

Hal Wolf

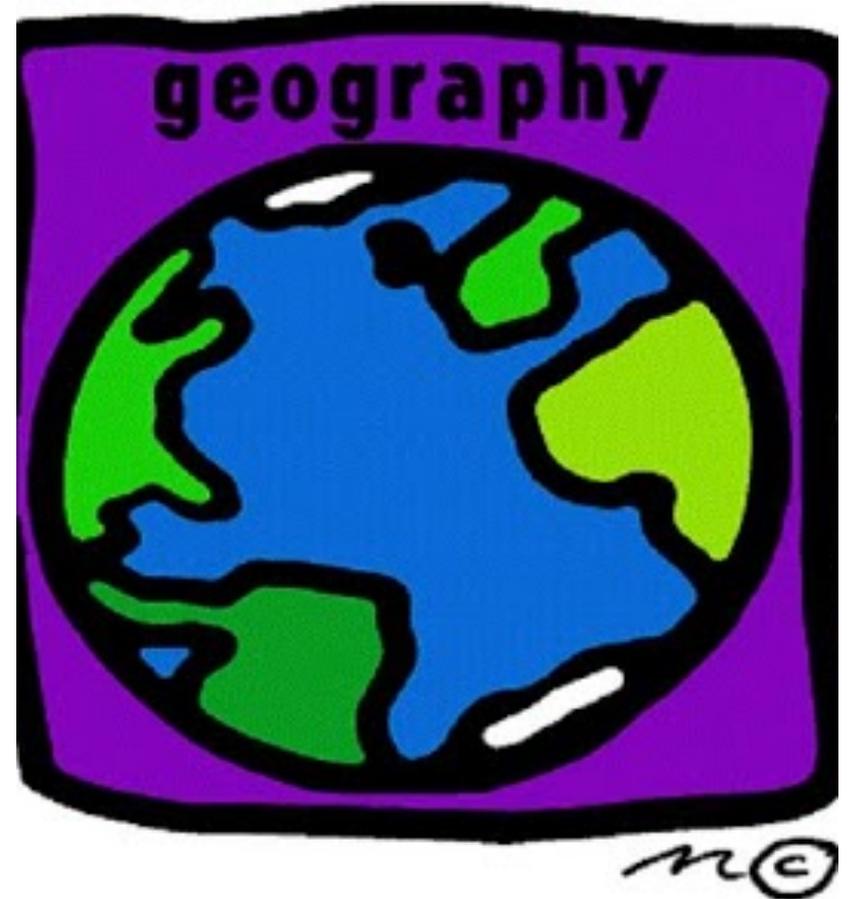
Digital Health and Consumerism

Danish Regions

6 April, 2017

Challenges in Most Systems

- Fastest Ageing Population
- High Chronic Disease Burden
- Geographic Displacement
- Extremely Challenging Funding System
- Highly Educated and Demanding Consumer
- Lack of Actionable Information



Key Priorities for Hospital Executives

The American College of Healthcare Executives surveyed of nearly 1,000 hospital executives to identify their existing concerns. Nearly every priority area extended opportunities for digital interventions.



