center



Companies must now rebuild their operating models to put humans at the center and offer a more connected, personalized Health Experience

- ▶ Partner with or acquire companies to access new capabilities in user-centered design, behavioral science and services
- ▶ Build or buy expertise in in, on and around the body sensors analytics, AI and machine learning algorithms and interoperable system integration
- ▶ Target development of better health solutions that integrate drugs with convenient to use devices and diagnostics.



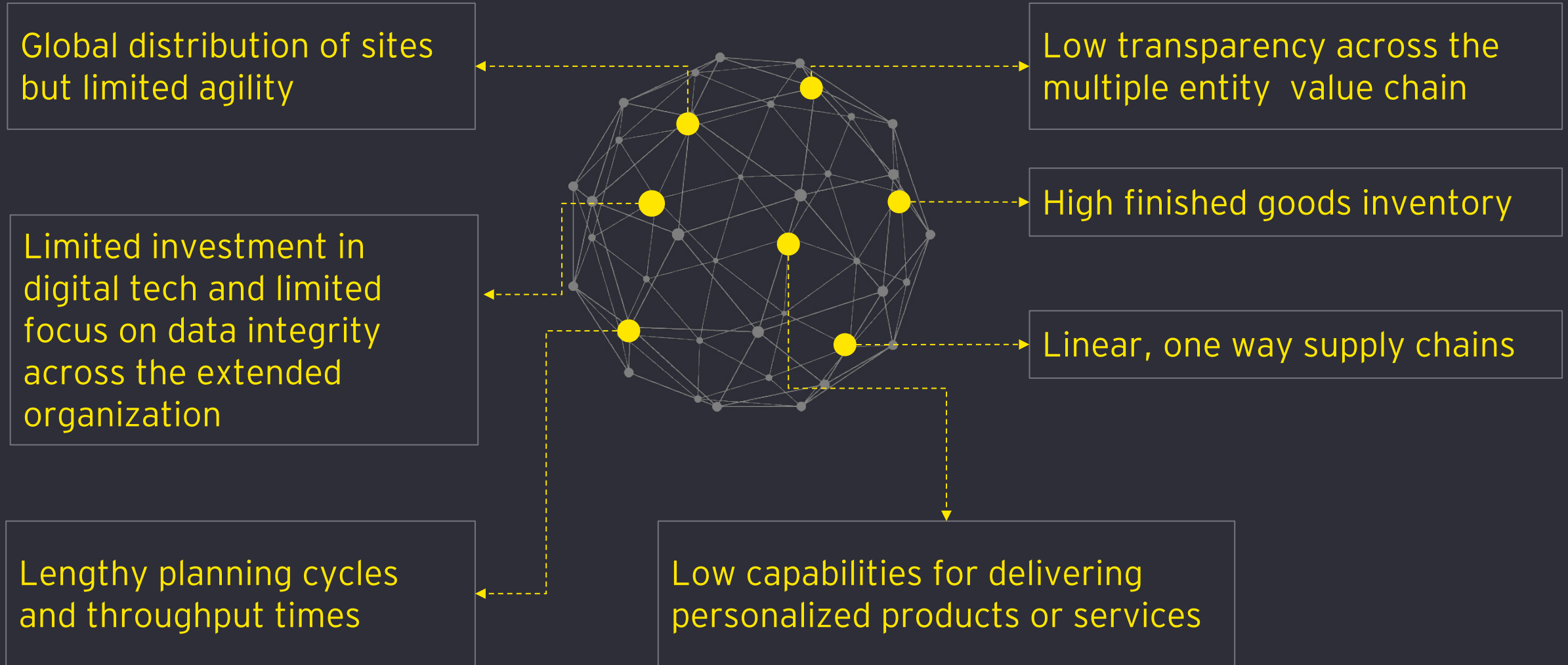
How will you utilize
technologies to make
health care even more
human?

■ ■ ■
The better the question. The better the answer.
The better the world works.

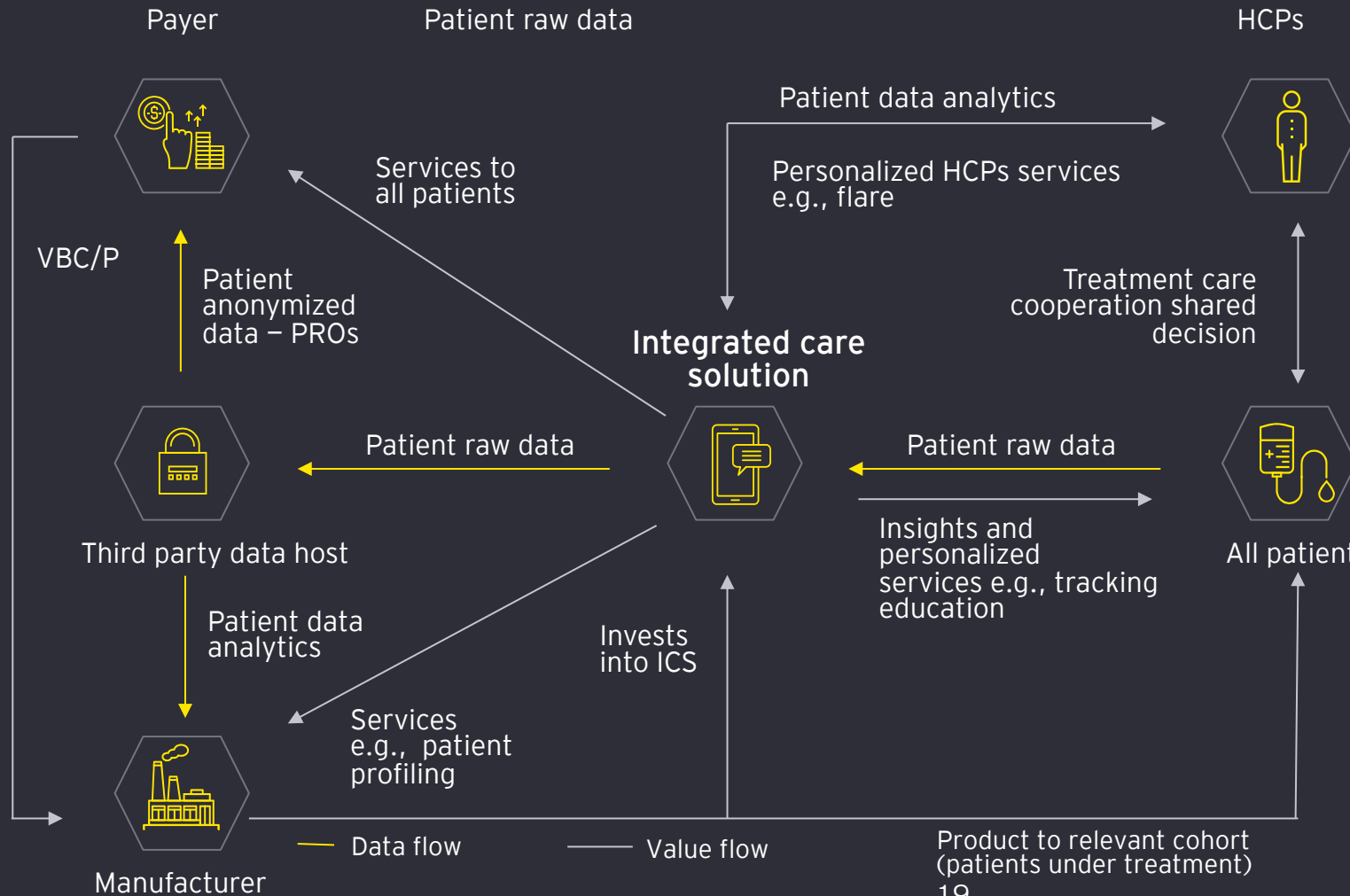
Supply chain

Companies must adapt their supply chains to deliver the personalized products and services that will command value

Traditional supply chains deliver compliant products globally but with minimal risk and agility



To deliver personalized products and services, companies must sync their supply chains and data streams with a wider health ecosystem; integrated care solutions show how to do this

