historical overview

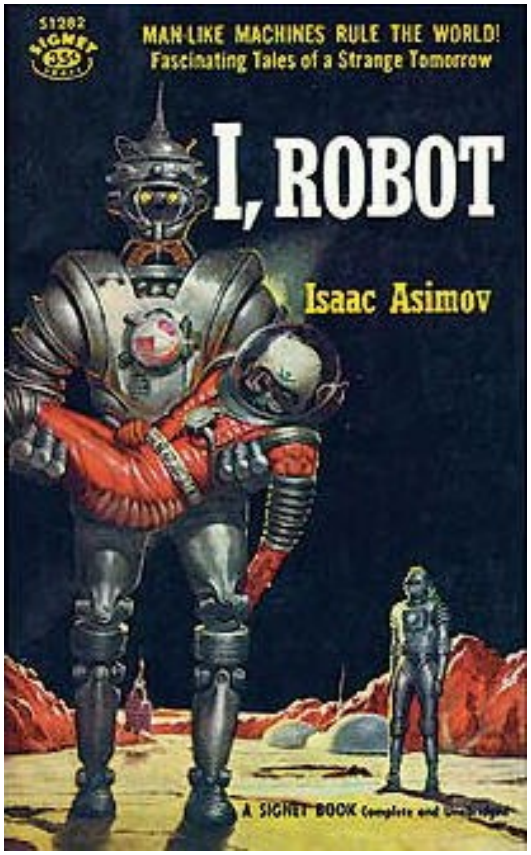
Burak Galip ASLAN, PhD

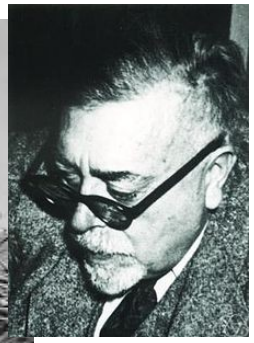
three laws of robotics

1) A robot may not injure a human being or, through inaction, allow a human being to come to harm.
2) A robot must obey the orders given it by human beings except where such orders would conflict with the First Law.
3) A robot must protect its own existence as long as such protection does not conflict with the First or Second Laws.

1950

artificial intelligence

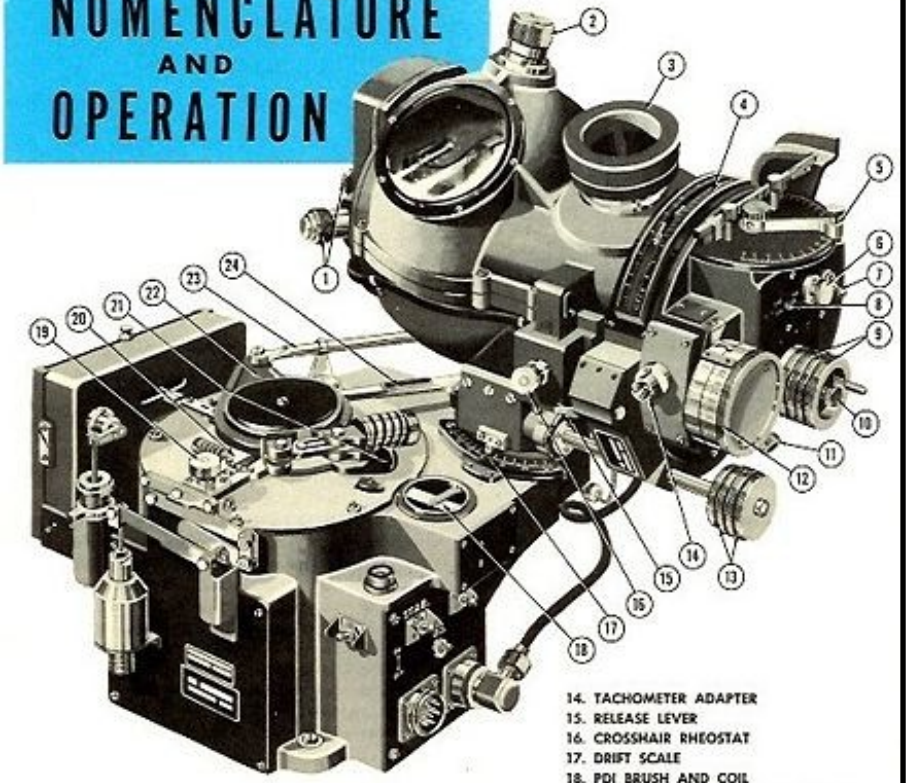




Norbert Wiener (1894 – 1964), MIT mathematics, professor, anti-aircraft cannon tracking system

