

# **Data Security and Data Governance**

**Foundation and Case Studies**

including Privacy, Legal, Social and Ethical Issues

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November 4, 2020



## About Me

D.Eng. (AIT 2007)

M.Eng. (AIT 2000)

B.Eng. (Chula 1998)

Certified Information Systems Auditor (CISA)

ATSI DX expert

#construction

#techmanagement

#realestate

#university

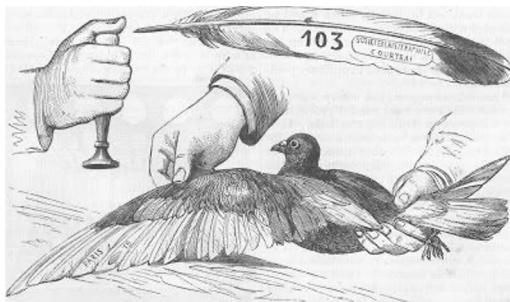
#healthcare



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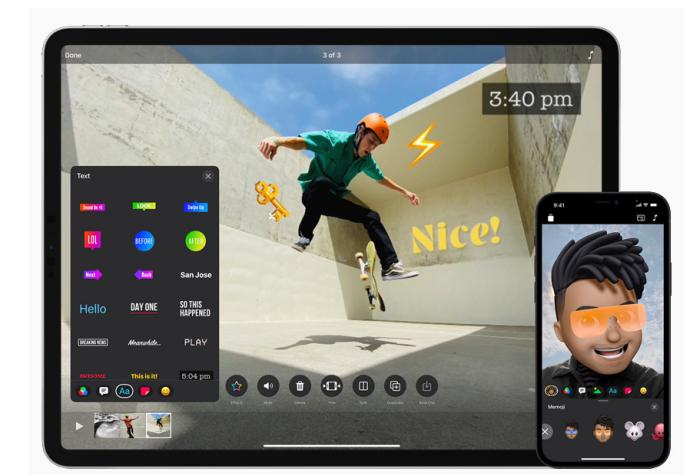
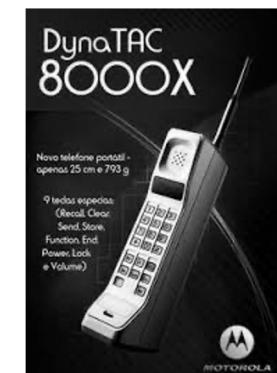
## We are living in the ultra-connected world



1844 first telegraph



1983



2020 5G 4K HDR  
on-device ML - ultra personalized

OCT  
2020

# DIGITAL AROUND THE WORLD IN OCTOBER 2020

THE ESSENTIAL HEADLINE DATA YOU NEED TO UNDERSTAND MOBILE, INTERNET, AND SOCIAL MEDIA USE

TOTAL  
POPULATION**7.81**  
**BILLION**

URBANISATION:

**56%**UNIQUE MOBILE  
PHONE USERS**5.20**  
**BILLION**

PENETRATION:

**67%**INTERNET  
USERS**4.66**  
**BILLION**

PENETRATION:

**60%**ACTIVE SOCIAL  
MEDIA USERS**4.14**  
**BILLION**

PENETRATION:

**53%**

7

SOURCES: KEPIOS ANALYSIS; UNITED NATIONS; LOCAL GOVERNMENT BODIES; GSMA INTELLIGENCE; ITU; GLOBALWEBINDEX; EUROSTAT; CNNIC; APJII; SOCIAL MEDIA PLATFORMS' SELF-SERVICE ADVERTISING TOOLS; SOCIAL MEDIA COMPANIES' ANNOUNCEMENTS AND EARNINGS REPORTS; MEDIASCOPE; CAFEBAZAAR (ALL LATEST AVAILABLE DATA IN OCTOBER 2020).

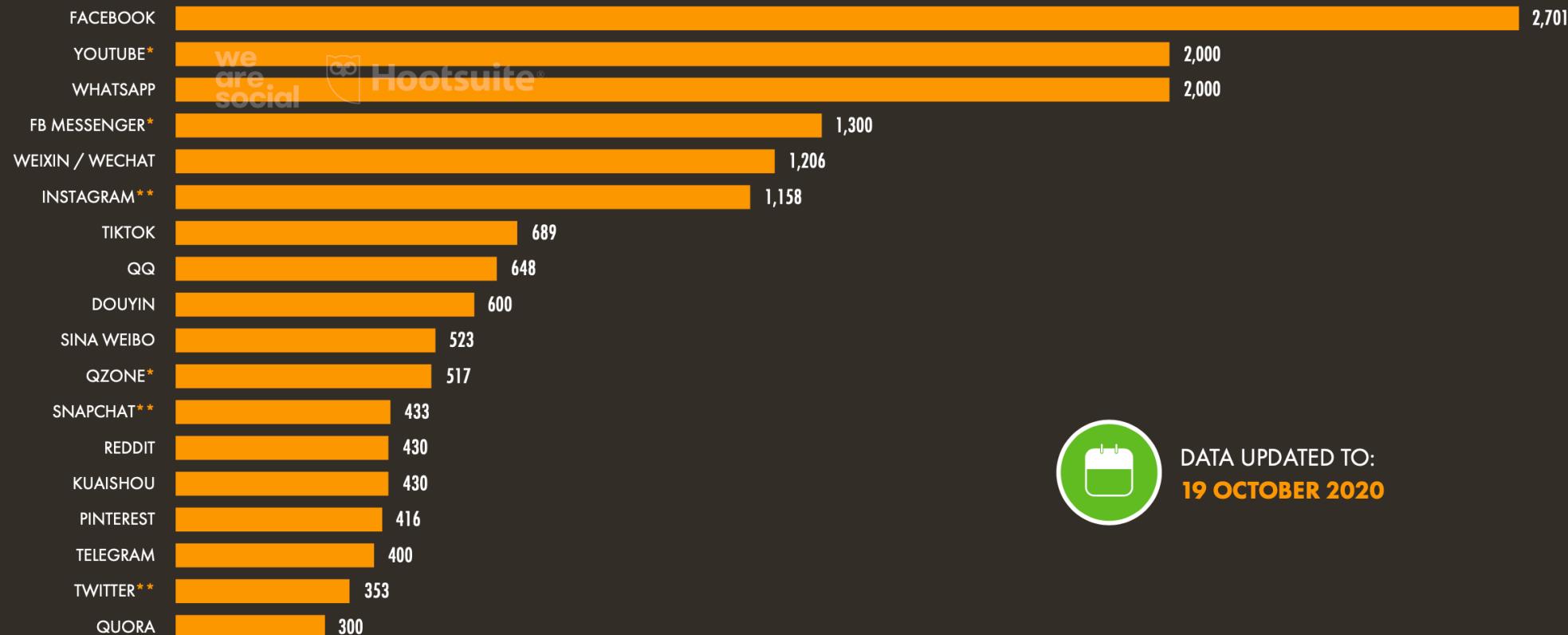
◆ COMPARABILITY ADVISORY: SOURCE AND BASE CHANGES. DATA MAY NOT BE DIRECTLY COMPARABLE TO PREVIOUS REPORTS.