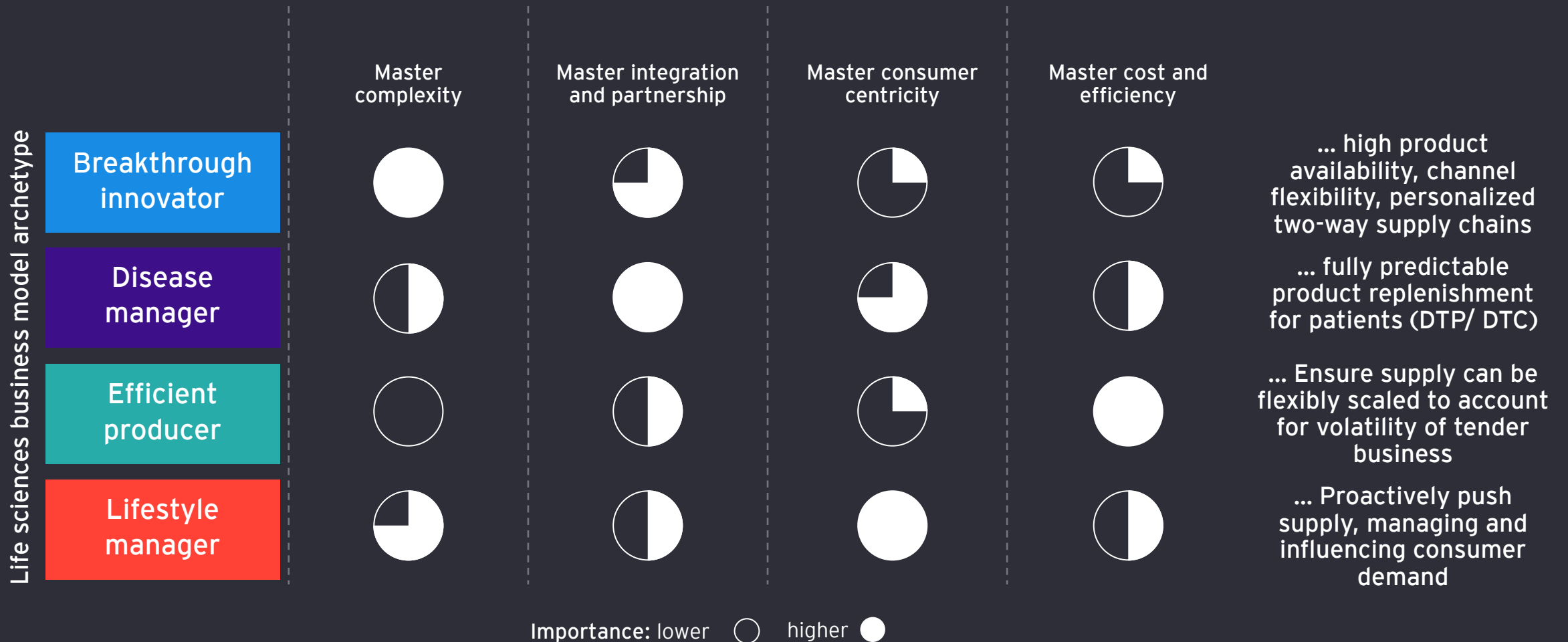


Supply chain fully integrated with services

Real time (compliance) monitoring gives ability for tighter production and distribution planning

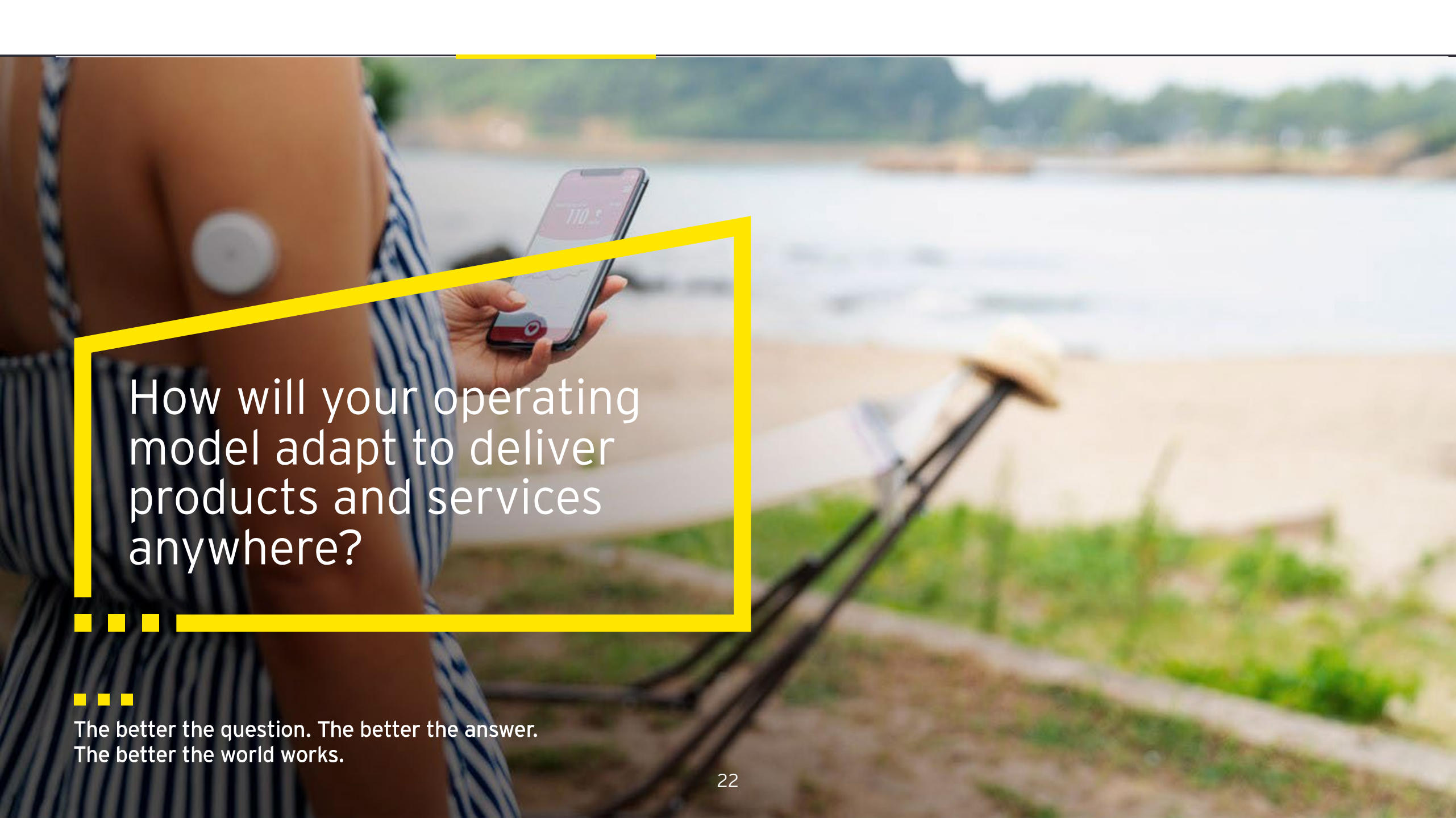
Enhanced positive customer experience

Personalized care models require a different level of supply chain transparency and integration; success requires mastering specific skills based on the business model



Companies must now optimize supply chains to withstand globalized disruption and deliver the right personalized products and services

- ▶ Prioritize technology to provide end-to-end supply chain visibility, from the patient all the way to the supplier networks, to strengthen risk management and resilience and allow real-time use of market signals and rapid decision making
- ▶ Develop the ability to rapidly build and integrate new supply chains and entire manufacturing systems in parallel with clinical development of innovative products
- ▶ Develop product and process-based partnerships that enable flexible, fast connections across supply chain networks