RESTRICTED MARCH, 1945 BIF 6-1-1

NOMENCLATURE AND OPERATION



1. LEVELING KNOBS
2. CAGING KNOB
3. EYEPIECE
4. INDEX WINDOW
5. TRAIL ARM AND TRAIL PLATE
6. EXTENDED VISION KNOB
7. RATE MOTOR SWITCH
8. DISC SPEED GEAR SHIFT
9. RATE AND DISPLACEMENT KNOBS
10. MIRROR DRIVE CLUTCH
11. SEARCH KNOB
12. DISC SPEED DRUM
13. TURN AND DRIFT KNOBS
14. TACHOMETER ADAPTER
15. RELEASE LEVER
16. CROSSHAIR RHEOSTAT
17. DRIFT SCALE
18. PDI BRUSH AND COIL
19. AUTOPILOT CLUTCH ENGAGING KNOB
20. AUTOPILOT CLUTCH
21. BOMBSIGHT CLUTCH ENGAGING LEVER
22. BOMBSIGHT CLUTCH
23. BOMBSIGHT CONNECTING ROD
24. AUTOPILOT CONNECTING ROD

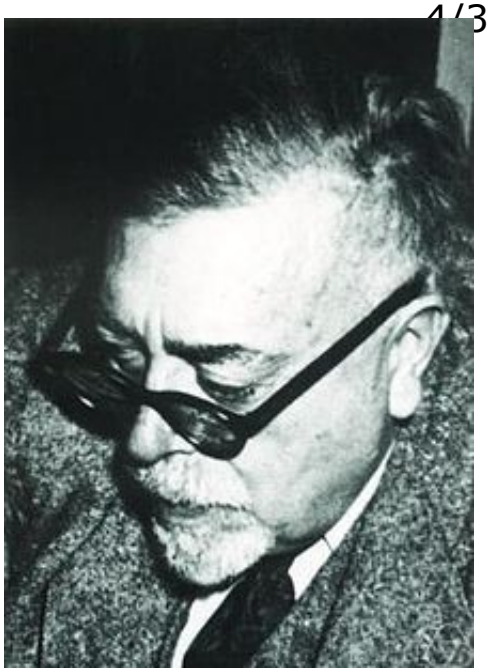
The bombsight has 2 main parts, sighthead and stabilizer. The sighthead pivots on the stabilizer and is locked to it by the dovetail locking pin. The sighthead is connected to the directional gyro in the stabilizer through the bombsight connecting rod and the bombsight clutch.

RESTRICTED

Norden Bombsight of USAAF, Vietnam, Korea, analog computer, bomb trajectory calculation (23m but 370m!)

In his 1948 book on Cybernetics he wrote:

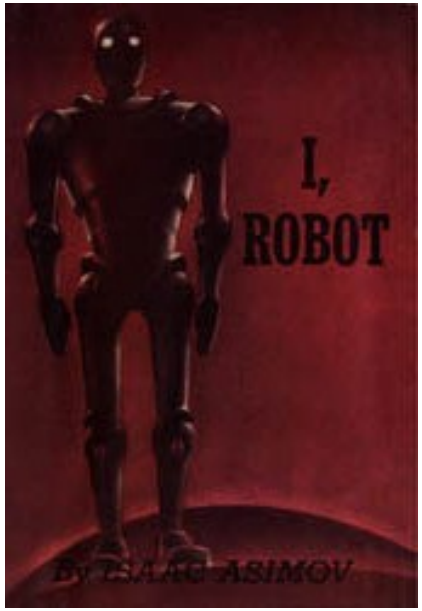
"It has long been clear to me that the modern ultra-rapid computing machine was in principle an ideal central nervous system to an apparatus for automatic control; and that its input and output need not be in the form of numbers or diagrams but might very well be, respectively, the readings of artificial sense organs, such as photoelectric cells or thermometers, and the performance of motors or solenoids… we are already in a position to construct **artificial machines** of almost any degree of elaborateness of performance. **Long before Nagasaki and the public awareness of the atomic bomb, it had occurred to me that we were here in the presence of another social potentiality of unheard-of importance for good and for evil**." (pp. 27-28)