OCT  
2020

# THE WORLD'S MOST-USED SOCIAL PLATFORMS

BASED ON MONTHLY ACTIVE USERS, ACTIVE USER ACCOUNTS, OR ADDRESSABLE ADVERTISING AUDIENCES (IN MILLIONS)

DATA UPDATED TO:  
**19 OCTOBER 2020**

50

**SOURCES:** KEPiOS ANALYSIS; COMPANY STATEMENTS AND EARNINGS ANNOUNCEMENTS; PLATFORMS' SELF-SERVICE ADVERTISING TOOLS (ALL LATEST AVAILABLE DATA). **NOTES:** PLATFORMS IDENTIFIED BY (\*) HAVE NOT PUBLISHED UPDATED USER NUMBERS IN THE PAST 12 MONTHS, SO FIGURES WILL BE LESS RELIABLE. FIGURES FOR PLATFORMS IDENTIFIED BY (\*\*) ARE BASED ON THE LATEST ADVERTISING AUDIENCE REACH FIGURES REPORTED IN EACH RESPECTIVE PLATFORM'S SELF-SERVICE ADVERTISING TOOLS (OCT 2020). FIGURE FOR TIKTOK DOES NOT INCLUDE DOUYIN.

**we  
are  
social****Hootsuite®**

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2020**

## FACEBOOK REACH RANKINGS

COUNTRIES AND TERRITORIES\* WITH THE GREATEST POTENTIAL FACEBOOK ADVERTISING REACH

#	COUNTRY	REACH	▲ QOQ	▲ QOQ
01	INDIA	310,000,000	+7%	+20,000,000
02	U.S.A.	190,000,000	0%	[UNCHANGED]
03	INDONESIA	140,000,000	0%	[UNCHANGED]
04	BRAZIL	130,000,000	0%	[UNCHANGED]
05	MEXICO	92,000,000	+3%	+3,000,000
06	PHILIPPINES	81,000,000	+7%	+5,000,000
07	Vietnam	65,000,000	+2%	+1,000,000
08	THAILAND	50,000,000	0%	[UNCHANGED]
09	EGYPT	44,000,000	+5%	+2,000,000
10=	BANGLADESH	39,000,000	+3%	+1,000,000

#	COUNTRY	REACH	▲ QOQ	▲ QOQ
10=	PAKISTAN	39,000,000	+3%	+1,000,000
12	U.K.	38,000,000	+3%	+1,000,000
13	TURKEY	37,000,000	0%	[UNCHANGED]
14	COLOMBIA	36,000,000	+3%	+1,000,000
15	FRANCE	32,000,000	0%	[UNCHANGED]
16	ARGENTINA	31,000,000	+3%	+1,000,000
17	ITALY	30,000,000	0%	[UNCHANGED]
18=	GERMANY	28,000,000	0%	[UNCHANGED]
18=	NIGERIA	28,000,000	+4%	+1,000,000
20	MYANMAR	26,000,000	+4%	+1,000,000

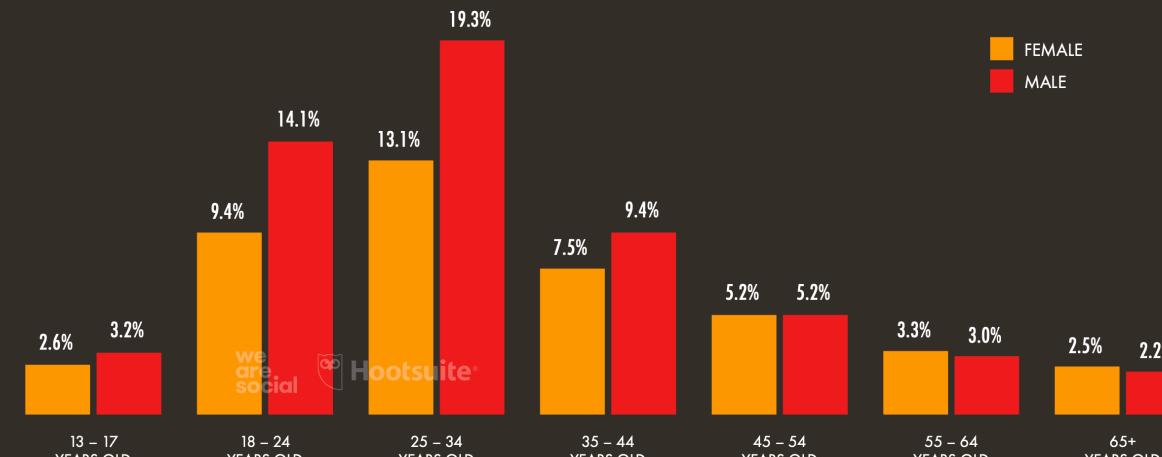
56

SOURCE: EXTRAPOLATIONS OF DATA FROM FACEBOOK'S SELF-SERVICE ADVERTISING TOOLS (OCTOBER 2020). \*NOTE: ONLY INCLUDES COUNTRIES AND TERRITORIES WITH POPULATIONS OF AT LEAST 50,000 PEOPLE. ♦ COMPARABILITY ADVISORY: BASE CHANGES.

**OCT  
2020**

## PROFILE OF FACEBOOK'S ADVERTISING AUDIENCE

SHARE OF FACEBOOK'S GLOBAL ADVERTISING AUDIENCE\* BY AGE GROUP AND GENDER\*



59

SOURCE: EXTRAPOLATIONS OF DATA FROM FACEBOOK'S SELF-SERVICE ADVERTISING TOOLS (OCTOBER 2020). \*NOTES: FACEBOOK'S TOOLS DO NOT PUBLISH AUDIENCE DATA FOR GENDERS OTHER THAN 'MALE' OR 'FEMALE'. \*ADVISORY: DATA ON THIS CHART REPRESENT FACEBOOK'S ADVERTISING AUDIENCE ONLY, AND MAY NOT CORRELATE TO RESPECTIVE SHARES OF TOTAL MONTHLY ACTIVE USERS. ♦ COMPARABILITY ADVISORY: BASE CHANGES.


# 7 BIG FACTS ABOUT DATA-DRIVEN INNOVATION



1 The amount of data generated in **two days** is as much as all data generated in **human history before 2003**.

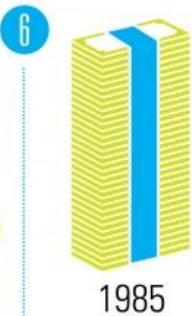


2 Improved use of data could generate **\$3 trillion** in additional value each year in **seven industries**.



2019

3 The Big Data analytics and services industry is worth **\$3 billion** and is expected to hit **\$20 billion** in the next five years.

- 4 Harnessing Big Data could **reduce health care costs by 8%**. 
- 5 The data-driven marketing industry was worth **\$156 billion** in 2012 and created **676,000 jobs**.
- 6 In 1985, it cost **\$100,000** to store a gigabyte of data. It cost **5 cents** in 2013.
- 
- 1985      2013
- 7 Data is a **resource**, much like water or energy, and like any resource, data does nothing on its own. Rather, it is **world-changing** in how it is employed in human decision making.
- 



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# Data analysis

Don't miss these steps if you want to analyze your data!