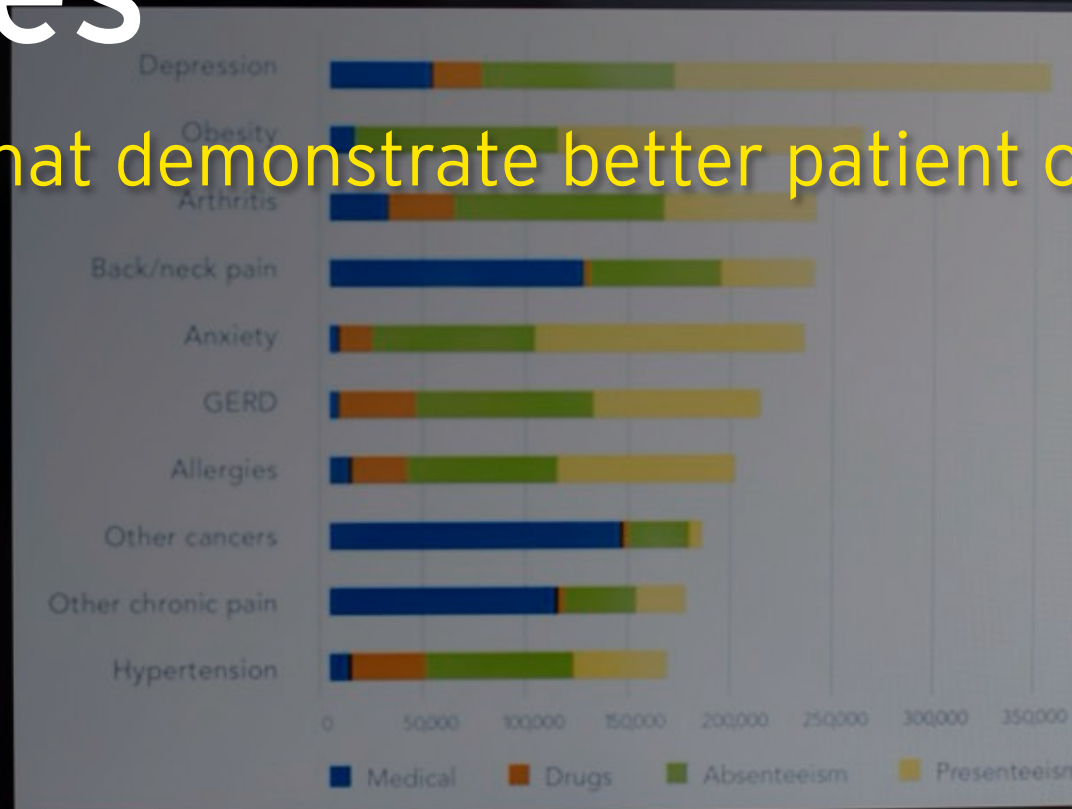
A person is shown from the waist down, wearing a blue and white striped dress. They are holding a smartphone in their right hand. The phone screen displays a health application with a heart rate of 110 bpm and a pulse line graph. The background is a blurred beach scene with a body of water, a sandy shore, and a black suitcase with a straw hat on top. A yellow graphic frame surrounds the text.

How will your operating model adapt to deliver products and services anywhere?

■ ■ ■
The better the question. The better the answer.
The better the world works.

Outcomes

Only companies that demonstrate better patient outcomes will outperform



Better outcomes need to be demonstrated in the real world to accelerate the use of new products; innovative contracts can help achieve this

Commercial product lifecycle

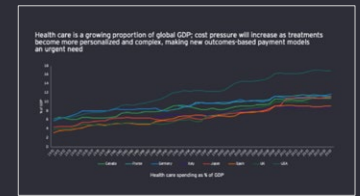
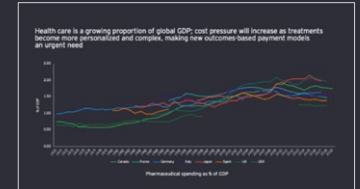
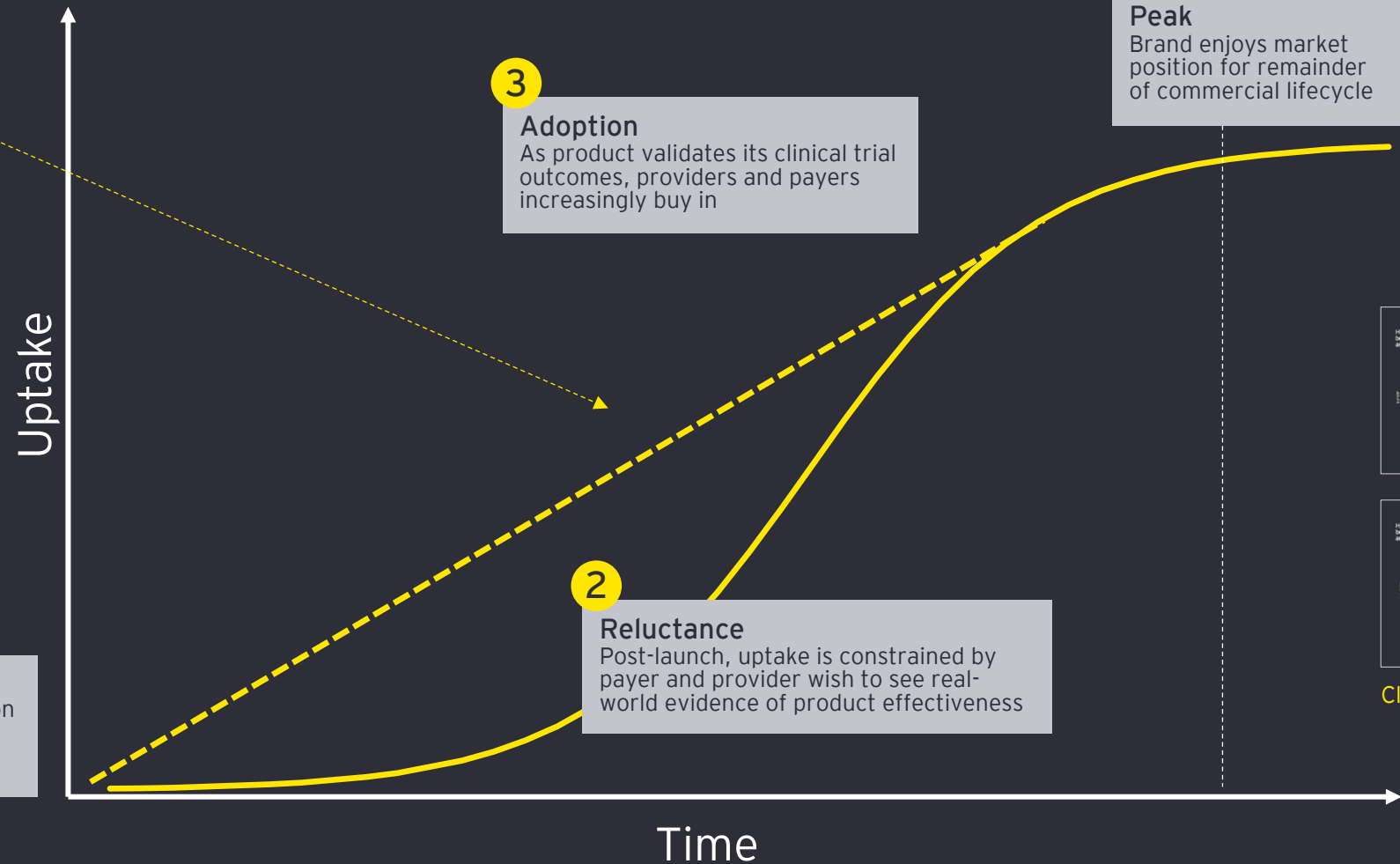
Innovative contracting can accelerate uptake

Innovative contracts that connect product reimbursement to real-world performance compress the period of payer and provider reluctance and:

- ▶ Share the risk between providers and pharmaceutical companies
- ▶ Enable faster market access.
- ▶ Allow patients to benefit from innovative products more quickly

1

Precommercial development
Product enters commercialization lifecycle only after ~8 years preclinical/clinical R&D



Click on images to zoom

Payers, providers, patients and life sciences companies must identify what they want from innovative contracts and how they can make these agreements work efficiently and at scale

Payers and providers

- ▶ How do I mitigate the budgetary risk associated with new, unproven treatments and services?
- ▶ How do I improve patient access to innovative therapies?
- ▶ How do I capture and validate outcomes data cost-effectively?
- ▶ What infrastructure do I need to build to launch multiple innovative contracts in my organization?
- ▶ What products and services help me deliver better care faster and to more patients?
- ▶ How can remote monitoring technologies avoid costly hospital readmissions?