Norbert Wiener
1894 – 1964

1968

Arthur C. Clarke
1917 – 2008



1950

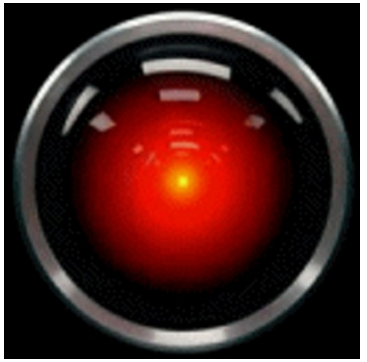
Stanley Kubrick
1928 – 1999

Isaac Asimov
1920 – 1992

artificial intelligence

not exactly ethical, fear, terrible consequences, degradation of human life

hal 9000



dave : open the pod bay doors, please, hal.
hal : **i'm sorry dave, i'm afraid i can't do that.**
dave : what's the problem?
hal : **i think you know what the problem is just as well as i do.**
dave : what are you talking about, hal?
hal : **this mission is too important for me to allow you to jeopardize it.**
dave : i don't know what you're talking about hal...
hal : **i know you and frank were planning to disconnect me, and i'm afraid that's something i cannot allow to happen.**
dave : where the hell'd you get that idea, hal?
hal : **dave, although you took thorough precautions in the pod against my hearing you, i could see your lips move.**
dave : all right, hal; i'll go in through the emergency airlock.
hal : **without your space helmet, dave, you're going to find that rather difficult.**
dave : hal, i won't argue with you anymore! open the doors!
hal : **dave, this conversation can serve no purpose anymore. goodbye.**

1968

artificial intelligence

late 1970's

Mowshowitz, Abbe, ***The Conquest of Will Information Processing in Human Affairs***. (Redding, MA: Addison-Wesley, 1976)

Weizenbaum, Joseph, ***Computer Power and Human Reason: From Judgement to Calculation*** (San Francisco: W.H.Freeman, 1976)

Moor, James H., **"Are There Decisions Computers Should Never Make?"** *Nature and System*, vol. 1 (1979), pp. 266-275

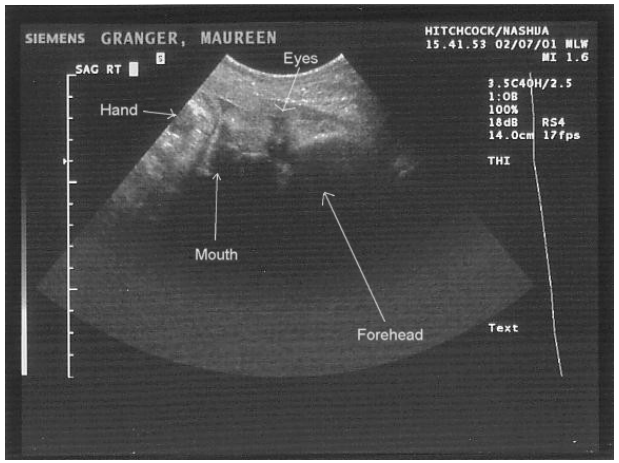
ethical issues in the "use of computers"