## DATA COLLECTING

STEP 01



## DATA EXPLORATION

STEP 03



## DATA CLEANSING

STEP 02

## DATA CLEANSING

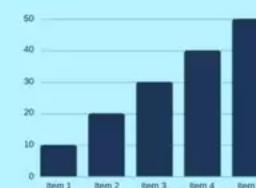


## STATISTICAL ANALYSIS

STEP 04

## REPORTING

STEP 05



## DECISION

STEP 06

RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Bootstrapping.R\*

rsq

In selection Match case Whole word Regex Wrap

```
1 # Author DataFlair
2 library(boot)
3 # Creating Function to obtain R-Squared from the data
4 r_squared <- function(formula, data, indices) {
5   val <- data[indices,] # selecting sample with boot
6   fit <- lm(formula, data=val)
7   return(summary(fit)$r.square)
8 }
9 # Performing 1500 replications with boot
10 output <- boot(data=mtcars, statistic=r_squared,
11                   R=1500, formula=mpg~wt+disp)
12
13 # Plotting the output
14 plot(output)
15
16
17 # Obtaining a confidence interval of 95%
18 boot.ci(output, type="bca")
19
```

(Top Level) R Script

Console

Project: (None)

Environment History Connections

Import Dataset Global Environment

results List of 11

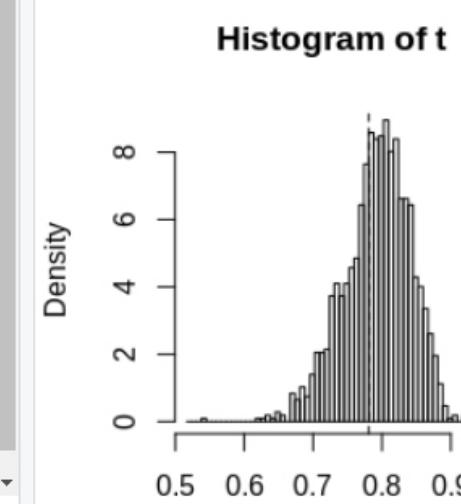
Functions

fc	function (d, i)
r_squared	function (formula, data, indices)

Files Plots Packages Help Viewer

Zoom Export Publish

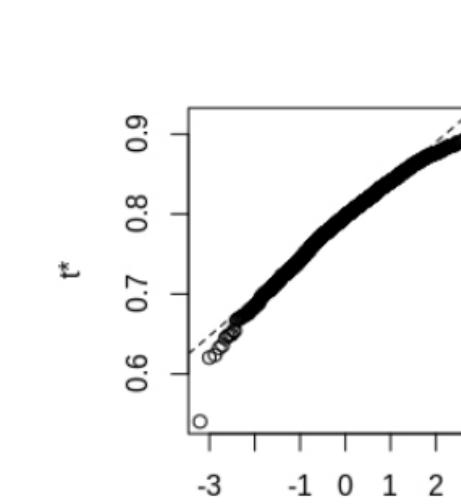
Histogram of t



Density

t\*

Quantiles of Standard Normal



t\*



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TECH

## Cambridge Analytica Revenue Fell as Questions About Data Tactics Surfaced

Under fire from regulators, data-mining company is shutting down



The shared building which houses the offices of Cambridge Analytica in central London, on March 21, 2018.

PHOTO: DANIEL LEAL-OLIVAS/AGENCE FRANCE-PRESSE/GETTY IMAGES

By Peg Brickley

June 1, 2018 3:56 pm ET

 PRINT  TEXT

1 

### RECOMMENDED VIDEOS

1. Why Early Voters Are Breaking Records 
2. Former Google CEO Sees Antitrust Law as 'Very Blunt Instrument' 
3. WSJ/NBC Survey Shows No Swing to Trump Among Wavering Voters 
4. Video of Walter Wallace Police Shooting Sparks Protests in Philadelphia 
5. Fracking: The Unexpected Issue That Could Determine the 2020 Election 

## Facebook Seeks Shutdown of NYU Research Project

By Jeff Horwitz October 23, 2020 08:59 pm ET

The company is demanding that a New York University research project cease collecting data about its political-ad-targeting practices, setting up a fight with academics seeking to study the platform without the company's permission.



WSJ PRO PRO CYBER NEWSLETTER

## Cyber Daily: U.S. Has Authority to Ban TikTok, Government Lawyers Say | Hackers Extort Therapy Patients in Finland

October 27, 2020 08:36 am ET

The Trump administration said in court papers that Chinese-owned video-sharing app TikTok makes U.S. user data susceptible to influence by Chinese leaders, The Wall Street Journal reports.

WSJ PRO PRO CYBER NEWSLETTER

## Cyber Daily: Microsoft Must Increase Protection of French Health Data | Voter database in Georgia County Offline After Ransomware Episode

October 23, 2020 09:03 am ET

A French court has ruled that Microsoft can continue hosting a government-run project aggregating citizens' anonymous health data to use for AI-based research, but must guarantee no data will be sent to the U.S. or be shared with American intelligence authorities. It's the latest move in Europe to assert more control over data movement to the U.S., WSJ Pro's Catherine Stupp reports.

WSJ PRO PRO CYBER NEWSLETTER

## Cyber Daily: Security Experts Alarmed Over 'Broken' Cyber Product Market | Voters Report Threatening Email Campaign

October 22, 2020 08:47 am ET

Keeping up with hackers requires cybersecurity vendors to update technology frequently, but this can stymie corporate security chiefs, who often don't have enough information or resources to properly size up products, WSJ Pro's James Rundle reports. Many boards outsource evaluations of cybersecurity preparedness to consultancies to avoid direct culpability when things go wrong, according to one investment chief.

## California Probing Facebook's Privacy Practices

By Sebastian Herrera November 6, 2019 06:31 pm ET

California is investigating Facebook's privacy practices, the state's attorney general revealed in a lawsuit that accuses the tech giant of failing to adequately comply with information requests that the company said it has satisfied.



## How was Facebook users' data misused?

1

In 2014 a Facebook quiz invited users to find out their personality type



2

The app collected the data of those taking the quiz, but also recorded the public data of their friends



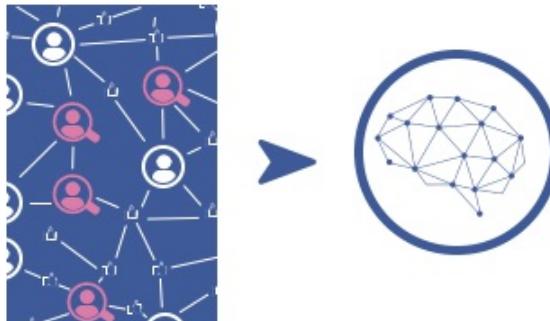
3

About 305,000 people installed the app, but it gathered information on up to 87 million people, according to Facebook



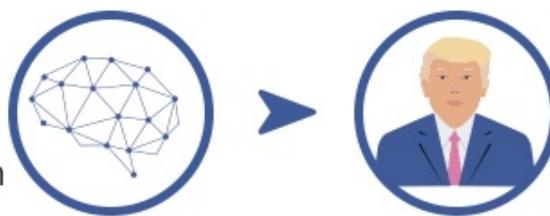
4

It is claimed at least some of the data was sold to Cambridge Analytica (CA) which used it to psychologically profile voters in the US



5

CA denies it broke any laws and says it did not use the data in the US presidential election



6

Facebook sends notices to users telling them whether their data was breached



CA denies any wrongdoing. Facebook has apologised to users and says a "breach of trust" has occurred.