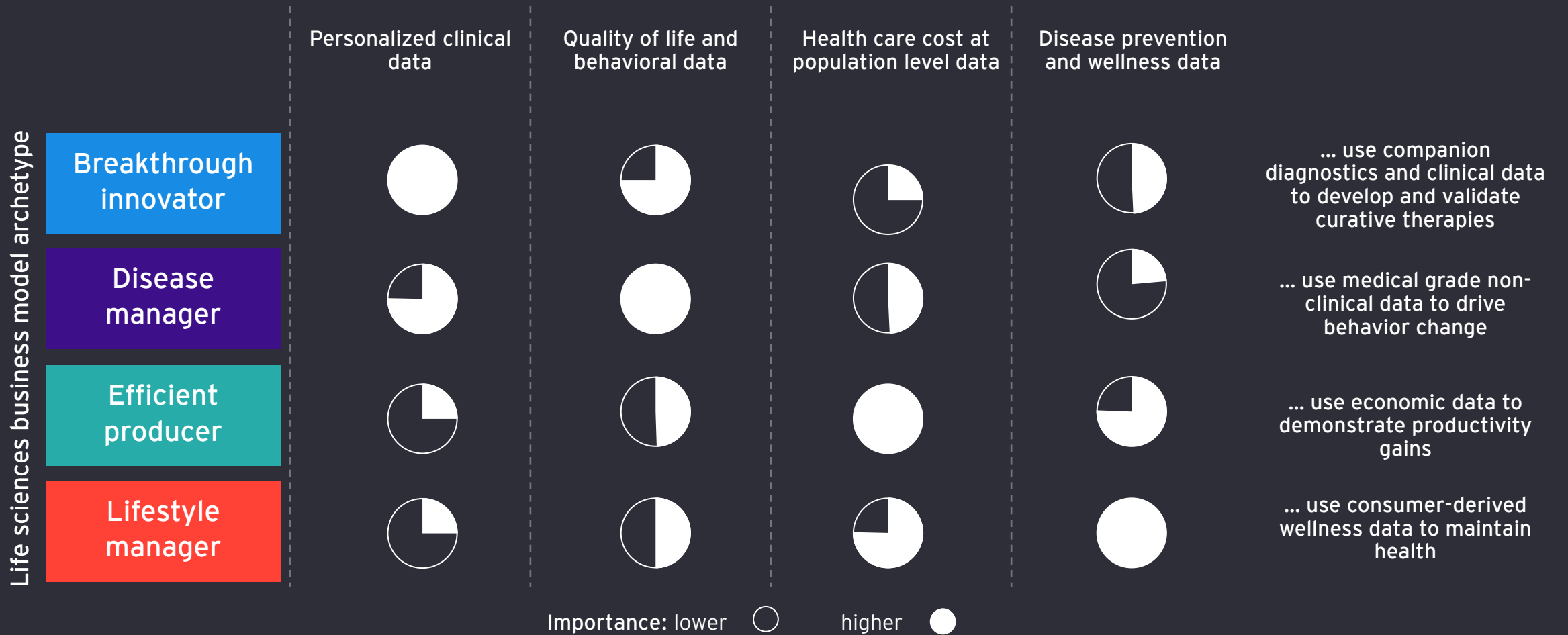
Life sciences companies

- ▶ Who should I partner with to access real world data that shows value?
- ▶ How do I use technologies to capture outcomes data during development so that proof of value data is available at launch?
- ▶ How do I use medical science liaisons to build stronger relationships with payers and health care providers?
- ▶ How can I scale innovative contracts from one payer to many payers?

Patients

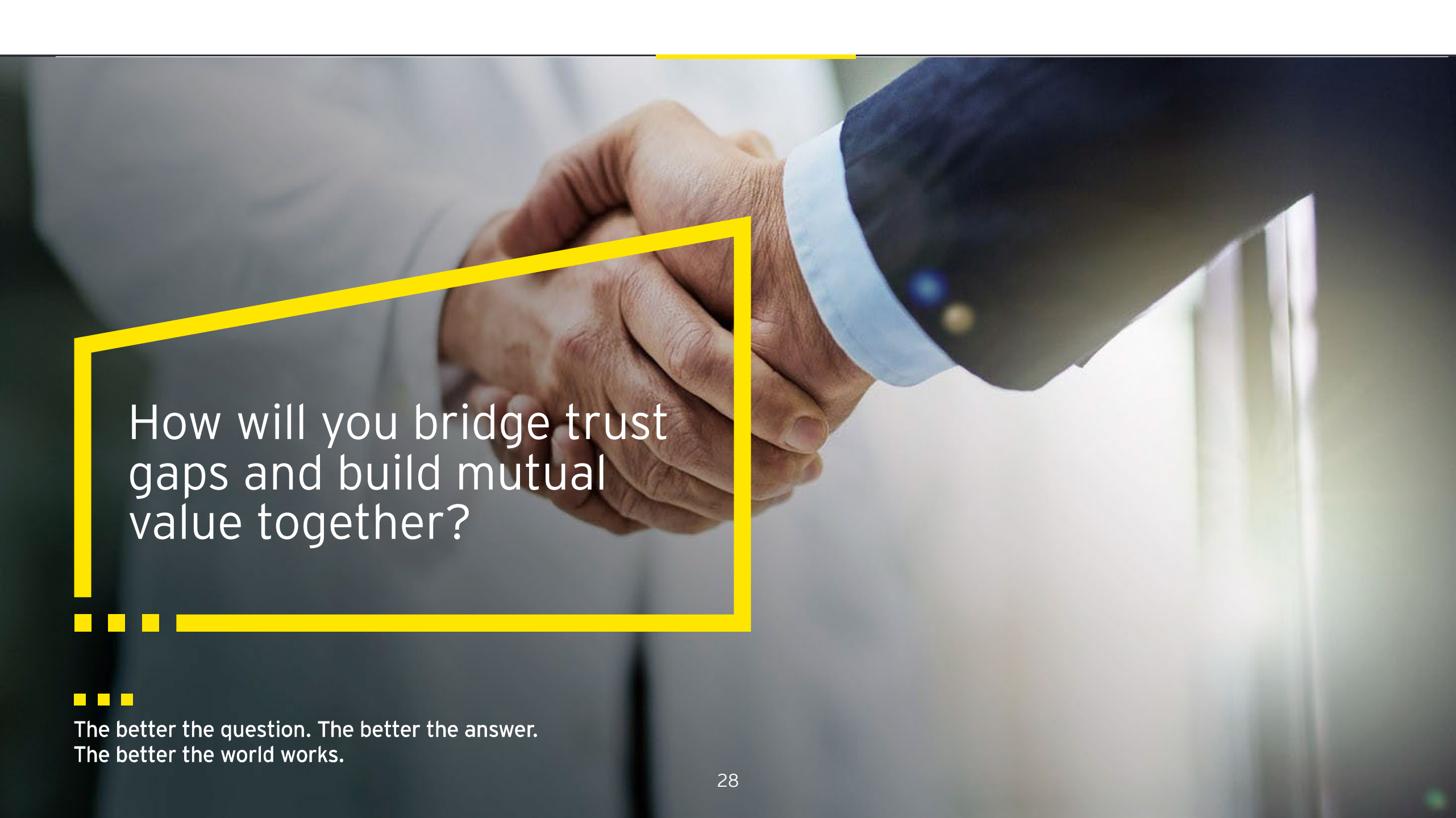
- ▶ What personalized treatments reduce symptoms or provide cures?
- ▶ How can I be prescribed the right therapy as quickly as possible, so I don't have to step through multiple ineffective therapies first?
- ▶ How easy is it to stay on the treatment regimen and maintain high quality of life?

Deciding which outcomes data to prioritize should be directly informed by a company's given business model



*Companies must
redefine their business
models to accelerate
innovative outcomes-
based contracts*

- ▶ Proactively model how the use of products and services generate cost-savings for health systems and productivity gains for employers, individuals and pilot innovative contracts
- ▶ Collaborate with consumer, technology and other organizations to develop digital tools and services that are easy to use and increase adherence to treatment and validate its effectiveness
- ▶ Work with regulators to better use real-world data in product approvals and reimbursement decisions



