

CES 2018

Less Excitement

Many Evolutionary Improvements

Fewer Innovative Leaps

(Point-of-Care Issues in US)

100 hours for 1 minute visits @ all exhibits*

* Allowing 30 seconds between exhibitors

Focus on Few Sectors

(speak with executives and engineers when possible)

Health – Wearables - Sports Devices and Equipment

Health Management Systems (not Apps) **End of Net-Neutrality** **a Major Plus**

- Some good innovation in bio-nano sensing
- Attempting to fill home-healthcare and “Point-of-Care” (PoC) diagnostics & **Therapy** **Beewell = CE mark**
 - **Time and Cost to Win CMS & Insurance Reimbursement after spending time and money achieving FDA**
- Many from CES 2017, 16, 15 not at CES 2018
 - **Shift to non-US markets – less expensive FDA trials** **Investors?**

Wearables and Sports

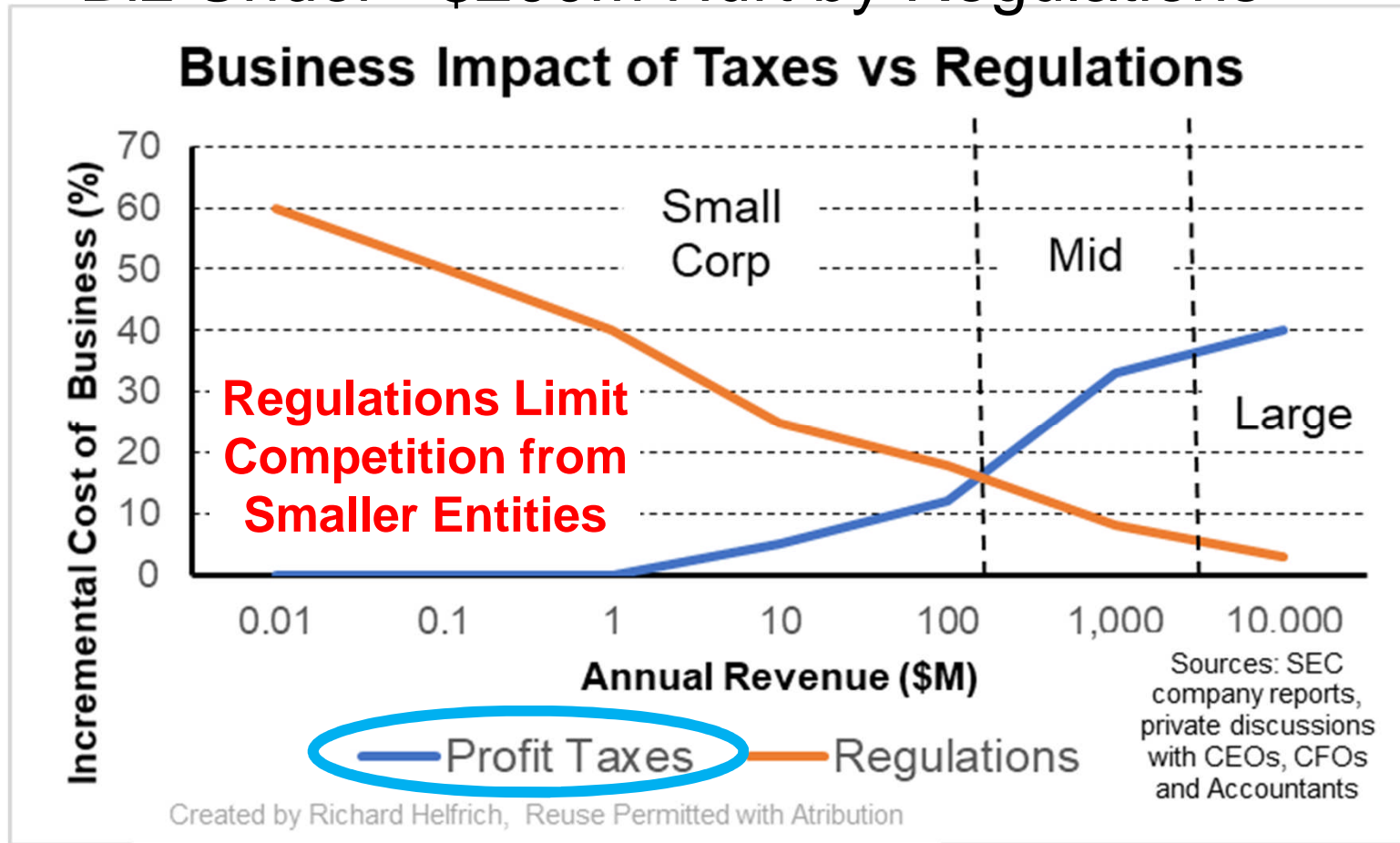
- Ultracompetitive Pricing (Fitbit?)
- Challenge of \$ and time to complete FDA for high-value wearable used for decisions on PoC Therapy i.e. Continuous Blood Glucose or similar

Payers!



Regulations vs. Profit Taxes* on Business

Biz Under ~\$200M Hurt by Regulations



* **Gross receipts taxes have excessive negative impacts on science based startups** that may achieve \$1B in cum revenue prior to achieving profits

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Complex Systems

Vehicles, Robots and Drones

Autonomous Vehicles

- Vehicle Improvements mostly cosmetic
 - i.e. sensors less noticeable (essential for consumers)
 - Focus on **Level 4 local** with Level 5 for freeways
 - Innovation in **LiDAR (using MEMS)** and **AI Processing**

Robots

Nvidia

- Limited capabilities at exhibitors (maybe more in R&D)
- **Asian companies investing heavily into R&D** to provide home services to rising % elderly with fewer working age adults

Sony

Drones

- Advanced commercial devices vs Cheap personal
 - i.e. Utility inspection with 5-hr mission and 6 lb payload

TV - Video Monitors

- **Larger Screens** (145 inch) What is too large?
 - Many TV makers believe **110-inch at \$2K will sell** to mass market and 140-inch can win luxury market
- **Image Enhancement** within each Frame
- **3D TV without Glasses** (8K resolution at 480 fps)
 - Requires **at least 50 megabit/second** using best compression (Motion at many Sporting events may need 200 Mbps)
- **Screen that Rolls-Up** (like a window shade)
 - 27-inch display for smart phones (no need for tablets)
 - 65-inch TV on 5G wireless – stored when not in use

Smart Home and Appliances

Smart Home with Home Automation

- Every device with IoT connectivity with ultra-low power consumption (power limits security as well)
- Too many Apps with little value
- Improved Sensors (**AerNos Chip** for NO_x, SO₂, CO, O₃, VOCs) (**Fraunhofer Ultra-Thin Camera**)

• Appliances

- Many with IoT Connections (**poor security?**)
- Some that **reduce consumer labor** show promise
 - Toto **self-cleaning toilet**
 - LG – **Steam Closet** to deodorize and de-wrinkle clothing