## Data Governance & Security Privacy, Legal, Social, Ethics

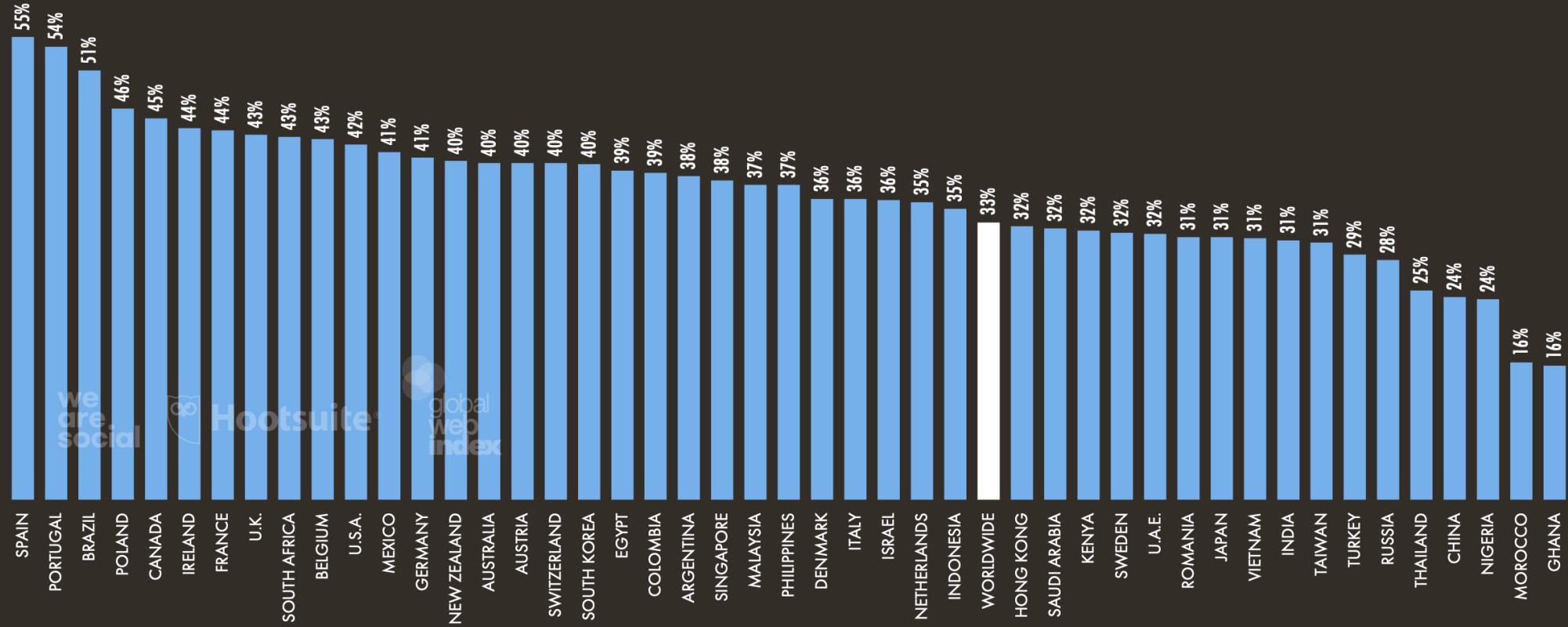
**OCT  
2020**

# CONCERN ABOUT MISUSE OF PERSONAL DATA

PERCENTAGE OF INTERNET USERS AGED 16 TO 64 WHO SAY THEY'RE WORRIED ABOUT HOW COMPANIES USE THEIR PERSONAL DATA



THE SURVEY QUESTION THAT INFORMS THIS CHART HAS CHANGED, SO VALUES ARE NOT COMPARABLE TO THOSE PUBLISHED IN PREVIOUS REPORTS



33

**SOURCE:** GLOBALWEBINDEX (Q2 2020). FIGURES REPRESENT THE FINDINGS OF A BROAD SURVEY OF INTERNET USERS AGED 16 TO 64. SEE [GLOBALWEBINDEX.COM](http://GLOBALWEBINDEX.COM) FOR MORE DETAILS.  
**COMPARABILITY ADVISORY:** THE WORDING OF THE SURVEY QUESTION THAT INFORMS THIS CHART IS NOT THE SAME AS THE WORDING OF A QUESTION THAT INFORMED A CHART THAT WE INCLUDED IN PREVIOUS REPORTS. AS A RESULT, VALUES SHOWN HERE ARE NOT COMPARABLE TO VALUES PUBLISHED IN PREVIOUS REPORTS.

- **Any information that relates to an identified or identifiable living individual**

Different pieces of information, which collected together can lead to the identification of a particular person, also constitute personal data.

- **Personal data that has been rendered anonymous in such a way that the individual is not or no longer identifiable is no longer considered personal data.**

For data to be truly anonymized, the anonymization must be irreversible.

## Personal

- a name and surname
- a home address
- an email address such as  
`name.surname@company.com`
- an identification card number
- location data, e.g. mobile phone location
- an Internet Protocol (IP) address
- a cookie ID

## Personal (cont'd)

- the advertising identifier of your phone
- data held by a hospital or doctor, which could be a symbol that uniquely identifies a person

## Non-Personal

- a company registration number
- an email address such as  
`info@company.com`
- anonymized data.

## For Data Owners

- Privacy
- Spams / Annoyance / Unsolicited ads.
- Identity Theft
- Commercial frauds
- Defamation
- Business crimes

## For Users of Data

- Ethics
- Legal liabilities

**Fines**

**Imprisonment**

for Individuals and Business Entities

# What the new EU GDPR means in 1 minute

The EU GDPR will increase privacy for individuals and give regulatory authorities greater powers to take action against businesses that breach the new laws.

Here's what it means for your business:

**Tough penalties:**  
fines of up to

**4%** of annual global revenue

or

**€20 million,**  
whichever is **greater.**



The regulation also applies to **non-EU companies** that process personal data of individuals in the EU.



The **definition of personal data** is now broader and includes identifiers such as



genetic



mental



cultural



economic



social identity.

**Obtaining consent** for processing personal data must be clear, and must seek an affirmative response.



Parental consent is required for the processing of **personal data of children** under age 16.



Data subjects have the **right to be forgotten** and erased from records.

Users may request a copy of personal **data in a portable format**.



Controllers must **report a data breach** no later than

**72 hours**

after becoming aware of the breach, unless the breach has a low risk to the individual's rights.

Data controllers must ensure adequate contracts are in place to **govern data processors**.



Products, systems and processes must consider **privacy-by-design** concepts during development.



