VR headsets such as Oculus Rift and HTC Vive provide a full rich experience and interactivity.

Accessibility:

Smartphones that are VR-capable (Daydream/Google Cardboard) retain 3D features and majority of interactivity. Content seen in 2D retains "immersive quality."
When the human body is the biggest data platform, who will capture value?

Progressions 2018
Life Sciences 4.0: Securing value through data-driven platforms
What do industry stakeholders really want?

**As a patient/consumer**
- How can I get the right, affordable treatment and support to be healthy?

**As a physician/care provider**
- How can I deliver the most cost-effective treatment to achieve health improvement?

**As a payer**
- How can I provide the most cost-effective health solutions to get impact, and transition to them?

**As a policymaker**
- How can I have a transparent market with a balance of health improvement versus cost?

**As a biopharma or medtech**
- How can I get appropriately paid for providing the right treatment solution?
We are entering a fourth industrial revolution … a fusion across the physical, digital and biological worlds

- **Automated delivery**
  - Drones
  - Self-driving cars

- **Robotics and automation**
  - Robotic surgery
  - Robotic caretakers/caregivers
  - Exoskeletons

- **Augmented reality**
  - Connected eyewear
  - Operating room of the future

- **Blockchain**
  - Patient medical records
  - Drug supply chain integrity
  - Clinical trials

- **Genetic technologies**
  - Low-cost genetic sequencing
  - Gene editing

- **3D printing**
  - Bioprinting — organs, bones, teeth
  - Surgical instruments
  - Devices, e.g., pacemakers

- **Internet of everything**
  - Smart appliances
  - At-home diagnostics
  - Connected clothing

- **Artificial intelligence**
  - Drug discovery
  - Diagnosis
  - Patient monitoring

- **Device miniaturization**
  - Smart tattoos and bandages
  - Digital pills
  - Medical-grade wearables

- **Health care technology**
  - **Cheaper computing power and storage**
    - Private data cloud
    - Big data analytics

Enhanced stakeholder demands and super consumers are redefining health

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<td>Connected health care</td>
<td>Integrating health care data; “man and machine” delivering better interventions</td>
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Personalized experiences, products or services will be increasingly demanded – Life Sciences 4.0

Forces
- R&D productivity
- Patent cliff
- Regulatory hurdles
- Provider/payer consolidation
- Empowered patients
- Reimbursement pressures
- Speed of technology advancement
- Super consumers
- Aging populations and chronic disease

Customers
- Patient/consumer
- Payer
- Physician/care provider
- Policymaker

Life Sciences 1.0
Blockbuster products

Life Sciences 2.0
Diversified portfolios

Life Sciences 3.0
Health outcomes

Life Sciences 4.0
Data-driven platforms

Progressions 2018: Life Sciences 4.0
The health care opportunity that data-driven platforms create

**Platform:** an interface that enables a seamless trading exchange

**Characteristics of a health care data-driven platform**

- Convenient to use
- Focused on user experience
- Connects highly disparate groups
- Simplifies access to the best products and services
- Drives efficiencies
- Reveals new business opportunities

**Benefits**

- Increased efficiency
- Consumer experience
- Personalized care
- Increased access
- Improved health outcomes at scale
Technology giants are already significantly investing in health, blurring the lines between health and technology

Life Sciences are responding with patient services, but these efforts don’t go far enough to eradicate the risks
Succeeding in the emerging platform environment will require new capabilities in three distinct areas

1. **Customer engagement:** creating high-touch, high-information relationships
   - Develop offerings that make people want to stay involved in their care
   - Incorporate value-add activities e.g. remote monitoring, clinical decision support
   - Expand services to promote the holistic management of health

2. **Personalization:** moving beyond clinical biomarkers
   - Understand individual behavior, engagement style and tolerance to risk
   - Tailor incentives and ‘nudges’ accordingly, to optimize results

3. **Data literacy:** extracting value from data
   - Invest in data scientists to extract full value from data
   - Break down internal silos to more fully leverage disparate data sources
To accelerate the shift to Life Sciences 4.0, new models are needed to engage stakeholders and share risk
Conclusions

► The ubiquity of data creates new opportunities for life sciences companies to rethink innovation and create personalized health outcomes that the wider ecosystem of health stakeholders are demanding

► Platforms that connect, combine and share data will be a central enabler of this future value creation

► These platforms create a mechanism for companies to quickly and safely tap into diverse data streams and link them to scientific and clinical data

► Companies will also need to consider developing new capabilities linked to customer engagement, personalization and data literacy that are central to emerging platforms of care

► Life sciences companies can access these capabilities by building them organically or through flexible partnerships or acquisitions

► These customer-focused capabilities will help life sciences companies transform their business models using data to create shared value for themselves and health stakeholders across the ecosystem
Thank you
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How EY’s Global Life Sciences Sector can help your business
As populations age and chronic diseases become commonplace, health care will take an ever larger share of GDP. Scientific progress, augmented intelligence and a more empowered patient are driving changes in the delivery of health care to a personalized experience that demands health outcomes as the core metric. This is causing a power shift among traditional stakeholder groups, with new entrants (often not driven by profit) disrupting incumbents. Innovation, productivity and access to patients remain the industry’s biggest challenges. These trends challenge the capital strategy of every link in the life sciences value chain, from R&D and product supply to product launch and patient-centric operating models.

Our Global Life Sciences Sector brings together a worldwide network of 15,000 sector-focused professionals to anticipate trends, identify their implications and help our clients create competitive advantage. We can help you navigate your way forward and achieve sustainable success in the new health-outcomes-driven ecosystem.

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