**FINANCIAL
CHALLENGES**



**GOVERNMENT
MANDATES**



**PATIENT SAFETY
AND QUALITY**



**PERSONNEL
SHORTAGES**



**PATIENT
SATISFACTION**



ACCESS TO CARE



**PHYSICIAN-HOSPITAL
RELATIONS**



**POPULATION
HEALTH MGMT.**

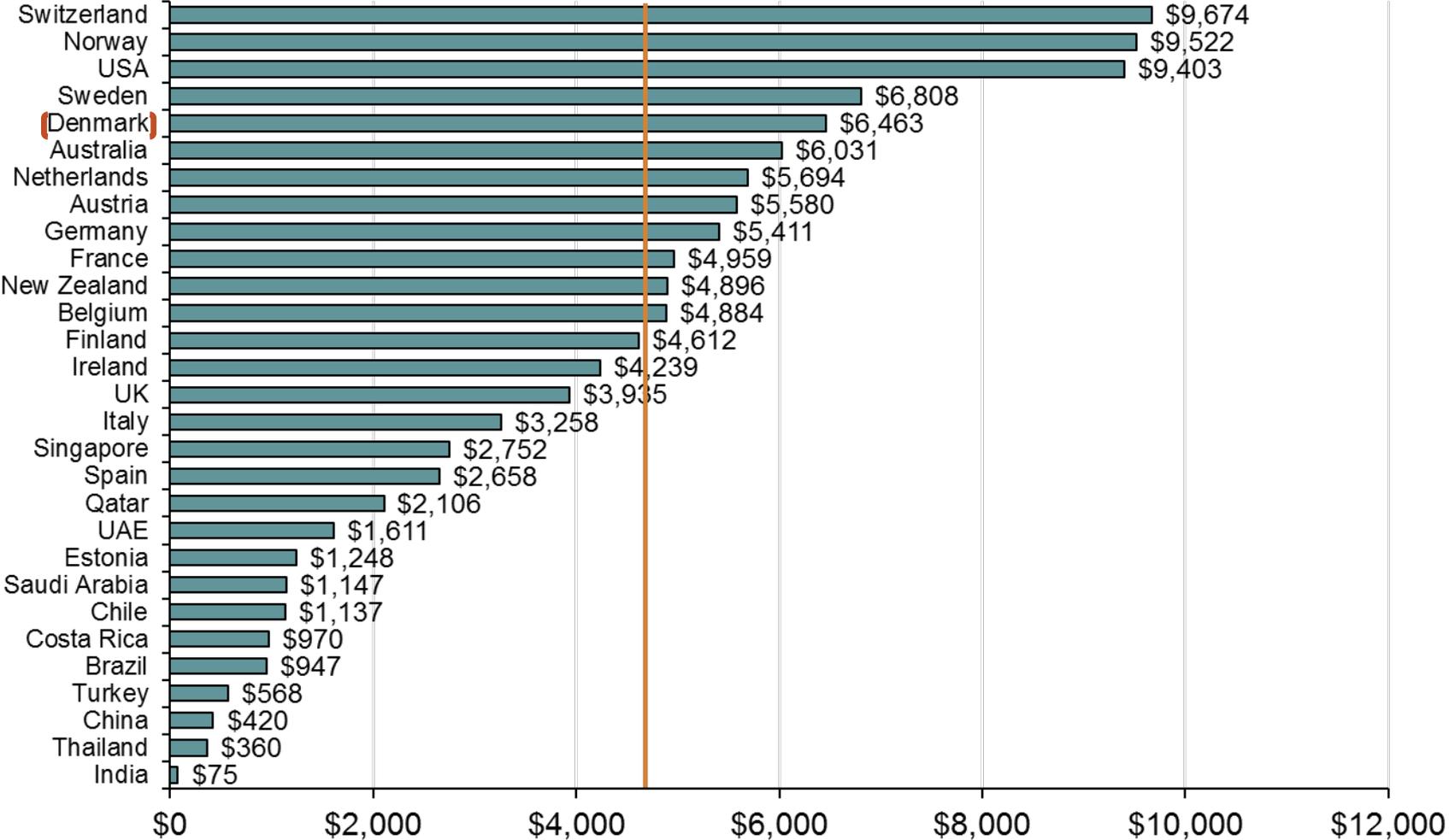


TECHNOLOGY



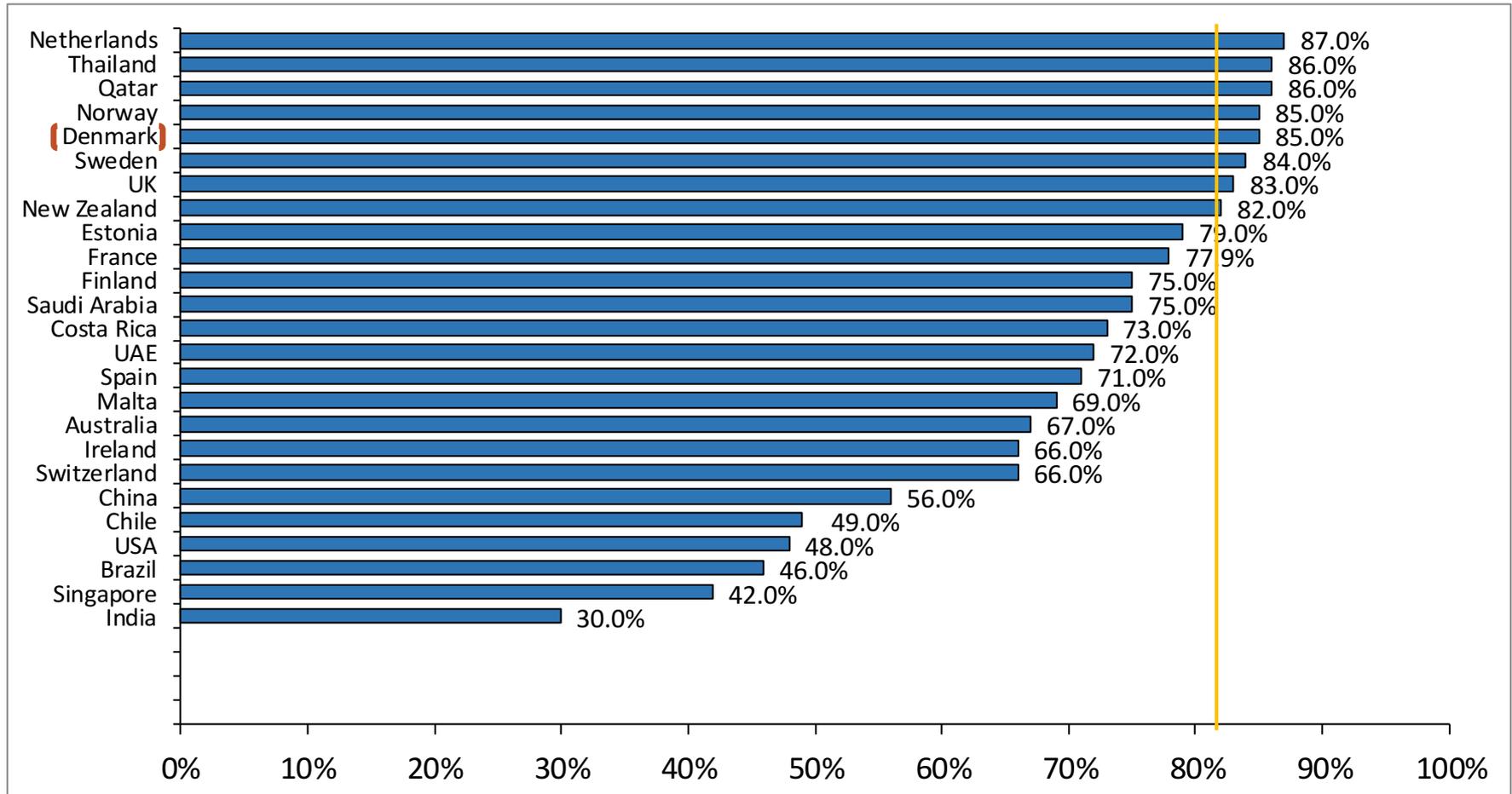
**REORGANIZATION
(M&A,
PARTNERSHIPS)**

Total Health Expenditure per Capita, USD, 2014



Source: World Health Organization, Global Health Expenditure Database 2014

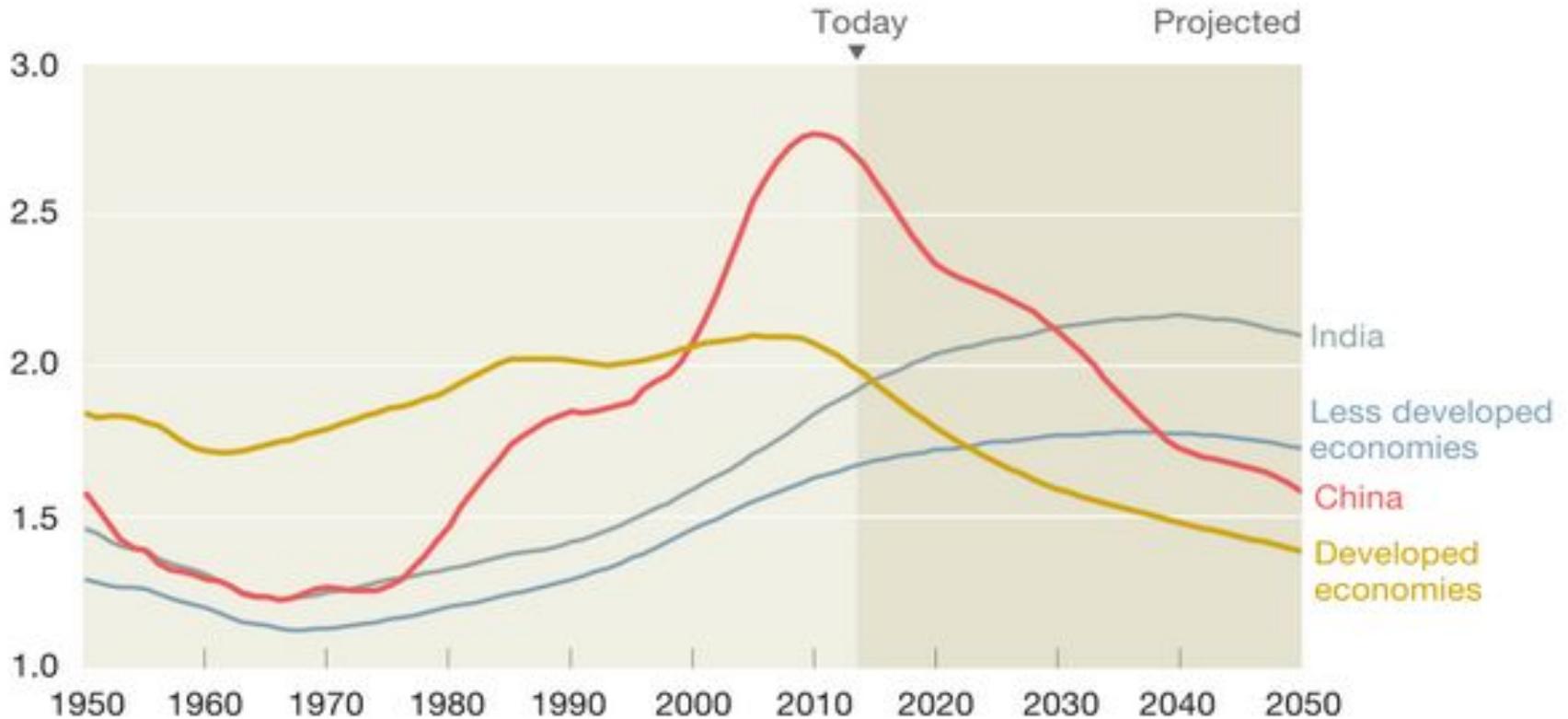
Public Share of Total Health Expenditure, USD, 2014



Source: World Health Organization, Global Health Expenditure Database 2014

Economics of Healthcare

Number of workers per dependent,
ratio of working-age population (aged 15–64) to dependent
population (aged 0–14 and over 65)



Source: United Nations population statistics; McKinsey analysis

Who Holds the Risk?

- National
- Regional
- Municipality
- Acute Facility
- Provider Group



Defining Digital Health

Digital Health By Any Other Name



“When I use a word,” Humpty Dumpty said in rather a scornful tone, “it means just what I choose it to mean – neither more nor less.”

Lewis Carroll



Telehealth

Telemedicine

Mobile Health (mHealth)

Virtual Health

Bio Med Devices (Wearables)

Defining the Care Setting

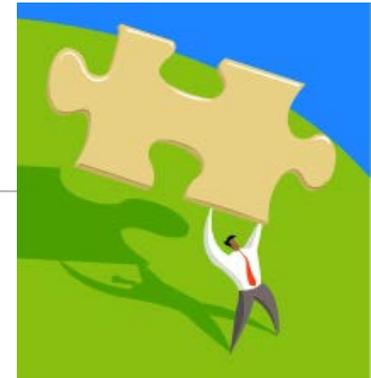
How We think of Care Delivery and the Medical Model

**Primary
Prevention**

**Secondary
Prevention**

**Acute
Care**

Chronic Care



The Continuum of Care

Care Delivery Models Are Becoming More Complex

Least Coordinated	Models of Care	Characteristics	Participants	Clinical System Roles
	Traditional Primary Care	<ul style="list-style-type: none"> Relationship, holistic, and access 	<ul style="list-style-type: none"> Patient Primary Care Physician (PCP) 	<ul style="list-style-type: none"> Minimal use of Clinical Decision Support tools
	Chronic Care Model	<ul style="list-style-type: none"> Use registries and teams to provide proactive care to patients with specific chronic conditions 	<ul style="list-style-type: none"> Patient PCP Chronic Care Team 	<ul style="list-style-type: none"> Registries using clinical data to prompt follow-up and outreach
	Primary Care Medical Home	<ul style="list-style-type: none"> Combines traditional primary care with chronic care model, PCP as focus 	<ul style="list-style-type: none"> Patient PCP Primary Care Team 	<ul style="list-style-type: none"> Primary care clinical data potentially augmented with claims data from other settings
	Medical Neighborhood	<ul style="list-style-type: none"> Brings providers of patient care together in an integrated way (real or virtual) 	<ul style="list-style-type: none"> Patient PCP Multiple Care Teams Specialists Hospital/community resources 	<ul style="list-style-type: none"> All providers across the continuum can access clinical information and proactively use Clinical Decision Support tools to improve care
	Integrated Delivery Systems	<ul style="list-style-type: none"> Like medical neighborhood, plus infrastructure, financing and governance KP, Intermountain are exemplar, ACOs trying to recreate this model 	<ul style="list-style-type: none"> Same as medical neighborhood ACO requires a central governing body and a medical director 	<ul style="list-style-type: none"> End-to-end patient view of clinical/care data and financial data
Most Coordinated				

Integrated Delivery System with Coordinated Care



More than assembling the pieces of a puzzle

To be successful ***"the integrated whole"*** must deliver ***substantially more value*** to all within the system ***than the "sum of the parts"***

- ✓ The right care to the right patient at the right time in the most appropriate setting
- ✓ Shared commitment to eliminating functional, structural, funding impediments to efficiency
- ✓ Aligned incentives across and within entities – no one benefits by sub-optimizing partners
- ✓ Rational Technology to support the end to end vision of care

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A Patient's View

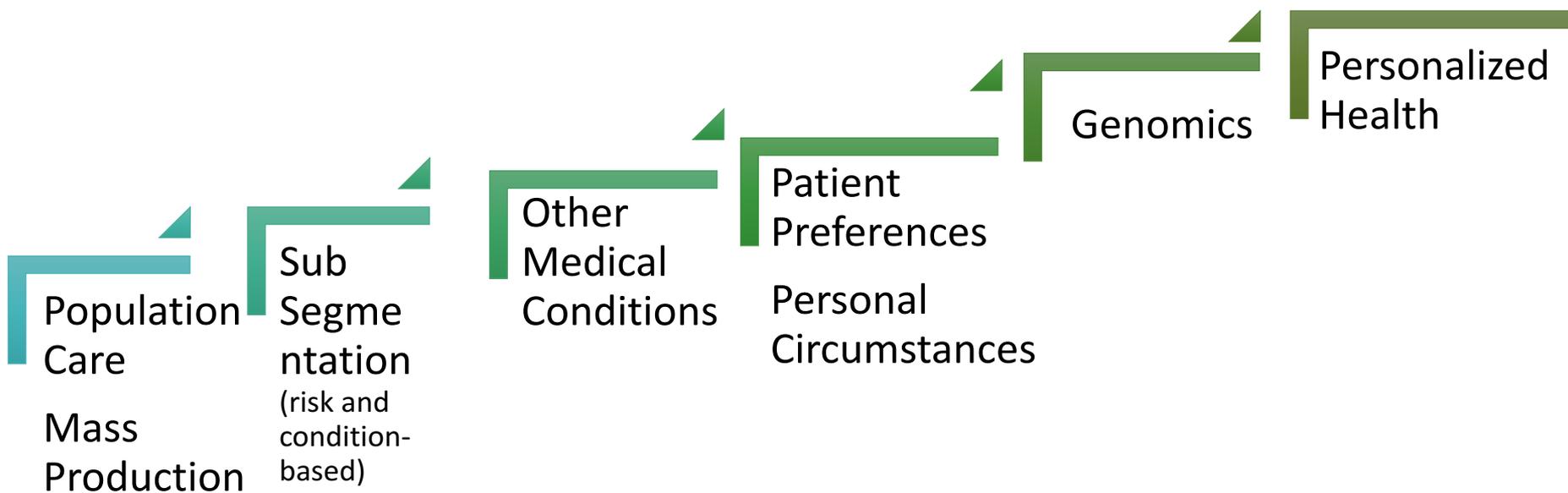
Meet Bandit and Adam



Who had the First Patient Registry for Prevention?



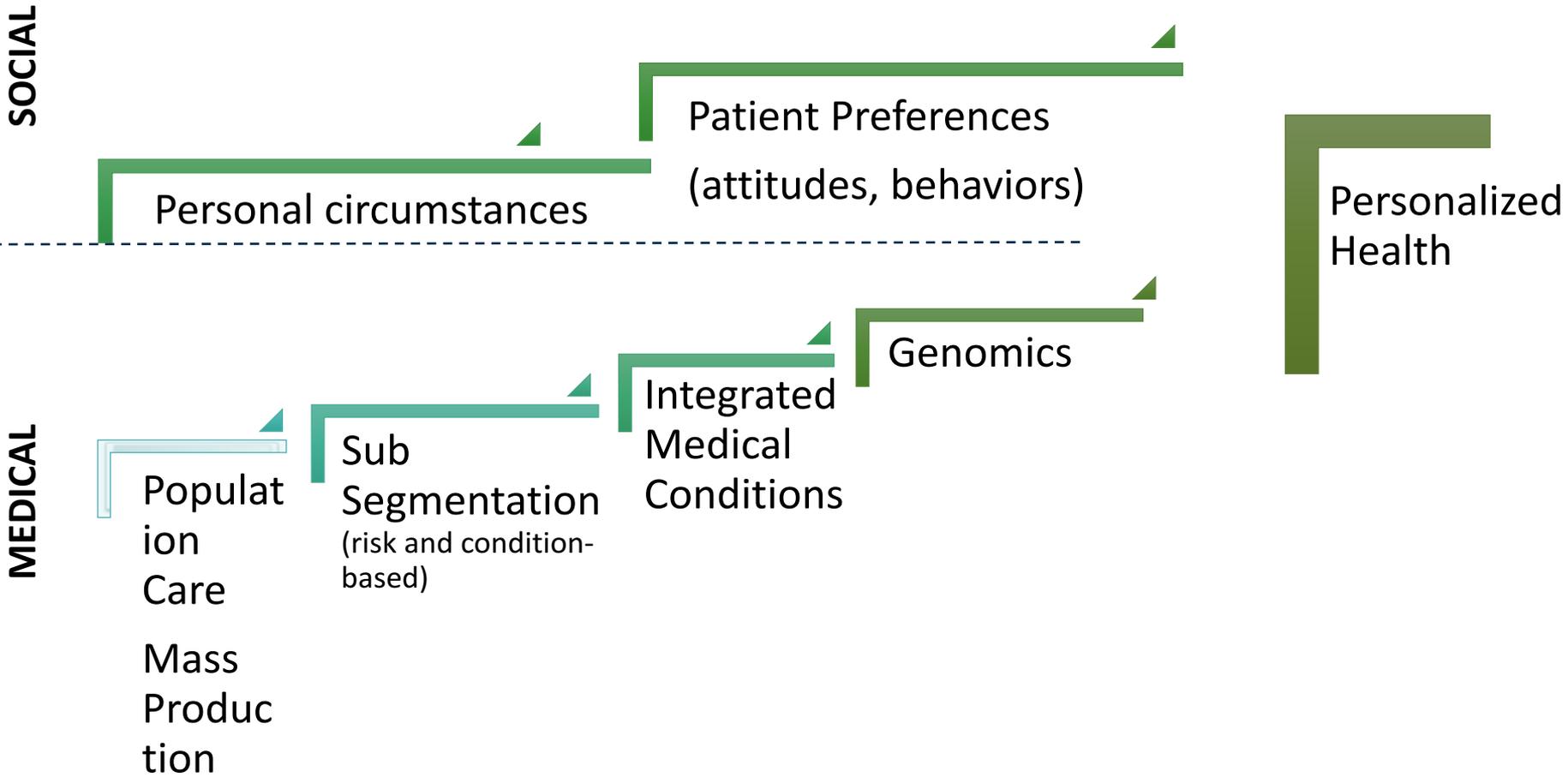
We Support the Medical Model with the Increased Use of Information