Data processors can be held **directly liable** for the security of personal data.



**One-stop shop:** international companies will only have to deal with one supervisory data protection authority.

ISO 27001 and other certifications will help demonstrate "**adequate technical and organisational measures**" to protect persons' data and systems.

You have to comply with EU GDPR by **MAY 2018**

The appointment of a **data protection officer** (DPO) will be mandatory for companies processing high volumes of personal data and good practice for others.



**Privacy risk impact assessments** will be required for projects where privacy risks are high.

# Use Cases

# **Public Security, Public Health and Smart Cities**

## TECH &amp; SCIENCE

# China Is Exporting AI Surveillance Technology to Countries Around the World

BY STEVEN FELDSTEIN ON 4/23/19 AT 12:18 PM EDT



Visitors are filmed by AI security cameras using facial recognition technology at the 14th China International Exhibition on Public Safety and Security at the China International Exhibition Center in Beijing on October 24, 2018.

NICOLASASFOUTI/AFP/GETTY IMAGES



## Covid-19 contact-tracing app : Supervision and surveillance by CCSA





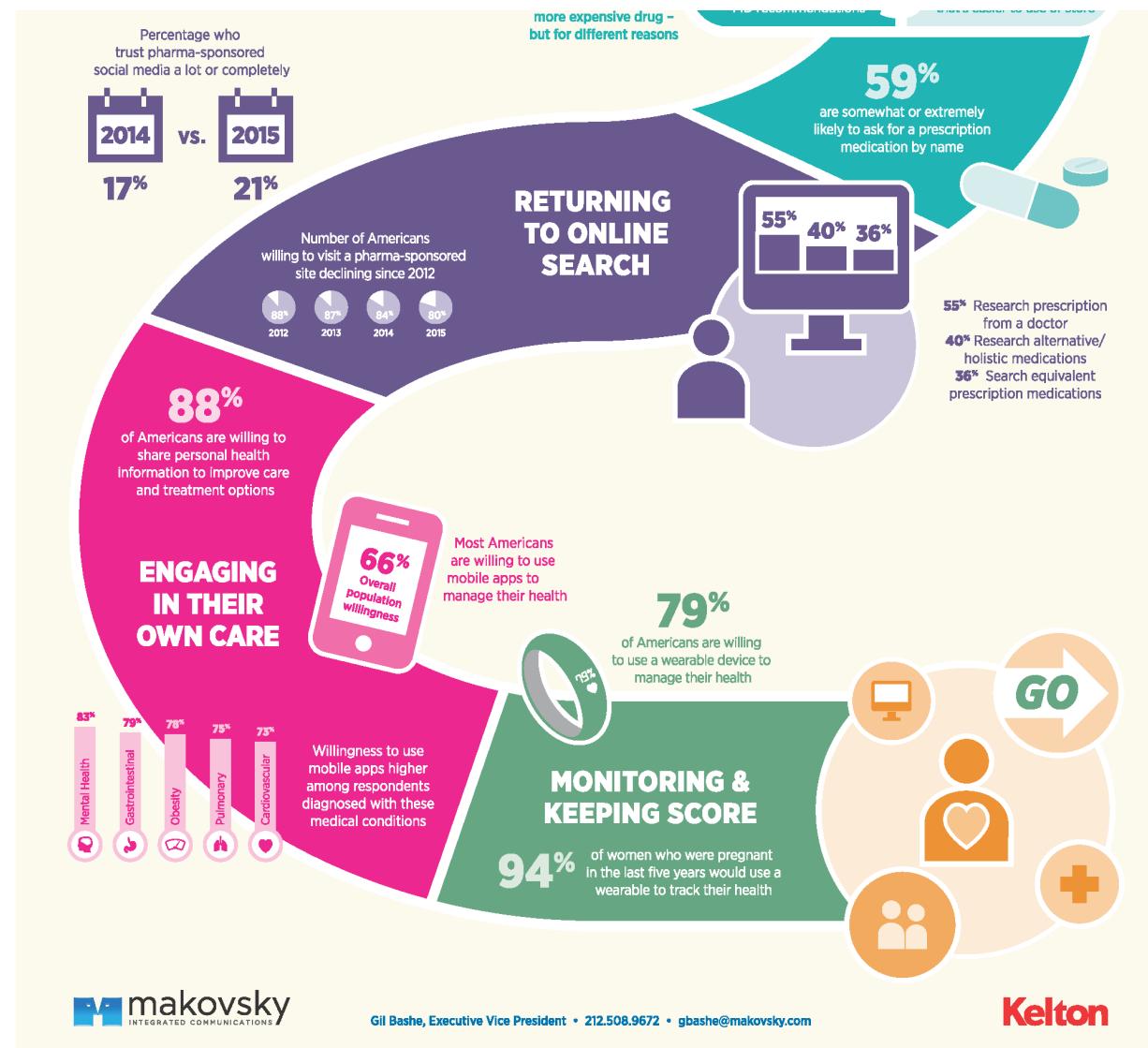
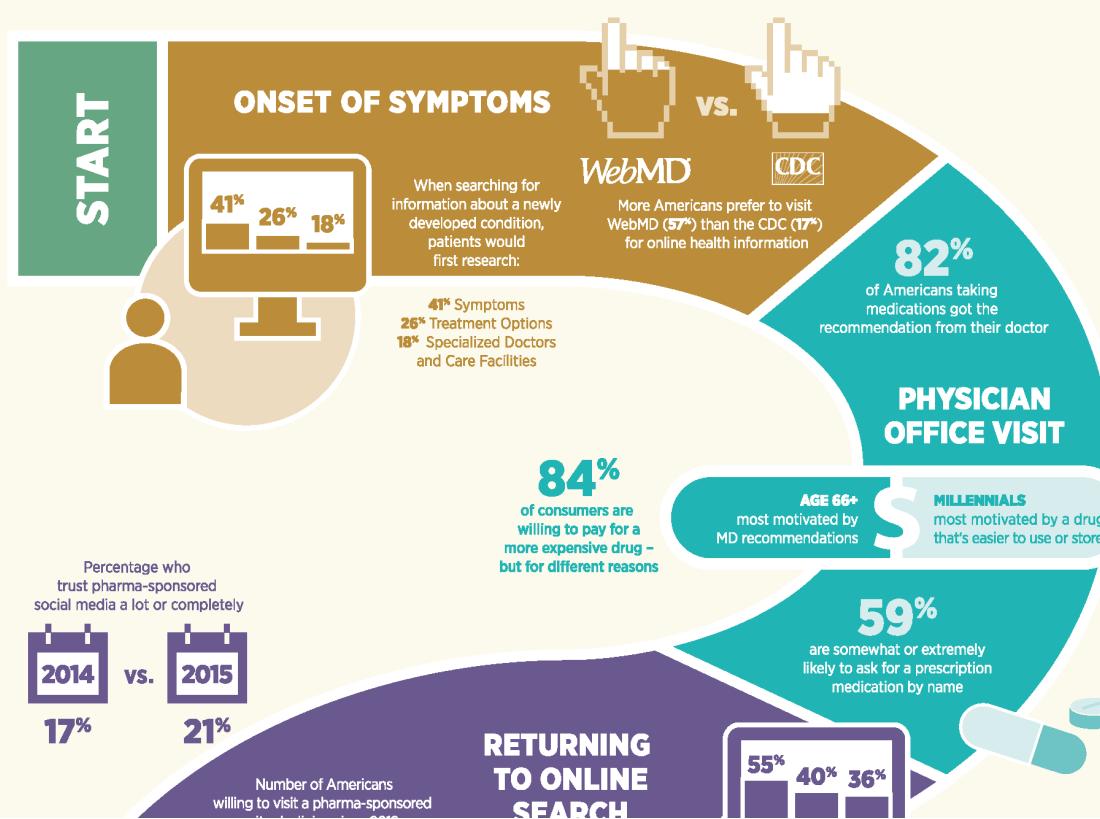
**Sovereign States exert Certain Levels of  
Privileges over Collection and Processing of Data  
for Public Benefits**