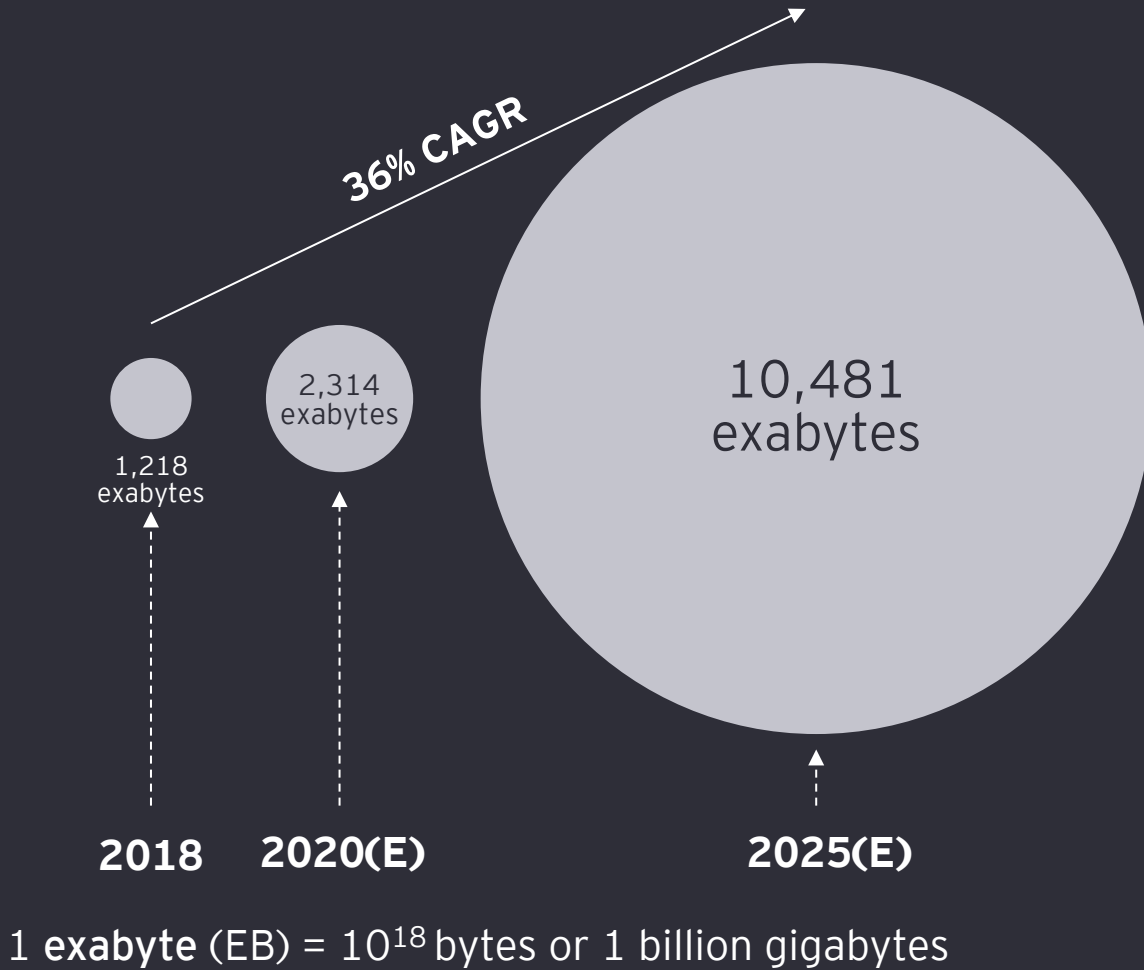
How will you bridge trust
gaps and build mutual
value together?

■ ■ ■
The better the question. The better the answer.
The better the world works.

Data

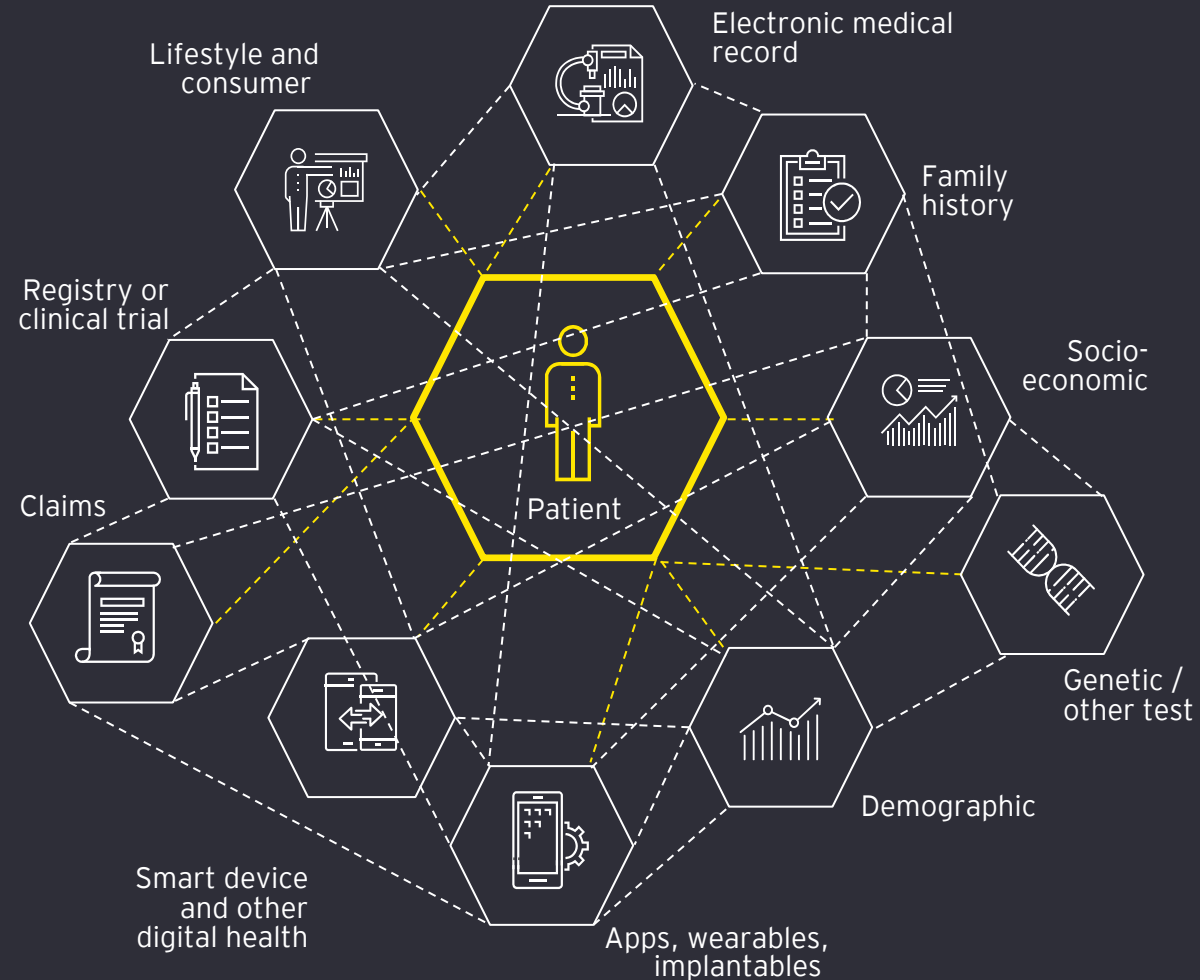
Companies must have access to others' data to secure future value

There is an ongoing health data explosion ...



Source: World Economic Forum, December 2018; IDC, "The Data Age 2025," November 2018.

... with data being generated 'everywhere'



Companies are already exploring several approaches to access rich, multidimensional patient data in secure, permissioned ways

Enhanced ability to access and integrate real-world data from digital devices

- ▶ Digital health app data
- ▶ Fitness trackers
- ▶ Wearable data



Closer access to and relationships with patients, where regulatory systems allow

- ▶ Patient reported outcomes
- ▶ Adverse event reporting
- ▶ Quality of life measures
- ▶ Diet and lifestyle diaries
- ▶ Family history



How can organizations access the data they need but don't own?

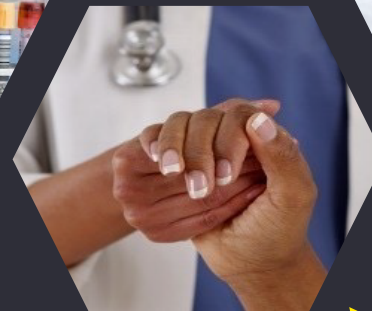
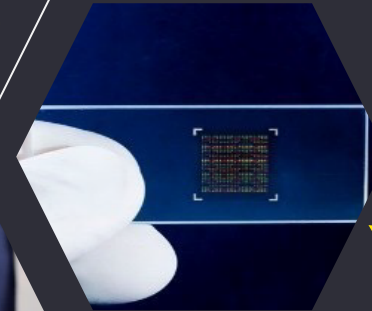
Trusted research environments and other licensing deals to access health system data

- ▶ Clinical data
- ▶ EHR information
- ▶ Pathology, histology, radiology and other procedural notes
- ▶ Case history notes
- ▶ Medical claims data
- ▶ Medication orders, co-prescriptions and refills