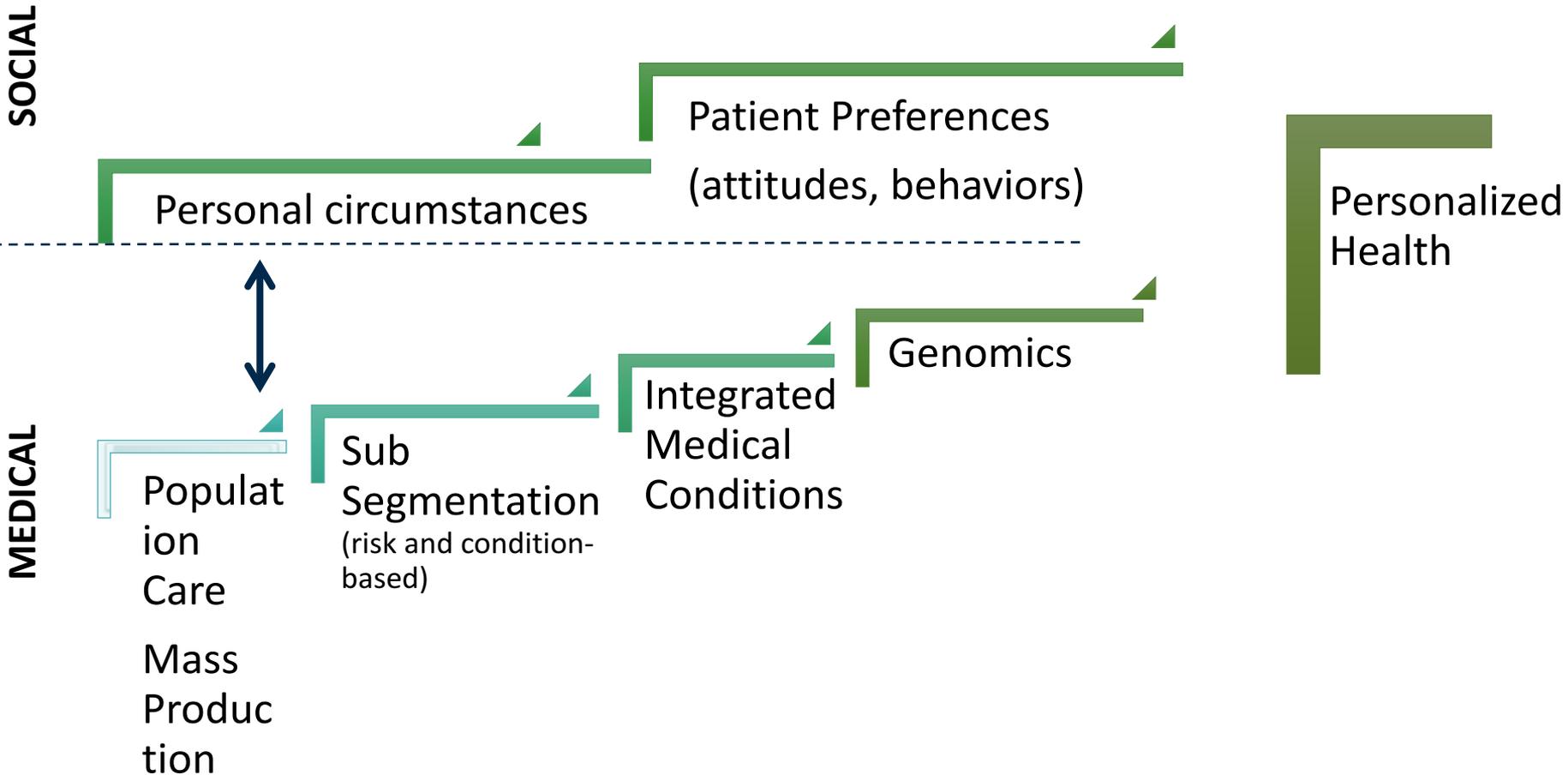
But There's a Catch



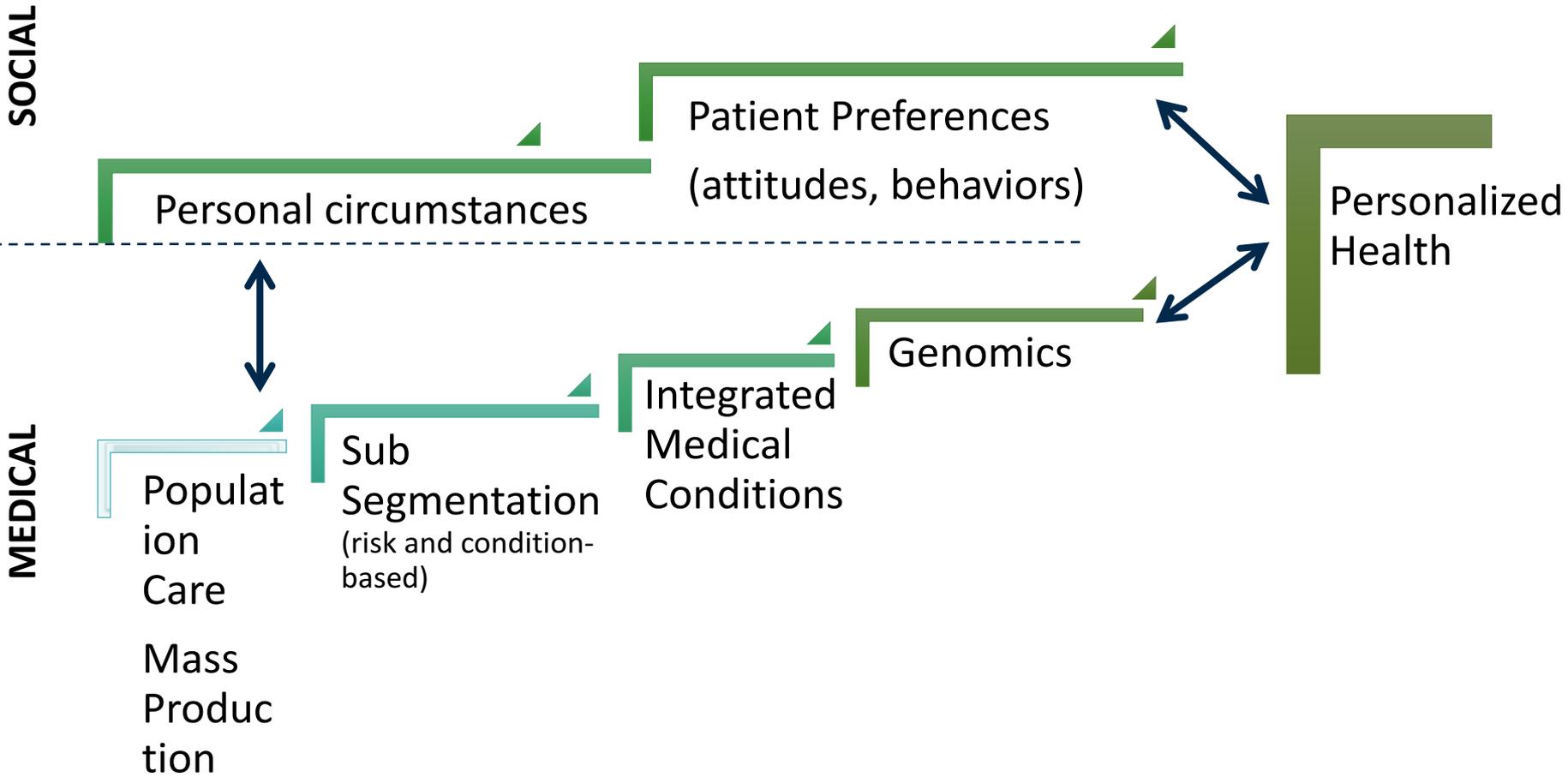
Moving From Medical to Health Model



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Moving From Medical to Health Model



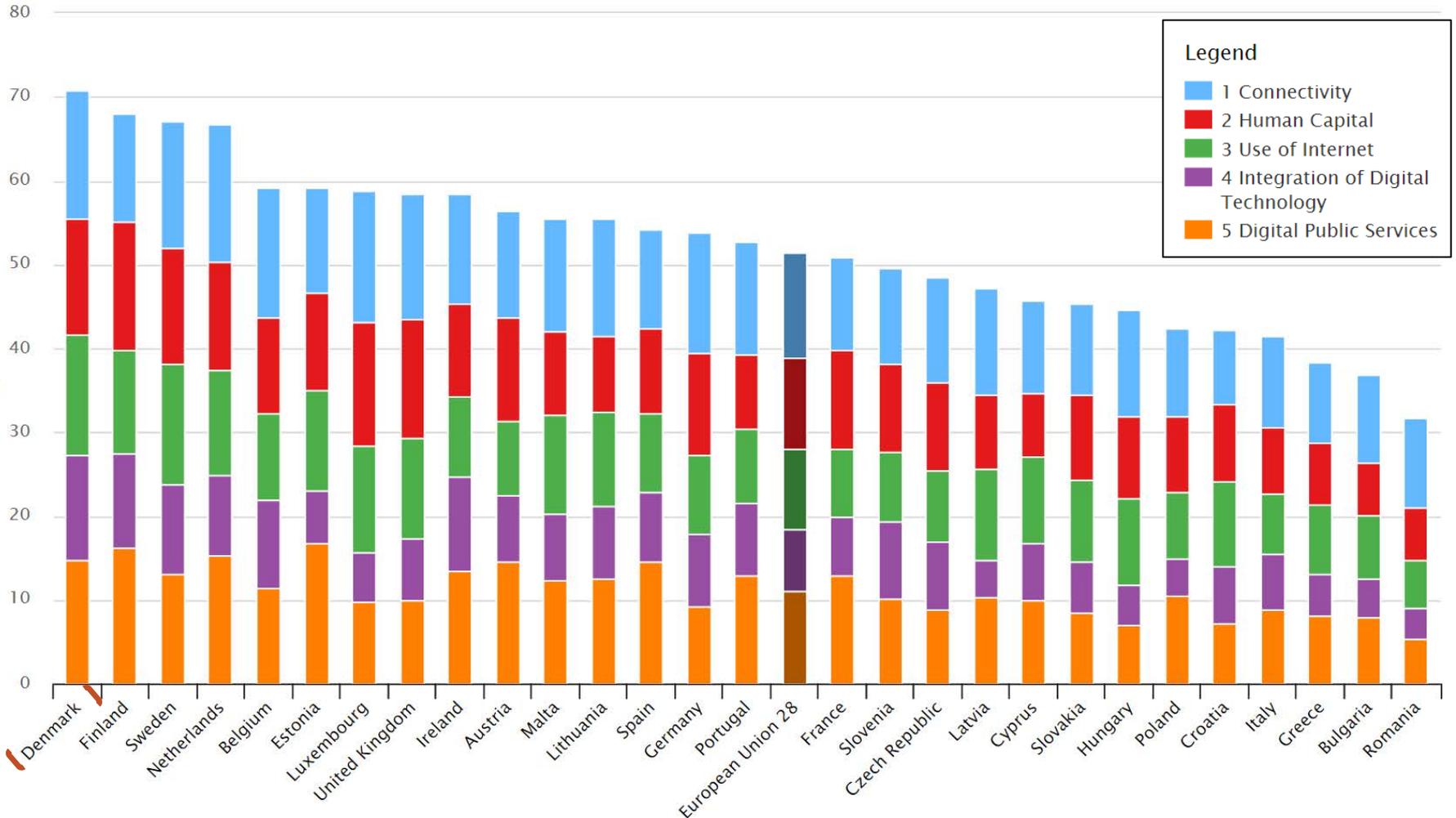
Danish Expectations in the Digital Economy and Society Index