# Private Health


**THE PULSE OF  
ONLINE SEARCH**

From online search to wearables, technology is changing patient-focused healthcare every step of the way.

## TODAY'S WIRED PATIENT



# THE DIGITAL HOSPITAL: 82 COMPANIES REINVENTING THE PRACTICE OF MEDICINE

## CARE PLANNING



## SUPPLY MANAGEMENT



## EMR/ PRACTICE MANAGEMENT



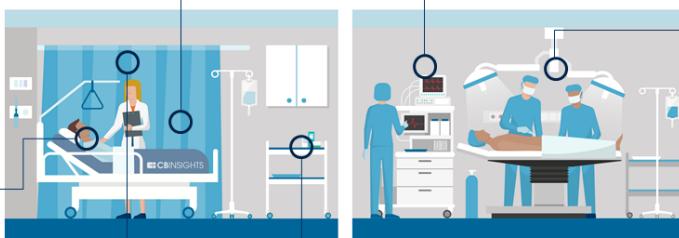
## COMMUNICATION



## RADIOLOGY



## PATIENT MONITORING



## DIAGNOSTICS



## MEDICATION MANAGEMENT



## SURGERY



## HOSPITAL NAVIGATION



## REFERRALS



## READMISSIONS / EMERGENCY DEPARTMENT



## INFECTION CONTROL



## PATIENT EXPERIENCE



## CARE COORDINATION



## SECURITY

# What Happens to Stolen Healthcare Data?

As patients demand increased security for their medical records, healthcare organizations face an uphill challenge to protect the data.

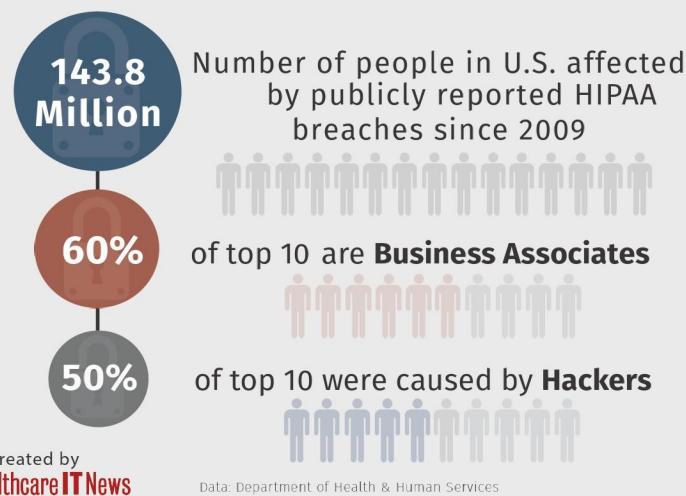
## What Threats Are Associated with Stolen Patient Data?

Although stolen health data can be used to carry out a variety of crimes, two scenarios are detrimental: leveraging details specific to a disease or terminal illness, and long-term identity theft.

"Traditional criminals understand the power of coercion and extortion," Kellermann says. "By having healthcare information – specifically, regarding a sexually transmitted disease or terminal illness – that information can be used to extort or coerce someone to do what you want them to do."

## 10 biggest HIPAA breaches

	Covered Entity	# People
1	Anthem	78.8 Million
2	Premera Blue Cross	11.0 Million
3	SAIC	4.9 Million
4	Community Health Systems, TN	4.5 Million
5	UCLA Health	4.5 Million
6	Advocate Health & Hospitals	4.03 Million
7	Medical Informatics Engineering	3.9 Million
8	Xerox State Healthcare	2.0 Million
9	IBM	1.9 Million
10	GRM Info. Management Services	1.7 Million



# HIPAA COMPLIANCE CHECKLIST



## TECHNICAL PROTECTIONS

- ENCRYPT & AUTHENTICATE EPHI
- CONTROL/LOG ACCESS & CHANGES TO EPHI
- AUTO-LOGOFF



## PHYSICAL PROTECTIONS

- CONTROL/MONITOR PHYSICAL ACCESS
- MANAGE WORKSTATIONS
- PROTECT & TRACK EPHI DEVICES



## ADMINISTRATIVE PROTECTIONS

- ASSESS & MANAGE RISK
- TRAIN STAFF
- BUILD/TEST CONTINGENCIES
- BLOCK UNAUTHORIZED ACCESS
- SIGN BAAS
- DOCUMENT SECURITY INCIDENCES



## HIPAA PRIVACY RULE TO-DO

- RESPOND TO PATIENT ACCESS REQUESTS
- INFORM PATIENTS WITH NPPS
- TRAIN STAFF
- MAINTAIN EPHI INTEGRITY
- GET PERMISSION TO USE EPHI
- UPDATE FORMS/COPY



## HIPAA BREACH NOTIFICATION RULE TO-DO

- PROMPTLY NOTIFY PATIENTS
- HHS & POTENTIALLY THE MEDIA
- ENSURE YOUR NOTIFICATION CONTAINS THE 4 REQUIRED ELEMENTS



## HIPAA OMNIBUS RULE TO-DO

- REFRESH YOUR BAA
- SEND NEW COPIES
- UPDATE PRIVACY POLICIES
- MODERNIZE NPPS
- TRAIN STAFF



# HIPAA Compliance for Therapists



## Email and Texting with Clients

Employ secure email/text (for ex., Hushmail and Signal)

Build competence with secure email/text option

Develop communication policy (boundaries, availability, expected turnaround etc.)



## Collecting Payment

Be careful storing credit card info (use practice management system)

Most payment systems are fine (if not invoicing/scheduling appoints.)

Examples: Square and Stripe



## Online Therapy

Learn how to use video (lighting, camera angles, distance)

Set up environment for clear internet connection (ex. VSee)

Develop tech failure and client crisis protocols



## Record-Keeping

Only keep electronic records if there is value/requirement

If you keep records on your computer, fully-encrypt, back-up and fully-encrypt every back-up on every gadget

Employ strong passwords and anti-malware software



## Website

Post Notice of Privacy Practices (HIPAA form)

Do not use web host's unsecure email to support "contact me"

Forms for clients can be downloadable but returned via secure email or system portal

## Reference:

Huggins, R. (2017, July 8). HIPAA Compliance: Private Practice Security Tips.