Greater integration of diagnostic data

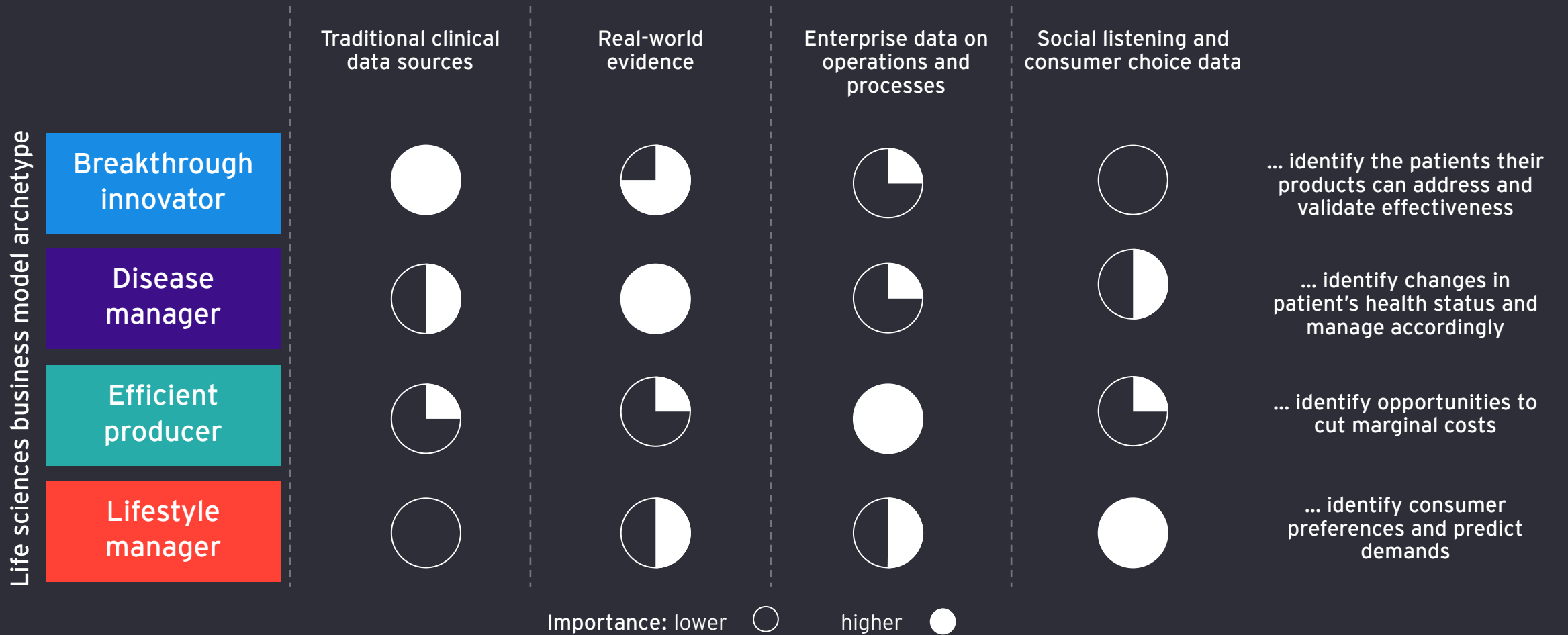
- ▶ Biomarker panels
- ▶ Genomics/other omics data
- ▶ Consumer genetics and other consumer diagnostics



Better social listening

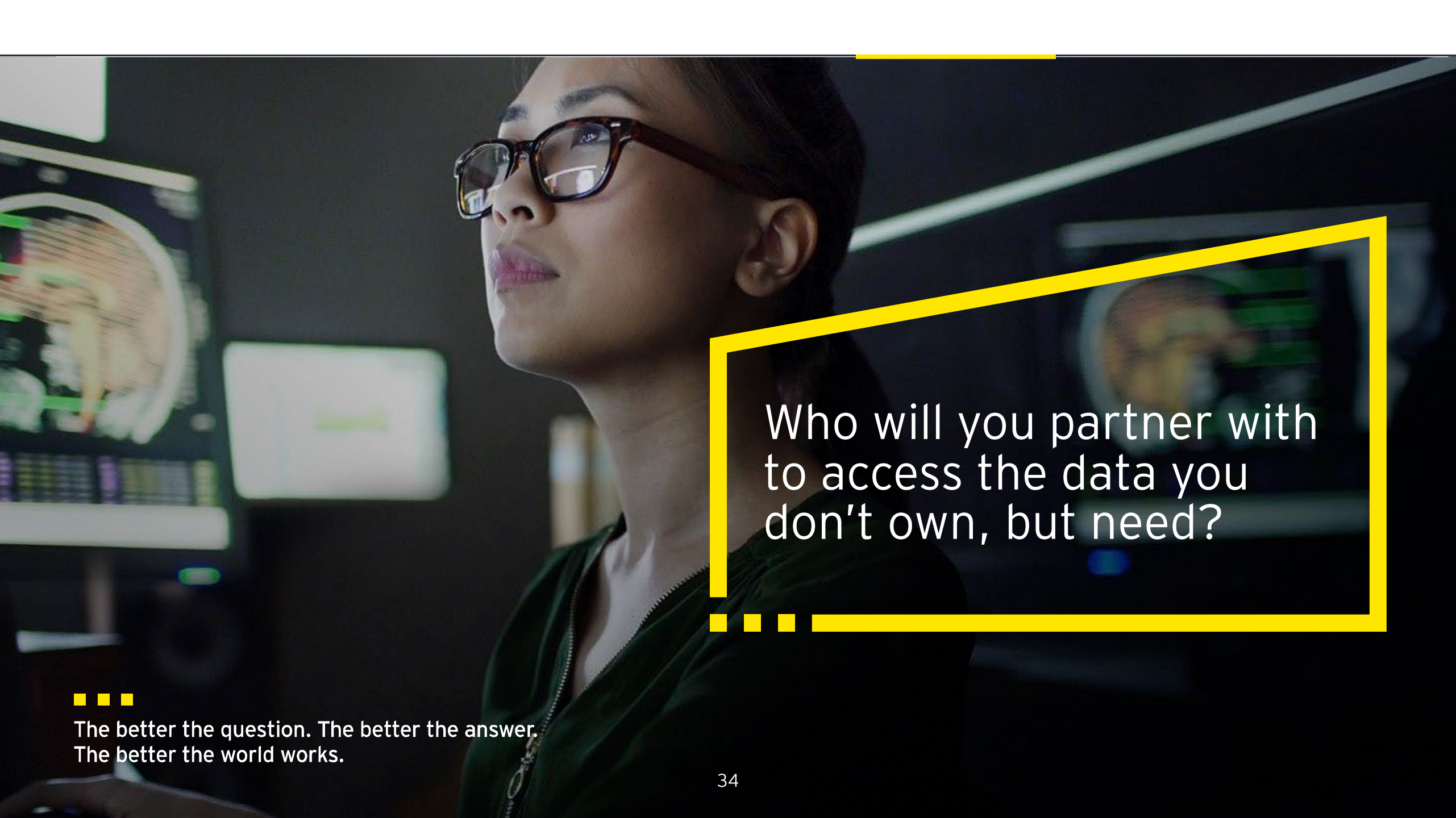
- ▶ Online patient communities data

A company's business model will influence which data and insights should be prioritized to create future value



Accessing the right data from external organizations and linking it to your own will be critically important in the future. To achieve this goal, companies must:

- ▶ Work more closely with regulators and health stakeholders to establish data privacy and cybersecurity standards around securely accessing patient data
- ▶ Develop trusted research environments, third-party data brokerage relationships and other innovative solutions to access and use data
- ▶ Build secure, easy-to-use channels for collaboration with competitors and new entrants to enable participation in care platforms and development of cloud-based strategy for secure data sharing between parties



Who will you partner with
to access the data you
don't own, but need?

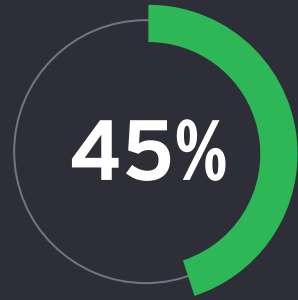


The better the question. The better the answer.
The better the world works.