The Digital Economy and Society Index (DESI) is a composite index, which the European Commission publishes each year. The index measures the progress of EU countries towards a digital economy and society. The DESI is comprised of the five principal policy areas:

- 01** | **Connectivity** measures the deployment of broadband infrastructure and its quality.
- 02** | **Human Capital** measures the skills needed to take advantage of the possibilities offered by a digital society. Such skills go from basic user skills that enable individuals to advanced skills that empower the workforce enhanced productivity and economic growth.
- 03** | **Use of Internet** accounts for the variety of activities performed by citizens already online. Such activities range from online content (videos, music, games, etc.) to communications and commerce.
- 04** | **Integration of Digital Technology** measures the digitization of businesses and their exploitation of the online sales channel.
- 05** | **Digital Public Services** measures the digitization of public services, focusing on eGovernment. Modernization and digitization of public services for the delivery of better services for the citizen.

Digital Economic and Society Index (DESI)

Denmark, Finland, Sweden and the Netherlands have the most advanced digital economies in the EU followed by Luxembourg, Belgium, the UK and Ireland.



Problem Statement

New opportunities exist to integrate the disparate components of the healthcare ecosystem, create greater connectivity and build 24/7 access to care.

- Healthcare is undergoing the same disruptive technology-enabled shift that banking, travel and transportation industries experienced over the past decade.
- Providers need to connect to an individual's wellness preferences and create an extended network allowing better coordination to and among providers through the consistent use of evidence-based clinical pathways, personalizing care.
- Previously semi-automated, cumbersome and inefficient processes can be eliminated, while simultaneously presenting new ways to individualize information, primary and secondary prevention and service focused care delivery.
- Providers that are able to harness the extraordinary amount of data produced in a health system, and effectively employ these data to both adapt their market strategy and transform internal business processes will be at a competitive advantage.

What is Digital Strategy?

Digital strategy is the use of technology enabled innovation to extend and deepen connectivity between the health system and its consumers, clinicians, payors and care continuum partners



An effective Digital Strategy not only connects the components of a provider's healthcare ecosystem, but uniquely leverages their interconnectivity to create enduring strategic advantage.

Consumer Preferences Driving Changes in the Healthcare Landscape

Global Digital Health Market

	Telecare	Telehealth	Applications	Wearables	Health Analytics	Digital Health Systems
2014* (\$ millions)	1,240	910	2,750	1,820	4,120	18,360
2018* (\$ millions)	1,440	1,540	13,740	3,870	9,000	24,100
2014 -2018 CAGR	4%	14%	49%	21%	22%	7%

*global market size

- **The global digital health market was worth \$29 billion in 2014 and expected to grow to \$54 billion by 2018.**
- **North America is expected to maintain its lead in the market.** This is due to improved healthcare infrastructure, increased healthcare spending, and initiatives taken by various government associations for the implementation of digital health technologies in healthcare facilities.
- **Europe is expected to witness marginal growth in this market in the near future,** mainly due to growing aging population, increasing prevalence of chronic diseases, and technological advancements in HIT.
- **The Asian region is expected to witness the highest growth globally.** This is mainly due to increasing patient demand and life expectancy, and upsurge in the occurrence rate of different chronic diseases.
- Key companies operating in the global digital health market include **AT&T, Cerner, Cisco Systems, General Electric, McKesson, Koninklijke Philips N.V., Qualcomm, eClinicalWorks, Allscripts, athenahealth, Healthland, and Epic Systems.**

Source: Research And Markets, Global Digital Health Market Size, Share, Development, Growth and Demand Forecast to 2020; Deloitte, Digital Health in the UK, 2015

Growing US Consumer Preferences and Planned Adoption of Digital Health Technologies

71%

ONLINE HEALTH INFORMATION
Use of online or mobile resources to search for specific health topics

Healthline WebMD

50% +17%

ONLINE HEALTH REVIEWS
Use of online or mobile resources to find reviews of doctors or healthcare services

healthgrades ZocDoc

Knowledge Management

17% +28%

MOBILE HEALTH TRACKING
Use of a mobile health application to track one or more health-related factors

myfitnesspal NIKE+ RUNNING

12% +30%

WEARABLES
Ownership of wearable devices that help track key health-related factors

fitbit JAWBONE

Mobile Devices

7% +39%

Use of video-based technologies to receive medical care or advice from a healthcare professional

AMERICAN WELL TELADOC

Telemedicine

7% +26%

Consumer-driven use of genetic-based services including family planning and personal DNA

23andMe Counsyl

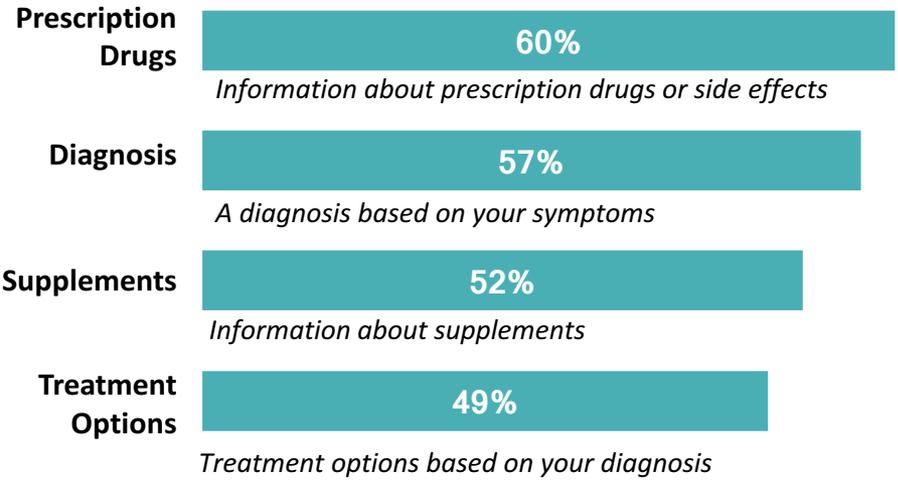
Genetic Services

Source: Rock Health, Digital Health Consumer Adoption: 2015, accessed Feb. 2016 Consumer survey data, n=4,017

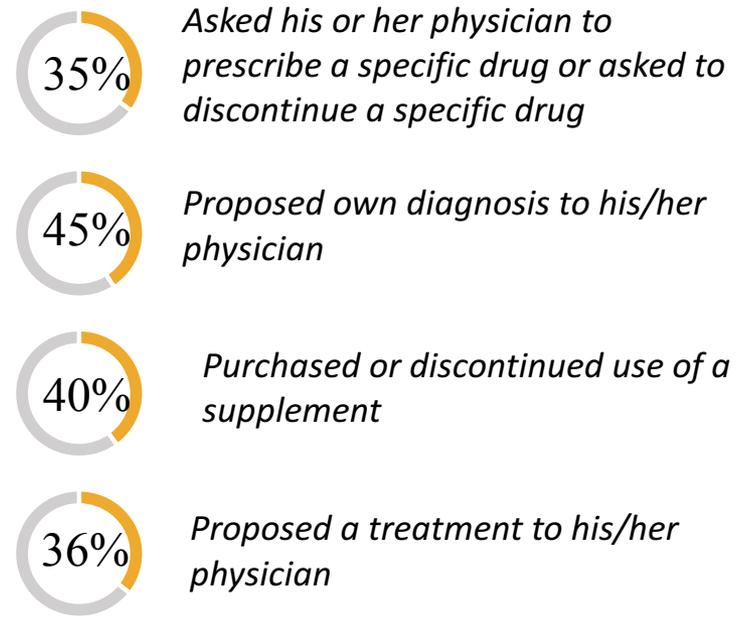
Knowledge Management and Consumer Actions

Searching online for health information is the most well-adopted digital health category, with 40% of those who search acting directly upon the information they find.

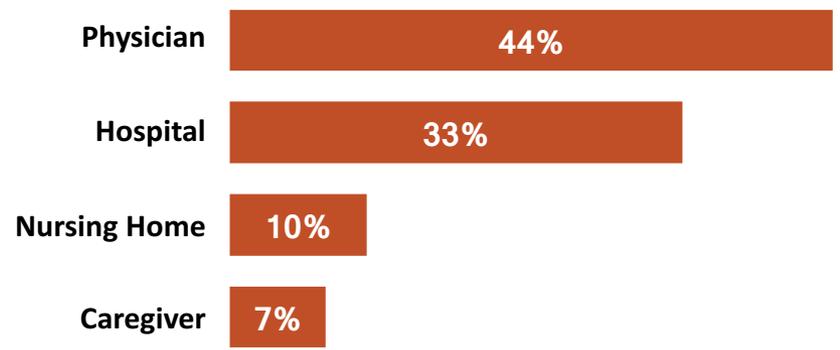
Searched for INFO.



% Acted Upon Information



Searched for REVIEWS



Nearly half of Americans go online to find provider reviews.