# LET DOCTORS BE DOCTORS

#LetDoctorsBeDoctors is a movement that encourages health care professionals to air frustrations with laggard software (specifically EHRs) and advocate for better technology.

## HERE'S WHAT THEY'RE SAYING



### NURSES AND NURSE PRACTITIONERS

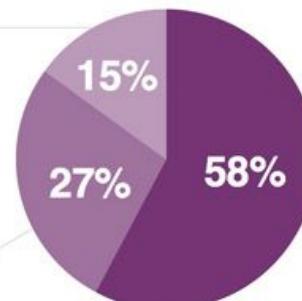
**"**Help us help patients.**"**



### OTHER HEALTH CARE PROVIDERS (HCPs)

**"**Fill-in-the-blank click lists are soul crushing.**"**

6 million people engaged  
700+ posts  
65,000+ visits  
[LetDoctorsBeDoctors.com](http://LetDoctorsBeDoctors.com)



### PHYSICIANS

**"**I mortgaged my future with \$200k of debt to learn to care for humans, not computers.**"**

## TOP 4 WAYS EHRS HURT

We asked health care professionals how EHRs get in their way.\*

### TREATING COMPUTER SCREENS, NOT PATIENTS

#1 frustration for doctors is the time spent in front of an EHR screen

**53%**



of HCPs concerned about EHR distraction also said EHRs prevent quality care.

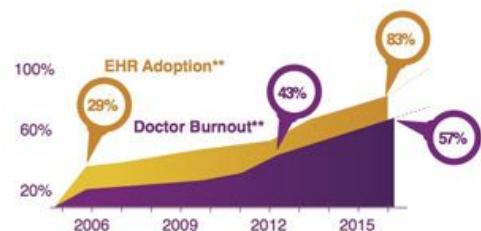
**"**Sad to spend my day staring at a screen while people share vulnerable moments.**"**

MD from California

### PROVIDER BURNOUT



1 out of 5 providers said EHRs prevent them from doing what they trained for—and they're ready to call it quits.



### FAILING TECHNOLOGY

Top ways EHR technology fails

28%	Difficult to use
22%	Surfaces useless data
14%	Lack of interoperability
13%	Designed by non-clinicians
12%	Performance issues
11%	Outdated technology

### WASTING TIME ON DOCUMENTATION

#1 frustration for RNs is the time spent charting

**80%**

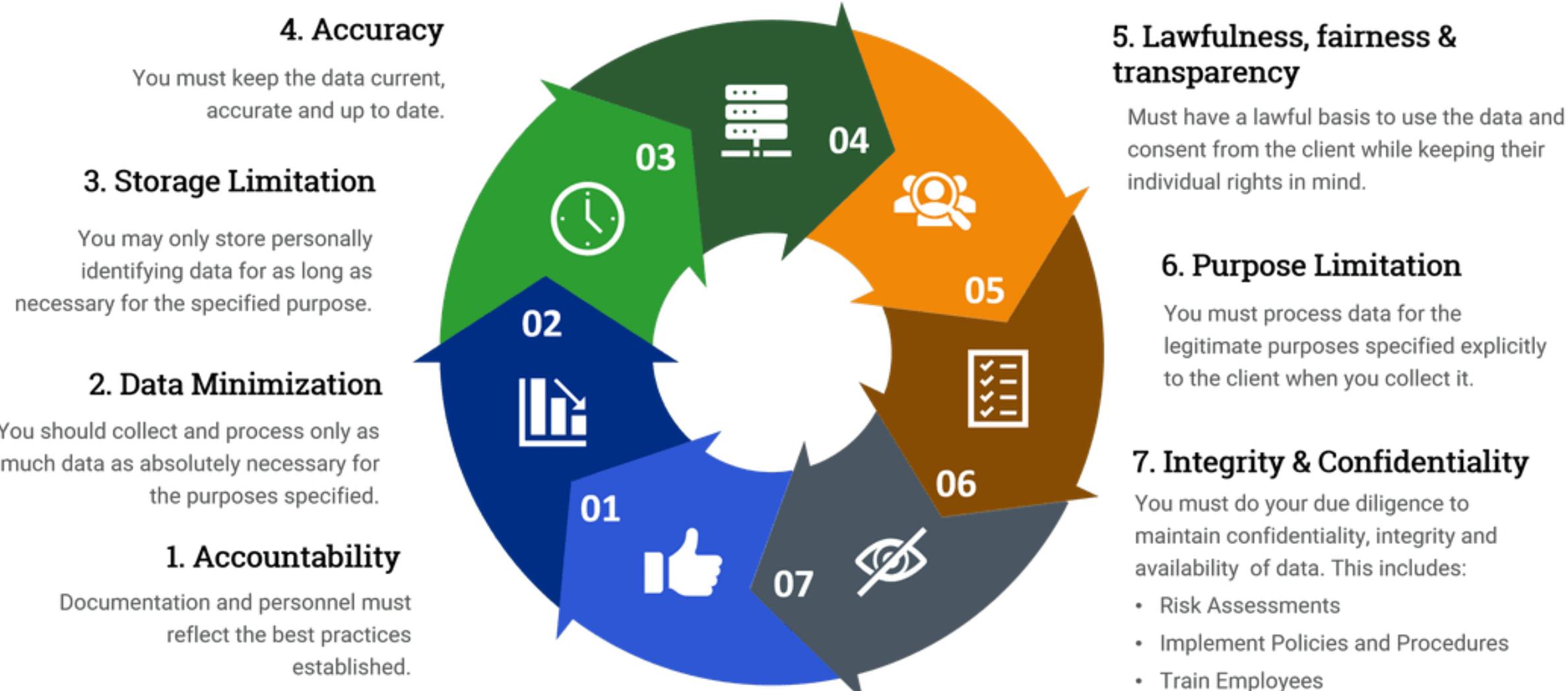


of HCPs cited excessive time spent on admin tasks and after-hour charting.

**"**It shouldn't take us an hour to document 10 minutes of care.**"**

RN from Texas

# Implications for Data Engineers & Data Scientists



## Do's



- ✓ Shred personal data if in paper form.
- ✓ Arrange certified confidential waste disposal for large amounts of personal data.
- ✓ Keep your usernames and passwords secure.
- ✓ Dispose of personal data promptly.
- ✓ Report any data breaches immediately.
- ✓ Undertake regular training on GDPR.
- ✓ Be vigilant with emails and attachments.
- ✓ Familiarise yourself with your organisation's documentation and policies.
- ✓ Log out when not using a digital service.
- ✓ Only use personal data if you need to, and for as long as you need it.
- ✓ Audit the data you are using on a day to day basis within the scope of GDPR.
- ✓ Verify an individual before handing over personal data.

## Don'ts



- ✗ Leave any personal information lying around.
- ✗ Give your username or password to anyone.
- ✗ Dispose of personal data in regular bins or recycling if it has not been shredded or destroyed.
- ✗ Open emails or attachments from unknown sources.
- ✗ Duplicate personal data unnecessarily e.g. printing it out.
- ✗ Download business data onto personal devices unless authorised.
- ✗ Leave your computer logged in if you can access personal data from it.
- ✗ Store your passwords in browsers.
- ✗ Log on to public Wi-Fi or unsecured networks whilst working with personal data.
- ✗ Provide access to personal data unless it is necessary and lawful.