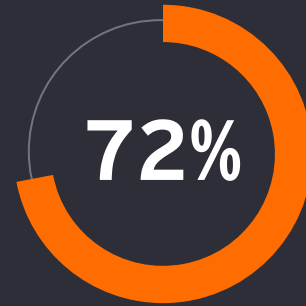
Sustainability

Sustainable practices are critical to an organization's long-term value and access to the capital markets

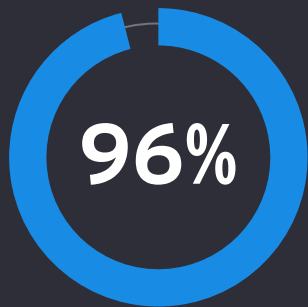
In 2021, consumers and investors are demanding that companies measure and report their sustainability practices, with access to capital increasingly linked to ESG goals



of consumers report sustainability is more important now than in 2020¹



of consumers believe companies' behaviors are as important as the products they sell²



2020 increase in investment in sustainable assets³



Predicted amount of sustainable debt issuance in 2021⁴

“

The more your company can show its purpose in delivering value to its customers, its employees, and its communities, the better able you will be to compete and deliver long-term, durable profits for shareholders.

Larry Fink, CEO, BlackRock
2021 Letter to CEOs

Source: ^{1,2}EY Future Consumer Now Survey, January 2021. ³BlackRock, "Larry Fink's letter to CEOs," 2021. ⁴S&P Global Ratings.

As demands for transparency grow, companies must identify and consistently measure the sustainability metrics that describe their value proposition

Yesterday

- ▶ An “alphabet soup” of standards
- ▶ No consistency in how metrics are reported
- ▶ No way to easily compare companies’ performance
- ▶ Sector-agnostic metrics fail to capture full value of sustainability
- ▶ Difficult to correlate sustainability with financial performance

A
common
framework
for
sustainable
value

Today

- ▶ Convergence among standard setters to work toward a joint vision
- ▶ Calls to companies to commit to consistent sustainability reporting
- ▶ Greater transparency will make cross comparisons easier
- ▶ Sector-specific standards become more important
- ▶ Access to capital linked to sustainability performance

Progress relative to peers will become a differentiator

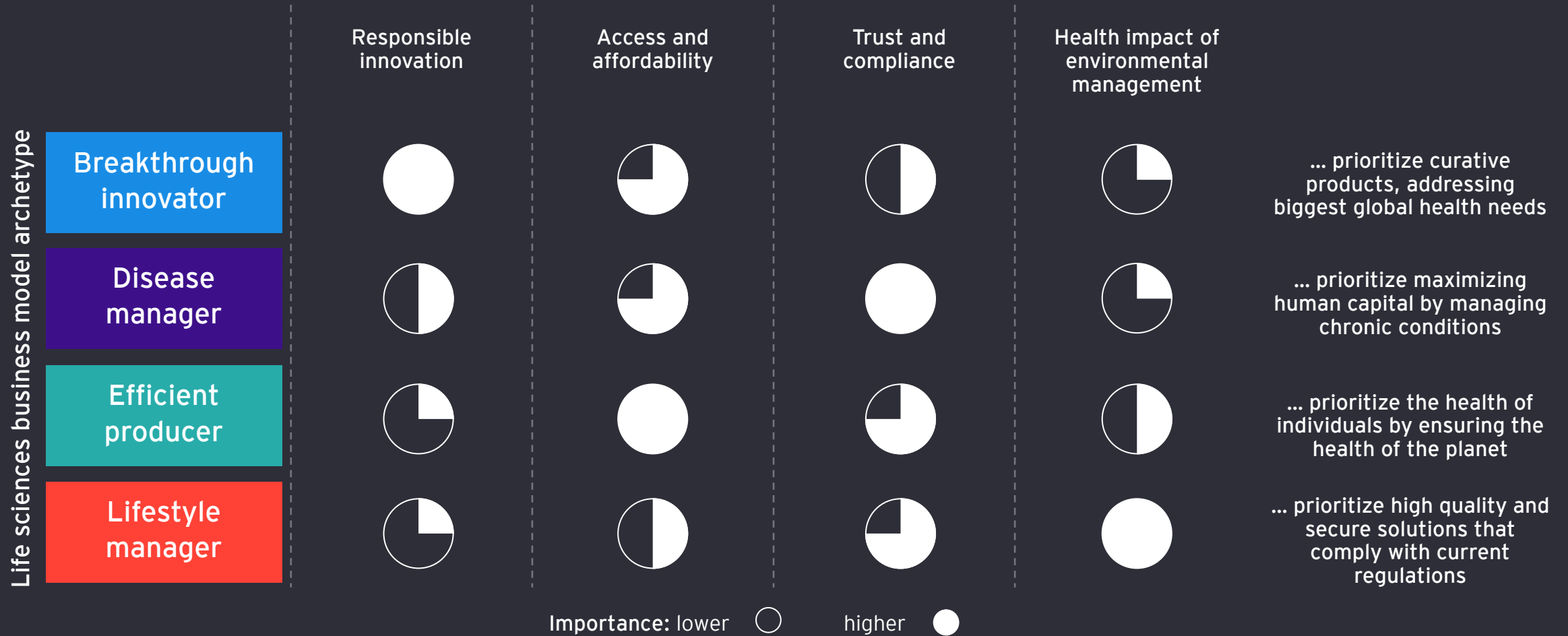
Health companies' products and services create social and environmental value in four specific ways

Value driver	Why it creates value for health companies	Sample metrics
Responsible innovation	New products address unmet disease needs and cure common and neglected health conditions	<ul style="list-style-type: none">▶ Number of curative or disease modifying products and services▶ % of the portfolio that address unmet medical needs
Access and affordability	Companies improve public health by making life saving therapies and services widely available and reasonably priced	<ul style="list-style-type: none">▶ Score on the Access to Medicines Index▶ Number of products with equitable pricing policies
Trust and quality	For the general public to have faith in therapies and services, companies must ensure their quality, safety and security	<ul style="list-style-type: none">▶ Number of regulatory actions (e.g., OAI) cited on inspection▶ Number of warning letters for promotion non-compliance
Health impact of environmental management	There is a strong correlation between climate change and health, with poor air and water quality and rising temperatures increasing disease burden	<ul style="list-style-type: none">▶ Disability adjusted life years caused by carbon emissions▶ Revenue to water consumption ratio▶ Revenue to unit of waste generated

EY has identified eight metrics of biopharma sustainable value that are also recognized by standards organizations and investor indices

Life sciences specific metric	External frameworks						Investor indices				
	UN SDGs	WEF - IBC	EPIC	SASB	GRI	CDSB	MSCI	DJSI	ISS Oekom	Sustainalytics	FTSE
Responsible innovation (Fast Track Designations awarded, no. of curative therapies, emphasis on rare disease)*	✓	✓	✓					✓	✓	✓	✓
Score on Access to Medicines 2018 Index	✓	✓	✓	✓			✓	✓	✓	✓	✓
OAs and VAs issued since 2010 by the US FDA	✓	✓	✓	✓	✓		✓	✓	✓	✓	
FDA issued warning letters for drug promotion non-compliance (since 2010)				✓	✓		✓				
Serious adverse events for the company's top five drugs (through 12/19)				✓	✓		✓				
Disability adjusted life years resulting from greenhouse gas emissions released per US\$ billion in 2018 revenue	✓	✓	✓		✓	✓	✓		✓		

As companies accelerate their sustainability efforts, they should prioritize sustainability metrics that align to their business models



Sustainable companies will build trust with policymakers, patient-consumers and other ecosystem partners and be favored by investors as sustainable practices begin to translate into higher financial returns

- ▶ Establish a framework for measuring and communicating progress against sustainability goals, with board level responsibility for oversight
- ▶ Collaborate with other companies to share manufacturing capacity to improve efficiency; limit unnecessary manufacturing/distribution
- ▶ Prioritize innovation in the highest need areas, including curative treatments, and products to address future global infectious disease challenges



How can long-term value
be demonstrated from
sustainable practices and
give your business edge?



The better the question. The better the answer.
The better the world works.