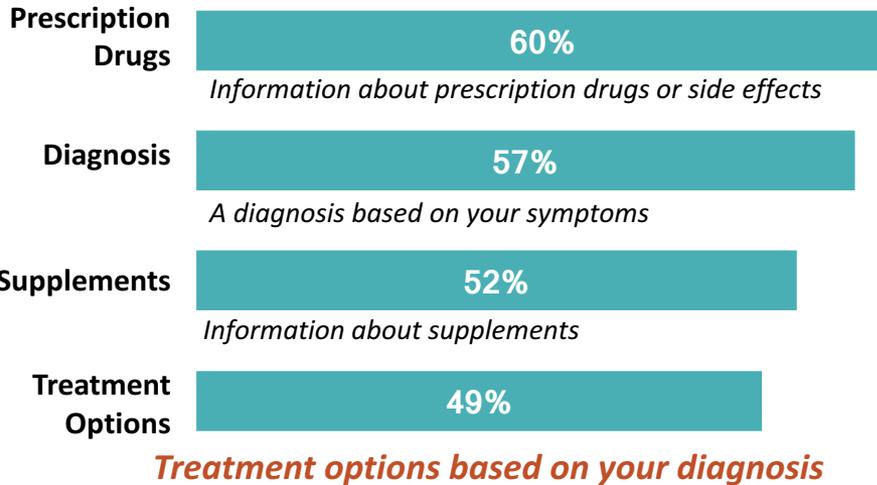


While adoption of searching for health information online is strong, **consumers still rank physicians, friends, and family highest when it comes to trustworthiness of sources.**

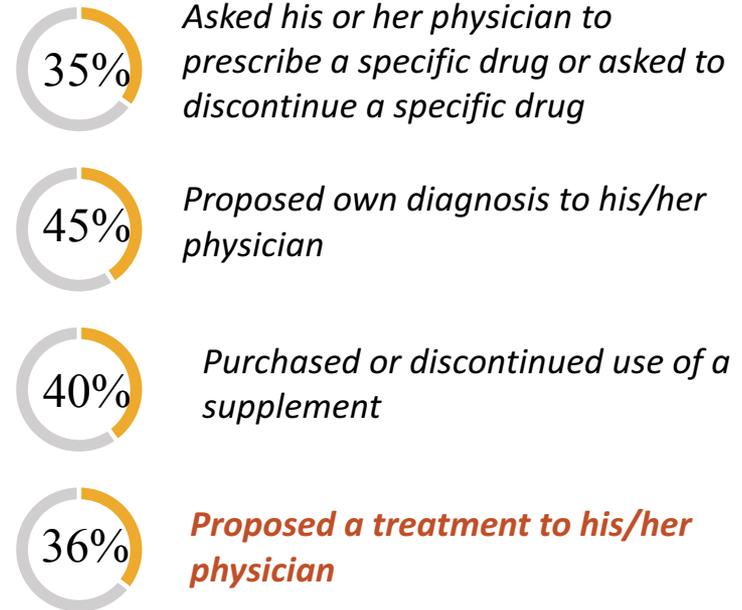
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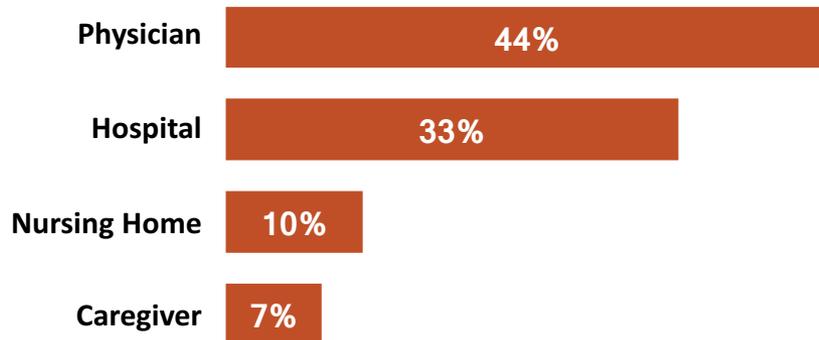
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Home Care: Digital Health and Mobile Devices

In a survey of 250 home care users (either seniors receiving home care or loved ones arranging it), many saw technology, including wearables and mobile devices, as a way to improve health care management.

88%

said they would value access to an online or mobile app providing information about their loved one's home care visits.

75%

said they would pay a premium for that access. (34% said they would pay more than \$25).

87%

said they would be able to answer three to give questions on a tablet after each visit.

Respondents were asked about other areas of home care where they predicted wearables playing a role in the future:



52% said they could alert home care providers about unusual changes in activity level, heart rate, or temperature.



50% saw value in reminding providers about things like appointments, prescriptions, and meal times.



40% thought wearables would be impactful by sending real-time alerts from a home care agency to a member or their emergency contact.



40% hoped wearables could diagnose potential ailments in home care recipients.

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Telemedicine

Usage of telemedicine is highest amongst the 35-54 age bracket across all mediums, with adopters reporting high satisfaction.



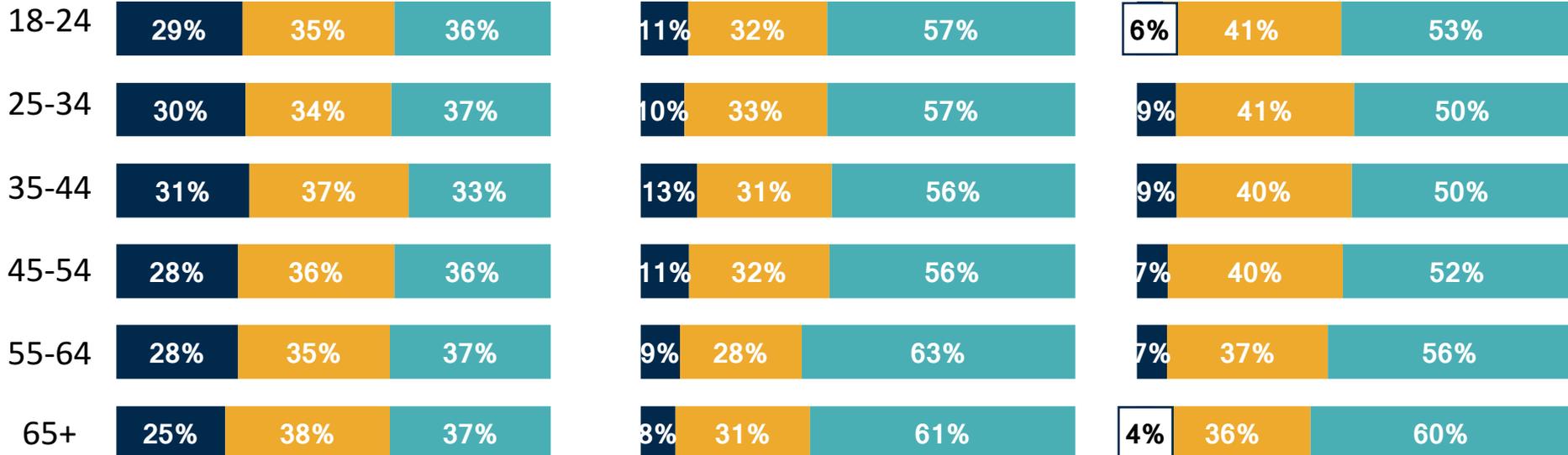
E-MAIL
28%
overall adoption



TEXT MESSAGE
12%
overall adoption



VIDEO
7%
overall adoption



Used
 Planning to Use
 No Plans to Use

Consumer survey data, n=4,017
Source: Rock Health, [Digital Health Consumer Adoption: 2015](#), accessed Feb. 2016

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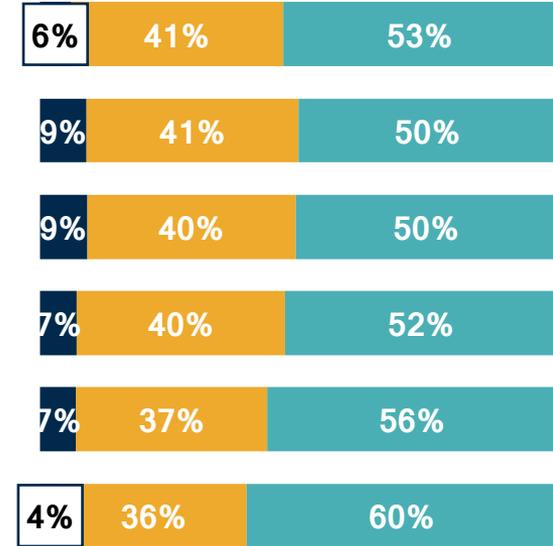
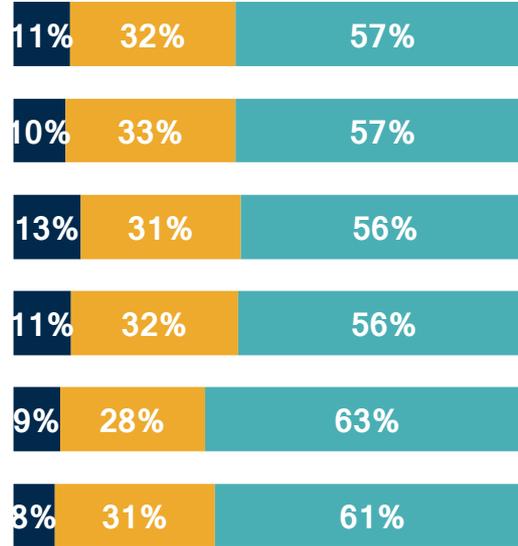
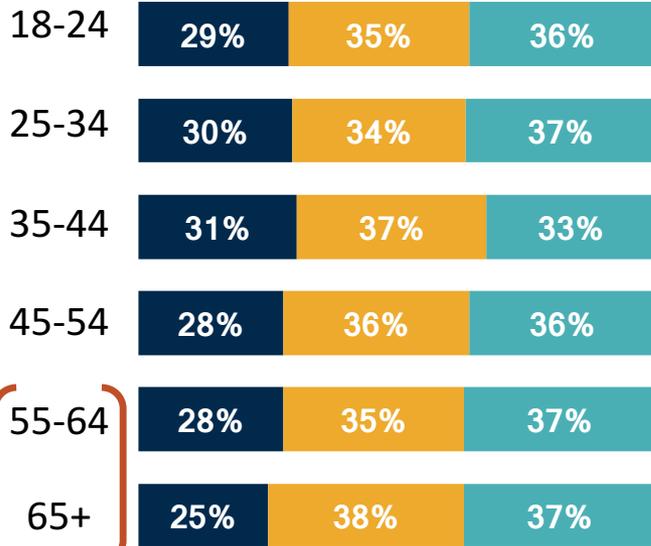
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overall adoption



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 Planning to Use
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Consumer survey data, n=4,017

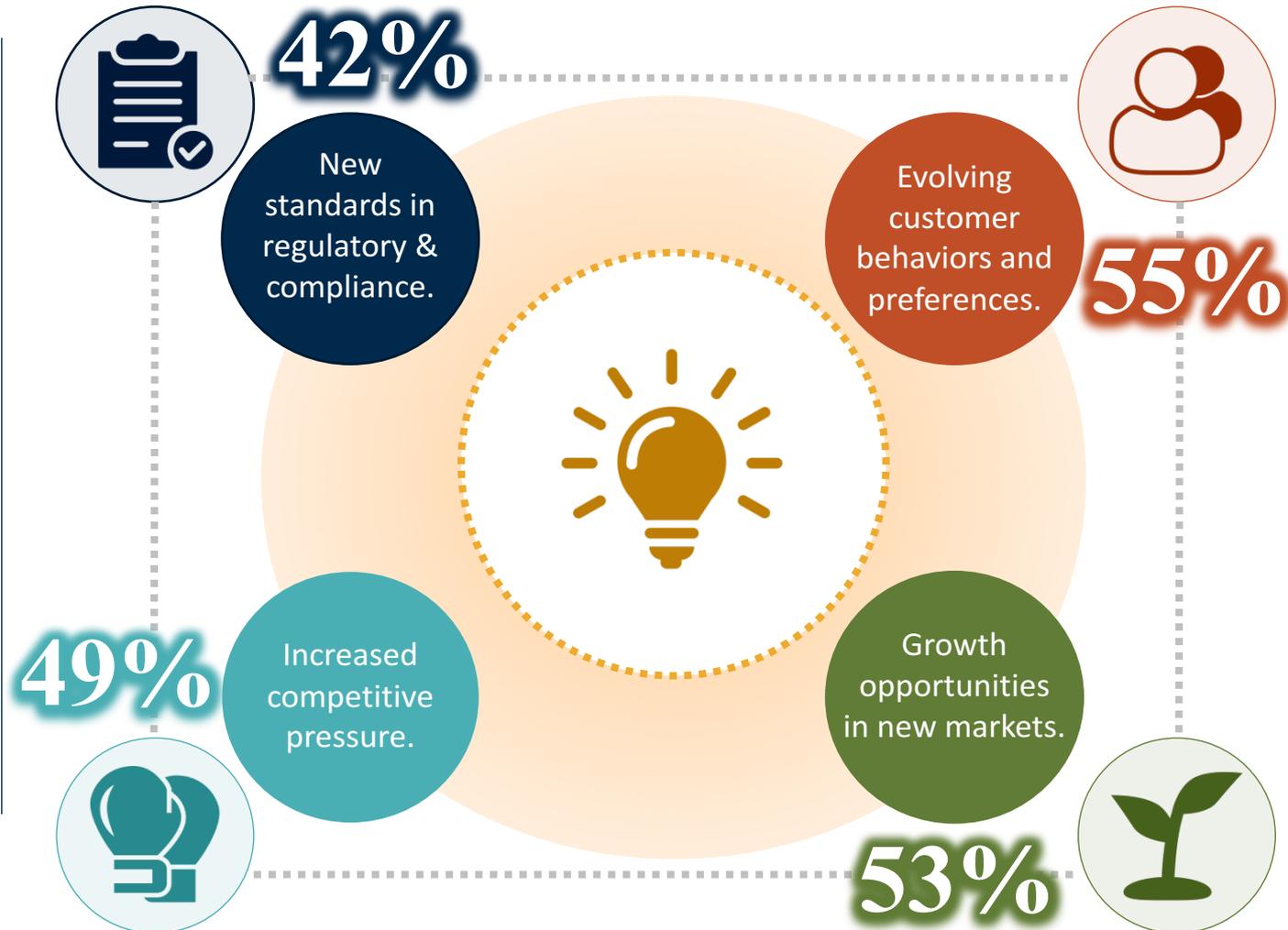
Source: Rock Health, [Digital Health Consumer Adoption: 2015](#), accessed Feb. 2016