The Data Protection Officer (DPO) or relevant individual in your organisation will be able to direct you to the necessary documentation and is the first port of call for any concerns you may have.

Name of DPO or relevant individual:

## **Final Remarks on Governance: The Big Picture**

## What is Corporate Governance?

- Corporate governance is the system of **rules, practices, and processes** by which a firm is directed and controlled.
- Corporate governance essentially involves **balancing the interests** of a company's many **stakeholders**, such as shareholders, senior management executives, customers, suppliers, financiers, the government, and the community.
- Since corporate governance also provides the framework for attaining a company's objectives, it encompasses practically **every sphere of management**, from action plans and internal controls to performance measurement and corporate disclosure.

## Data Governance

Data governance therefore

- is the system of **rules, practices, and processes** by which data within a firm is directed and controlled;
- involves **balancing the interests** of a company's many **stakeholders**;
- encompasses **every sphere of management** within a company.

# Data Governance ... from IT to I&T

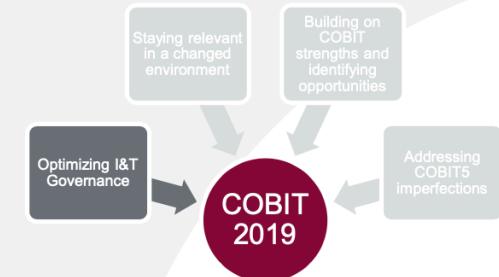
## COBIT 2019

### OPTIMIZING I&T GOVERNANCE

Enterprise  
Governance of  
I&T

Business/IT  
Alignment

Value Creation



**IT** - used to refer to the organizational department with main responsibility for technology – versus **I&T** – all the information the enterprise generates, processes and uses to achieve its goals, as well as the technology to support that throughout the enterprise.

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**2019**

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## OVERVIEW

### EXTERNAL STAKEHOLDERS

IT vendor's operations must establish that they are secure, reliable and compliant with applicable rules and regulations

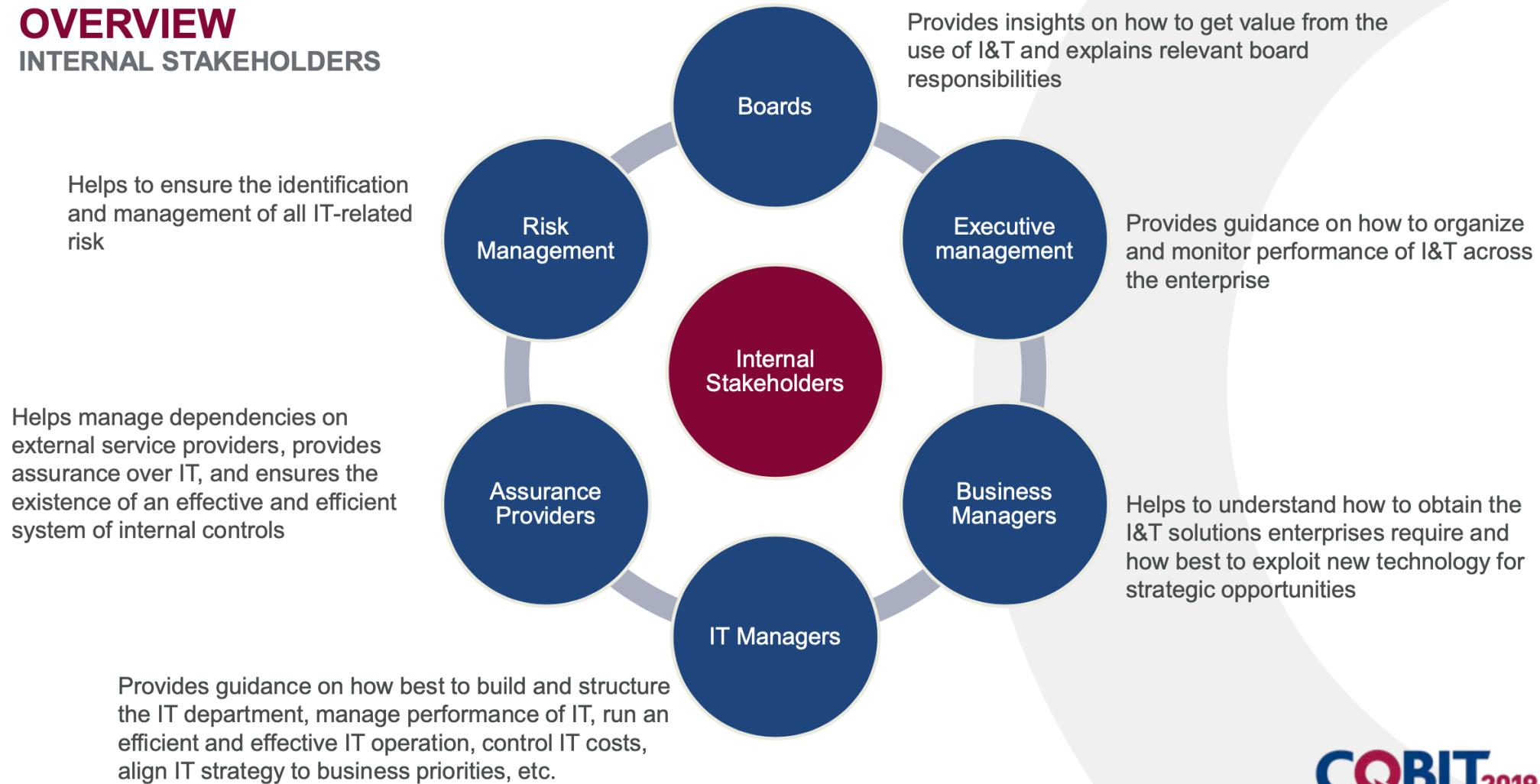


Determines whether the enterprise is compliant with applicable rules and regulations and advises that the enterprise has the right governance system in place to manage and sustain compliance

Confirm that a business partner's operations are secure, reliable and compliant with applicable rules and regulations

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## OVERVIEW INTERNAL STAKEHOLDERS



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## KEY CONCEPTS

### COMPONENTS OF A GOVERNANCE SYSTEM

- Each enterprise's governance system is built from a number of components
- Components can be of different types
- Components interact with each other, resulting in a holistic governance system for I&T
- These were known as enablers in COBIT 5



Reference: COBIT® 2019 Framework: Basic Concepts: Governance Systems and Components, Figure 4.3

 COBIT 2019

- Tremendous amount of data are generated, consumed and leveraged for great benefits of Individuals, Businesses and Public nowadays. The growth is exponential.
- With great power comes great responsibility
- Collect, store and process data for a reason
- Handle ‘magic swords’ with care. Always observe good governance principles.
- For managers, plan and manage data across life-cycle properly.  
For operators, act responsibly. Respect owners of data.
- Don’t let privileges become liabilities.

# Thank You