Conclusion

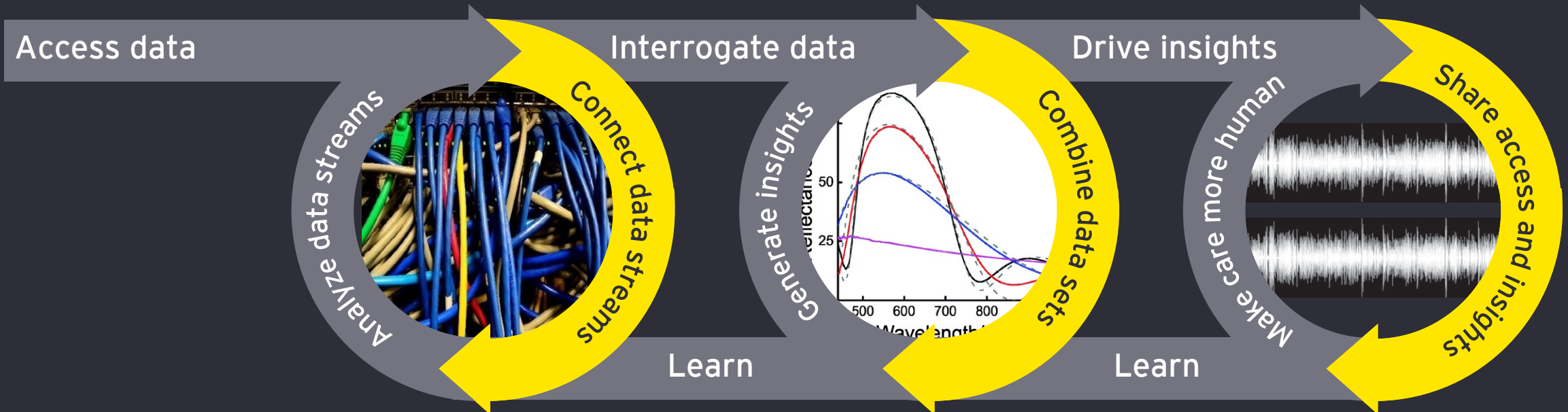
A female doctor with dark hair tied back, wearing glasses and a white lab coat over a blue top. She is smiling broadly and holding a black pen in her right hand, gesturing towards a laptop screen. The background is a bright, modern office or clinic setting with large windows and indoor plants.

By connecting data sets, combining data sets together and sharing insights back to a wider network the *Power* within data can be unlocked

Connect

Combine

Share



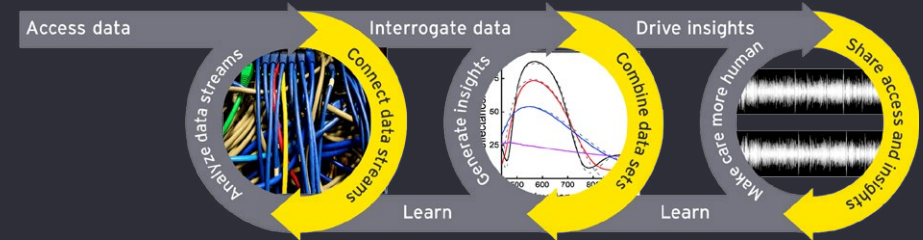
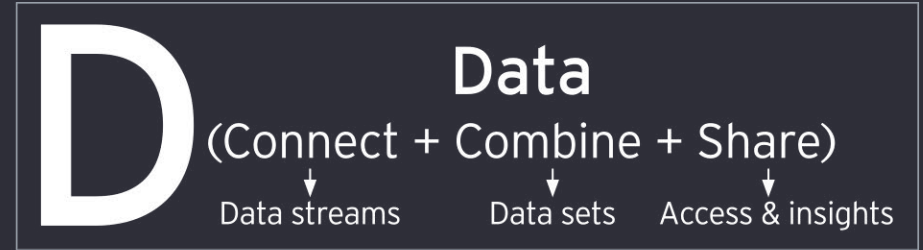
Unlocking the Data power will fuel a better Health Experience and deliver superior returns

$$FV = (HEX)$$

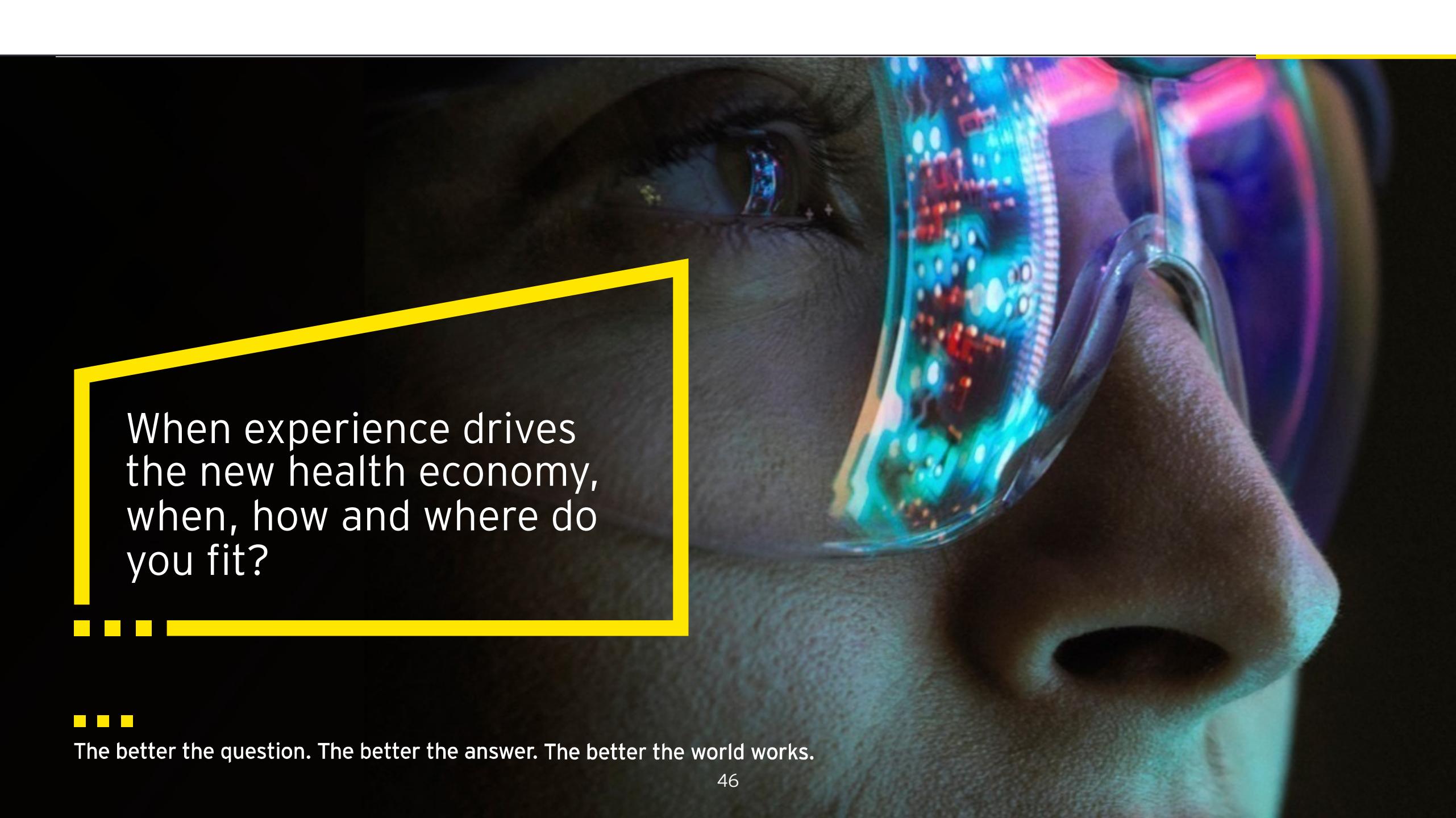
Future Value = Health Experience

↓

[Outcomes x Personalization]



- Predictive and personalized
- High consumer choice
- Integration of physical and virtual
- Data liquidity
- Transparency of supply chain



When experience drives
the new health economy,
when, how and where do
you fit?



The better the question. The better the answer. The better the world works.

EY | Building a better working world

EY exists to build a better working world, helping create long-term value for clients, people and society and build trust in the capital markets.

Enabled by data and technology, diverse EY teams in over 150 countries provide trust through assurance and help clients grow, transform and operate.

Working across assurance, consulting, law, strategy, tax and transactions, EY teams ask better questions to find new answers for the complex issues facing our world today.



EY refers to the global organization, and may refer to one or more, of the member firms of Ernst & Young Global Limited, each of which is a separate legal entity. Ernst & Young Global Limited, a UK company limited by guarantee, does not provide services to clients. Information about how EY collects and uses personal data and a description of the rights individuals have under data protection legislation are available via ey.com/privacy. EY member firms do not practice law where prohibited by local laws. For more information about our organization, please visit ey.com.

Ernst & Young LLP is a client-serving member firm of Ernst & Young Global Limited operating in the US.

© 2021 Ernst & Young LLP.
All Rights Reserved.

EYG no. 004128-21Gbl
2101-3695830
ED None

This material has been prepared for general informational purposes only and is not intended to be relied upon as accounting, tax, legal or other professional advice. Please refer to your advisors for specific advice.

ey.com