Top Drivers of Digital Transformation

In a survey conducted by Altimeter, they identified four drivers of digital transformation within organizations.

Question:

What are the key drivers of digital transformation within your organization? Drivers are trends or factors that catalyze change.



Source: Altimeter, [The 2016 State of Digital Transformation, 2016](#)

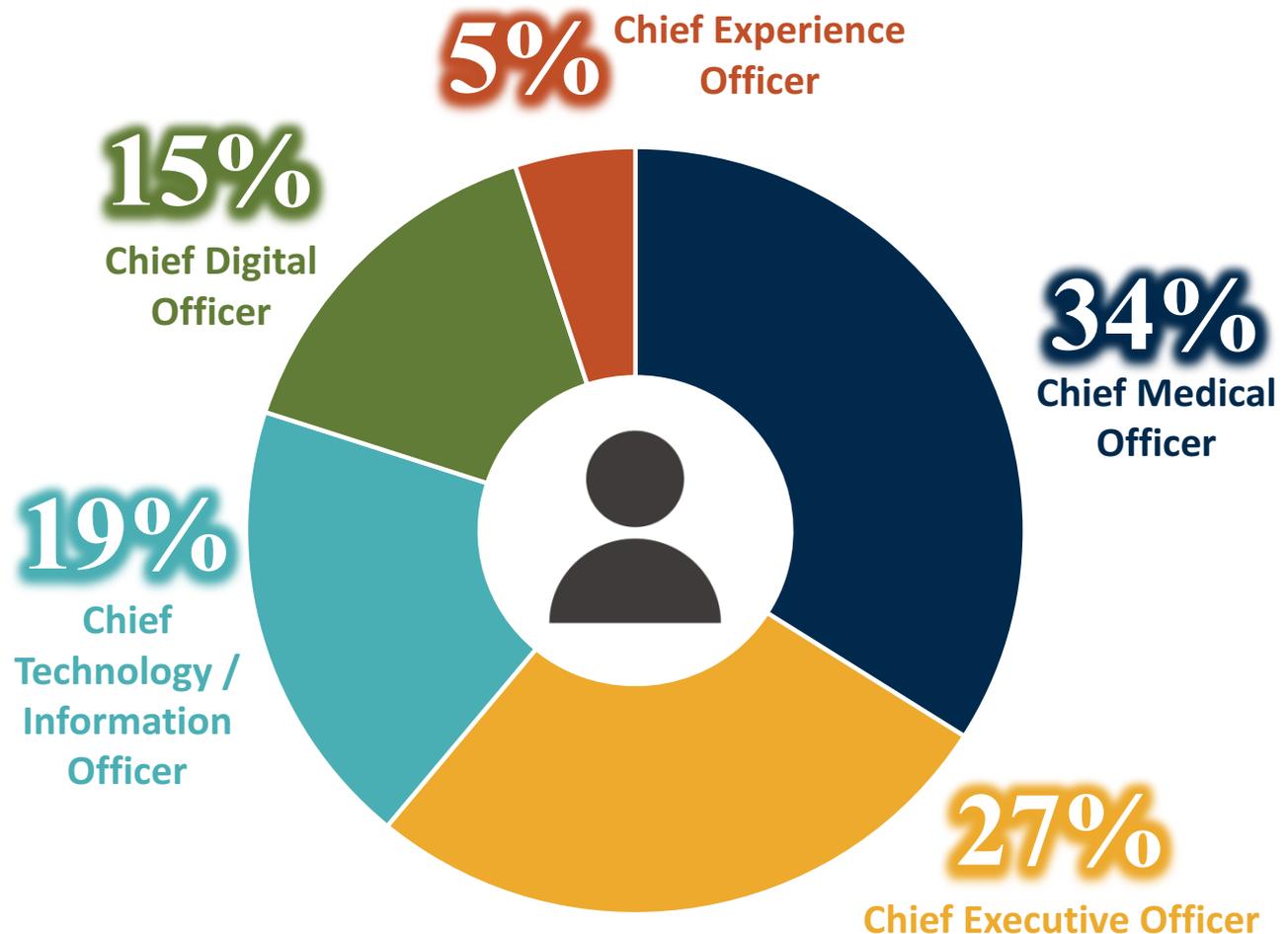
n=500+

Digital Transformation Leadership from the C-Suite

Digital transformation is expanding the roles and responsibilities of the C-Suite, but most initiatives are being led by the Chief Medical Officer.

Question:

Which executive is leading the digital transformation initiative?

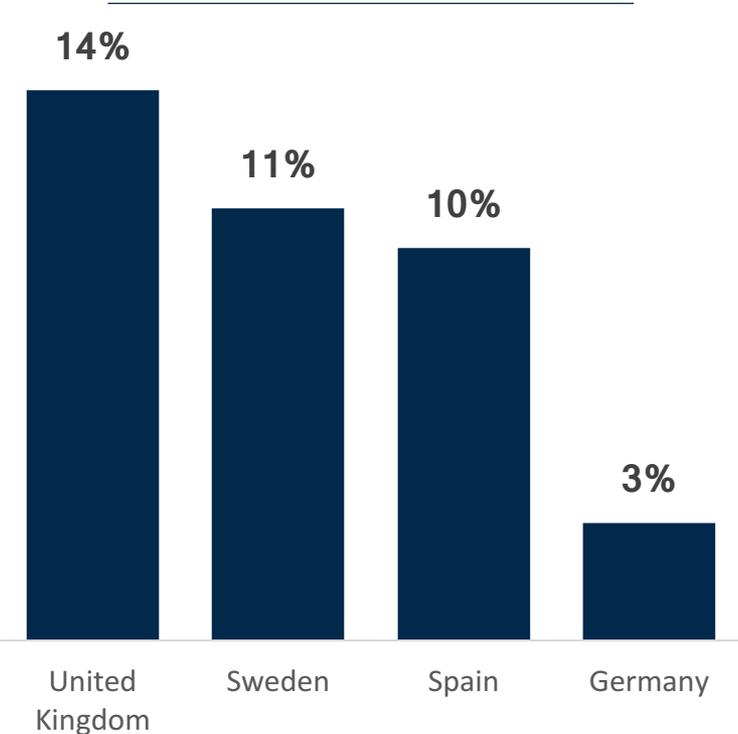


Source: Altimeter, [The 2016 State of Digital Transformation](#), 2016

n=500+

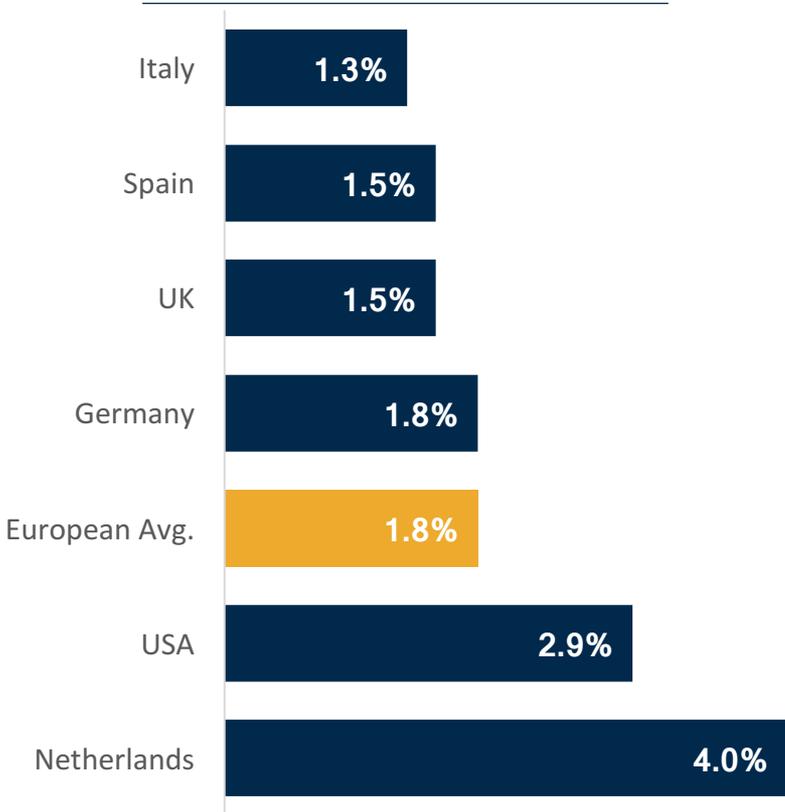
Digital Health in the Global Community

Telecare penetration in selected European countries, as a % of 65+ population



Telecare penetration tends to be higher in markets where telecare is funded or heavily subsidized by the state such as the UK, Spain, and Sweden. Pricing varies by market due to variations in market maturity and structure; public-pay markets tend to have lower prices.

Estimated Healthcare IT spend as a percentage of total hospital spend, 2013 (%)

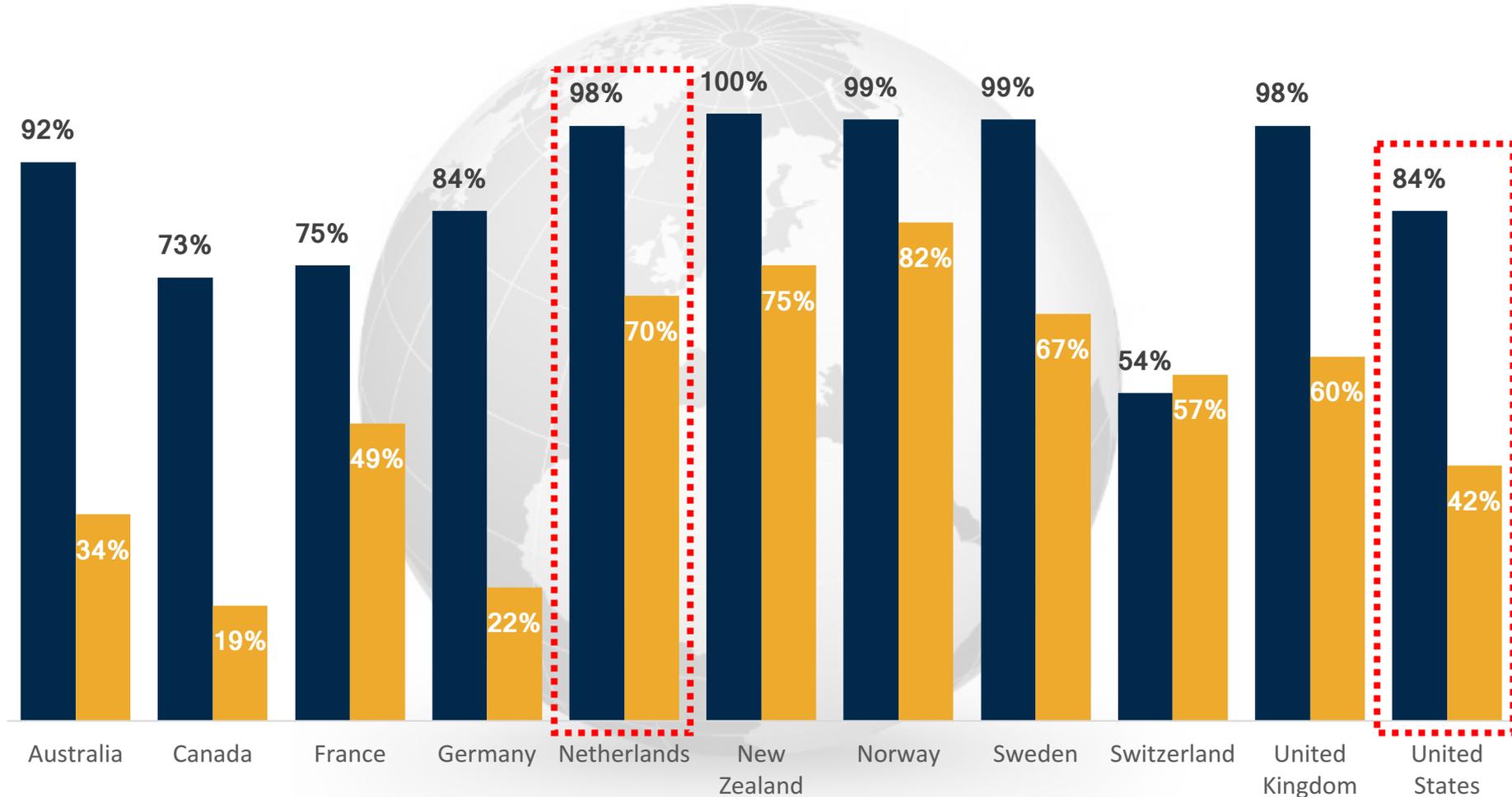


Source: Deloitte, [Digital Health in the UK, 2015](#)

Doctors' Use of EMRs in Their Practice, 2015

Percent of PCPs reporting they use an electronic medical record

Percent of PCPs reporting they can electronically exchange patient clinical summaries with doctors outside of practice

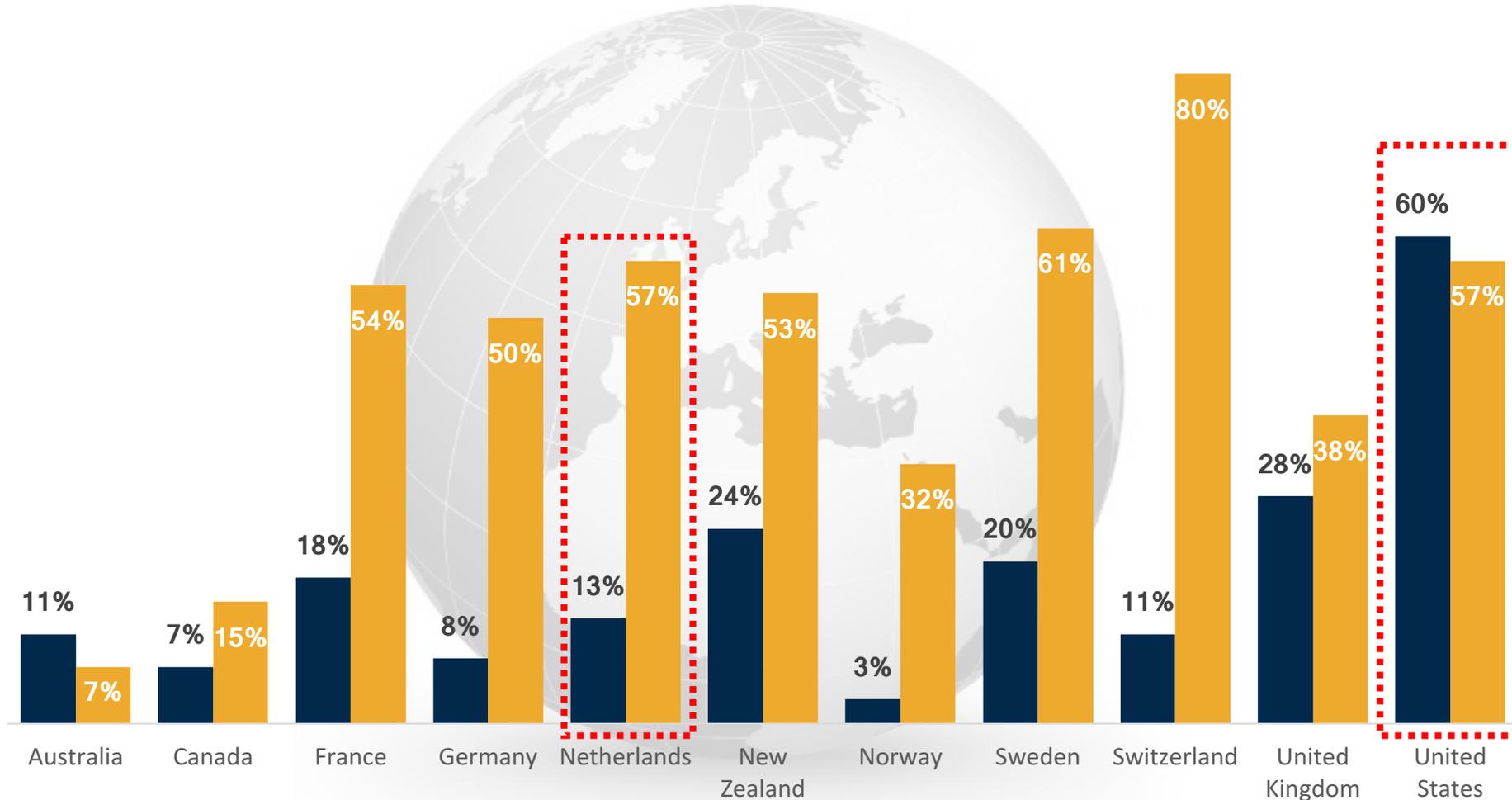


Source: 2015 Commonwealth Fund International Health Policy Survey of Primary Care Physicians

Digital Health and Patient Control

Percent of PCPs reporting their patients can e-mail about a medical question or concern

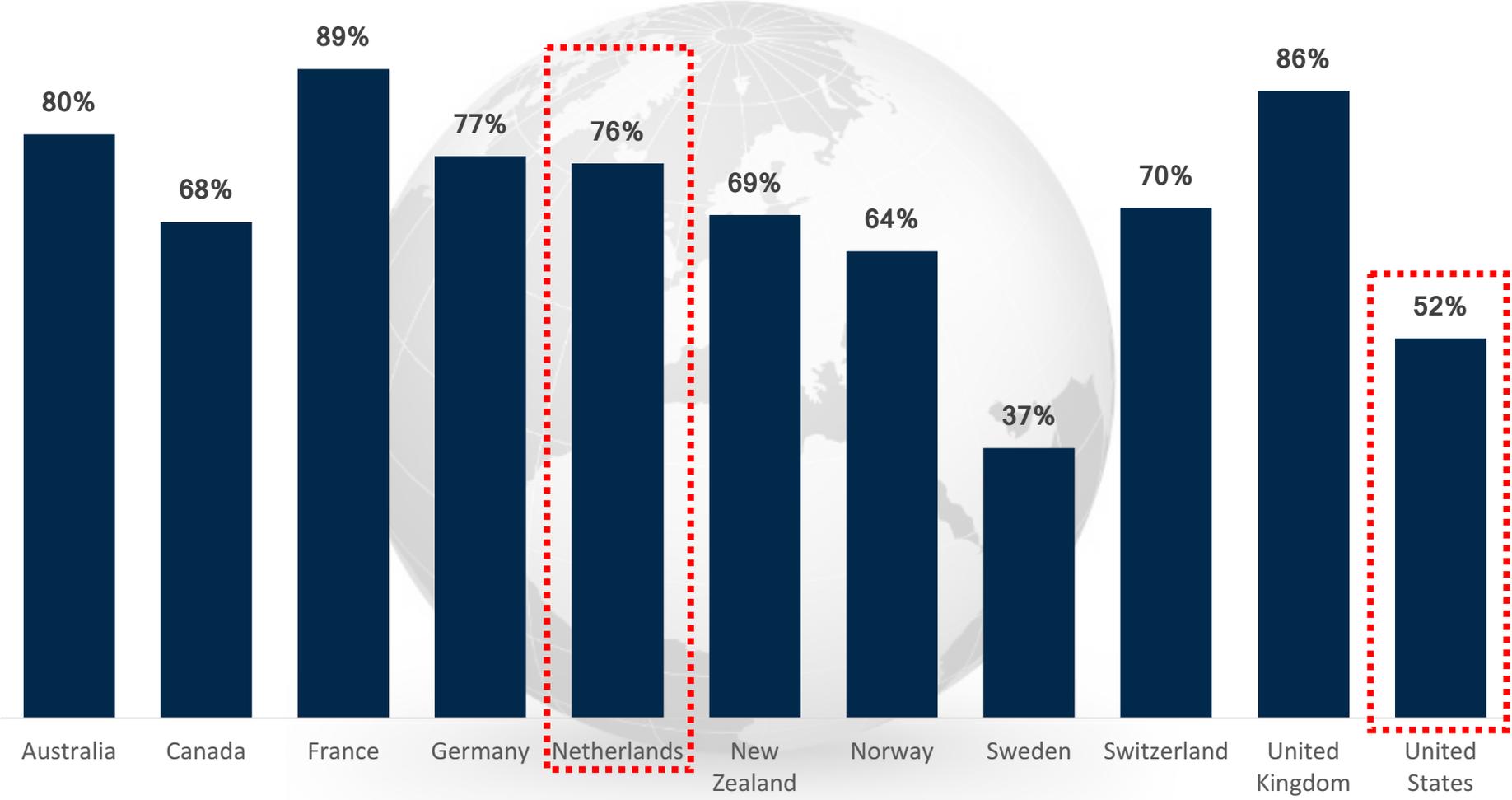
% of PCPs reporting their patients can view online, download, or transmit information from their record



Source: 2015 Commonwealth Fund International Health Policy Survey of Primary Care Physicians

Satisfaction with EMRs

Percent of PCPs reporting that they are very satisfied with their EMRs



Source: 2015 Commonwealth Fund International Health Policy Survey of Primary Care Physicians

Moving Beyond Visit-Centric Medicine



Traditional Encounter Based Care

- One patient at a time
- Only know about patients who appear in your office
- No use of IT
- Limited use of data



New Model Elements

- Accountability for panel/population
- Transparency
- Use of EMR, registries, mobile
- Team care (including patient)
- Moving care out of doctor's office

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Innovation as an Emerging Core Competency for Healthcare Providers...?

How is Innovation Described?

TO IMPROVE IS
TO CHANGE;
TO BE PERFECT
IS TO CHANGE
OFTEN.

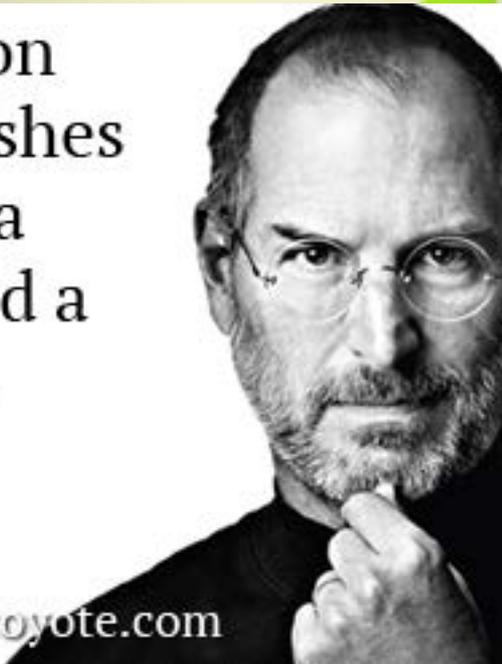


Winston Churchill



Innovation
distinguishes
between a
leader and a
follower.

Steve Jobs



www.quote-coyote.com

**CREATIVITY
IS THINKING
UP NEW THINGS.
INNOVATION
IS DOING
NEW THINGS.**

- Theodore Levitt



DIYGENIUS

Innovation inside a healthcare system...

Innovation only succeeds when the interest of diverse stakeholders can be aligned so that trade-offs are sufficiently beneficial to overcome the cost or risk of adopting the new “way of working”

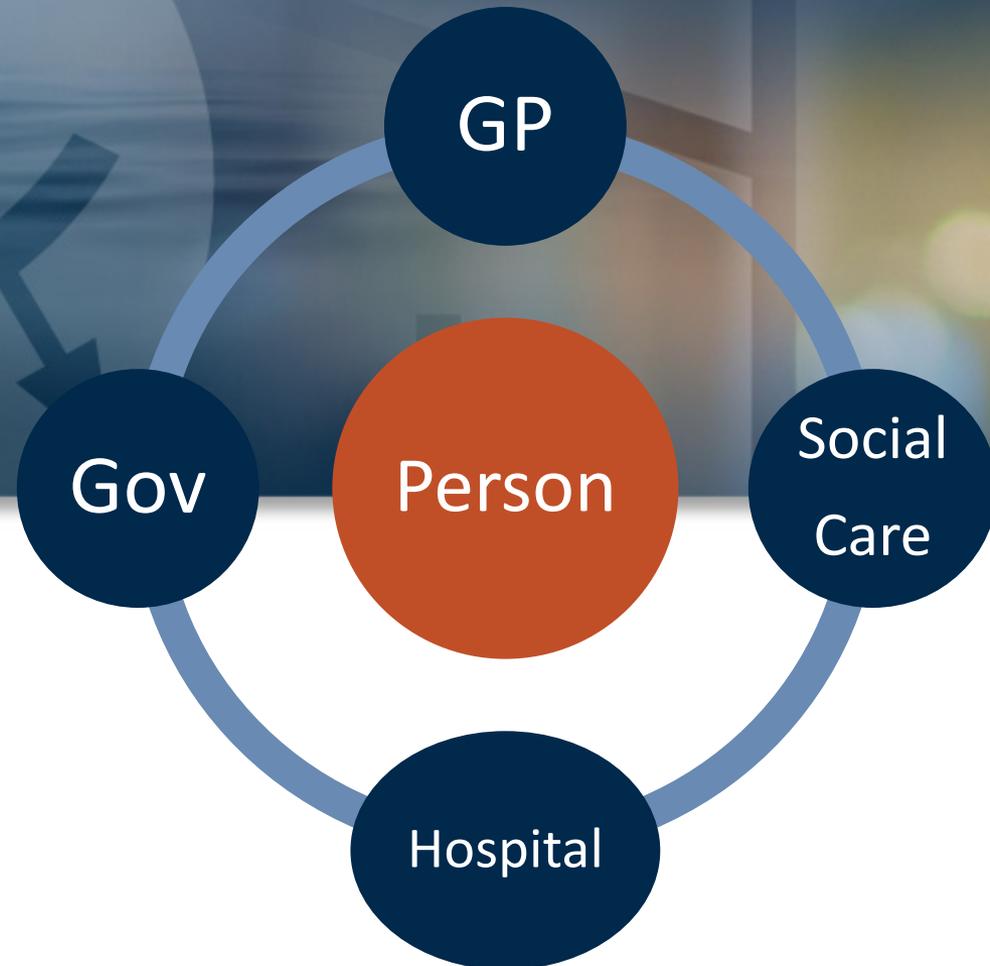
Innovation inside a healthcare system...

The electric light did not come from the continuous improvement of candles.

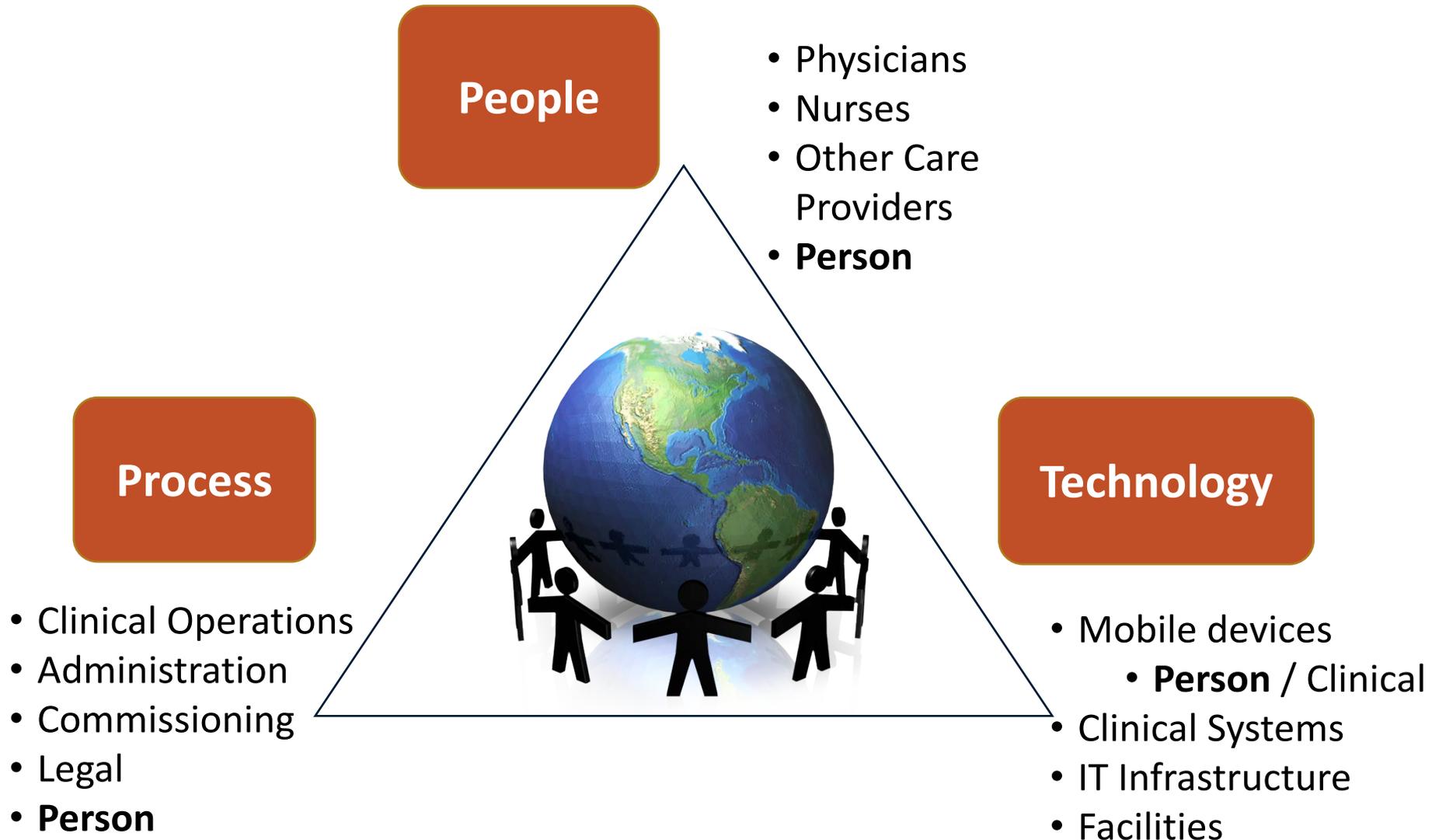
Oren Harari

Operationalizing Innovation....

Closing the “O” Gap investment in People, Process, Technology



The Clinical Ecosystem Impacted



Rules of e-Commerce apply

C to C

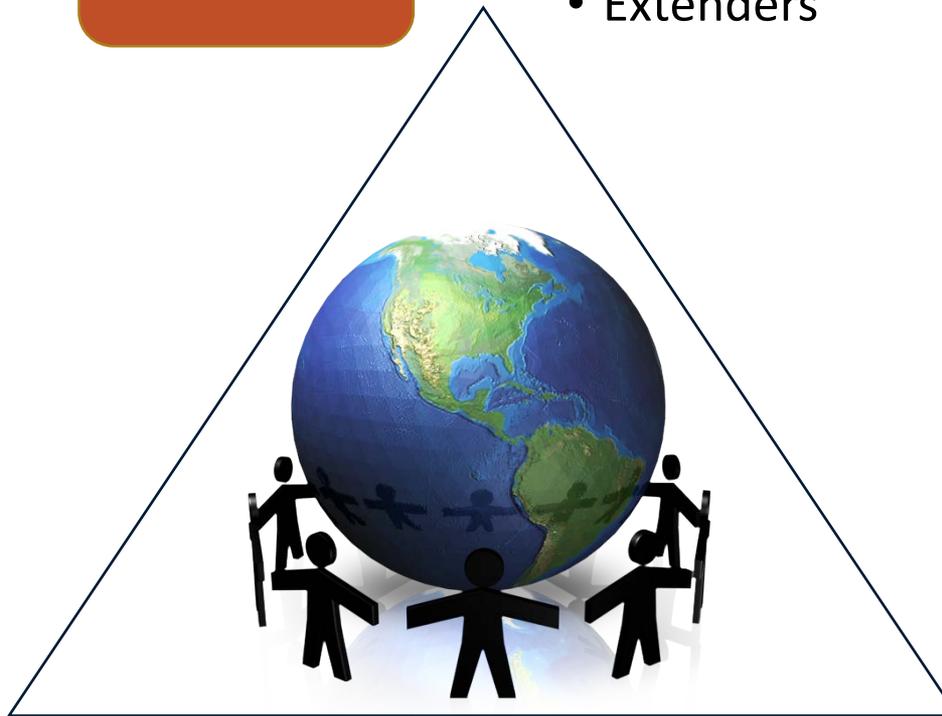
- Email
- Social Media
- Extenders

B to C

- Clinical Utilities
- Lifestyle Aps
- Bio Med Devices
- Notifications
- Compliance

B to B

- HIE
- EMRs
- Cloud Analytics
- Facilities



It's Not Just the Innovation

OO + NT = COO

It's Not Just the Innovation

OO + NT = COO

Old organization + New Technology = Costly Old Organization

Innovation and Change Management as a focus of minds is not new

“Nothing is more difficult than to introduce a new order. Because the innovator has for enemies all those who have done well under the old conditions and lukewarm defenders in those who may do well under the new.”

Niccolo Machiavelli (1469 - 1527)



Thank You

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