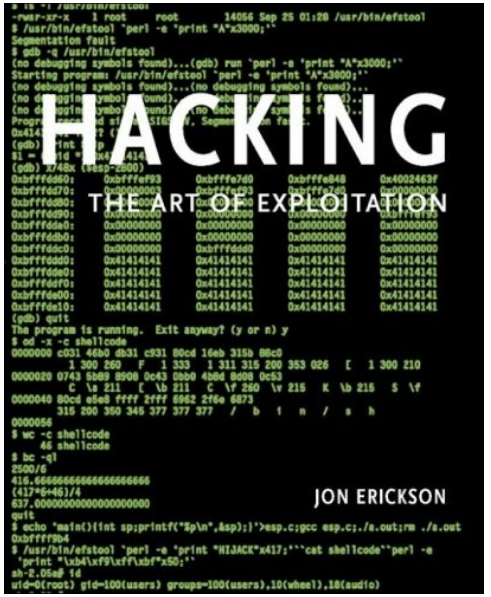
a branch of applied ethics

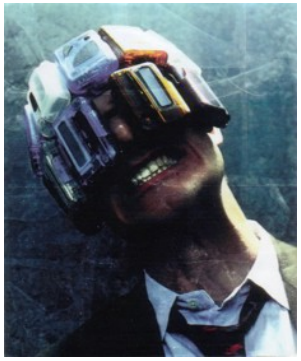
1972 – ACM's code of ethics, government threat, create and maintain huge databases, large-scale calculations, 1976 – privacy protection commission established

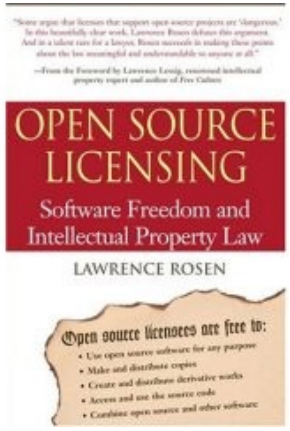
1980's

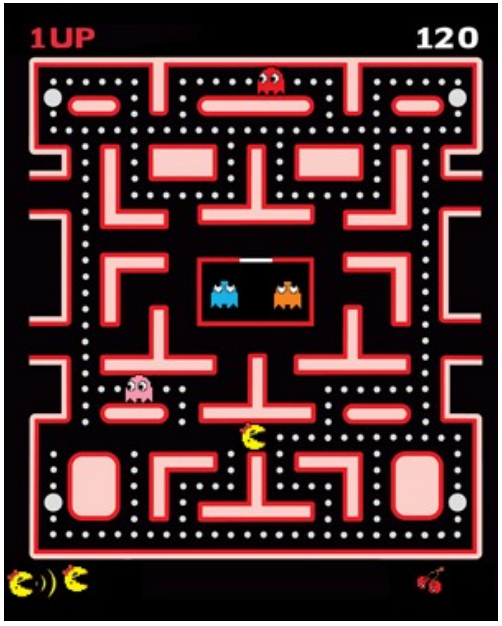
Ward Christensen (1945-) and the computer that ran the first public Bulletin Board System, **CBBS**











microcomputers, PCs, remote access, sw ethical issues, intellectual property law -> then who to blame? who covers the loss?, games, hackers vs. business of computing, property rights protection and system security issues, also scientific modeling, virtual reality

1990's

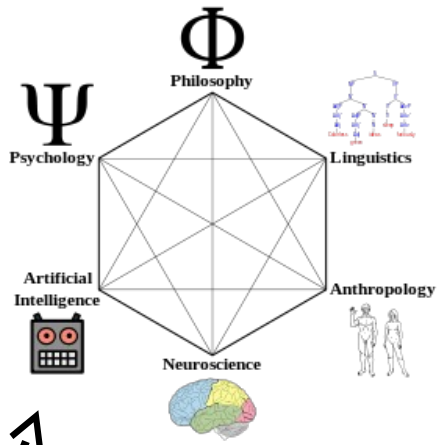
- rise of democracy?
- global property rights
- ...

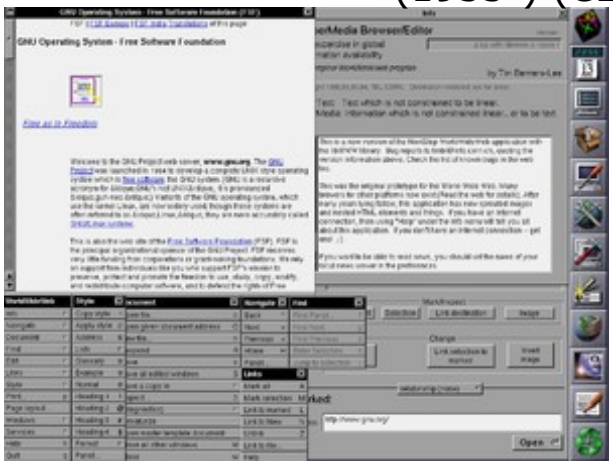
1976 – X25 (BBS) and many others

1981 – Arpanet: network of networks

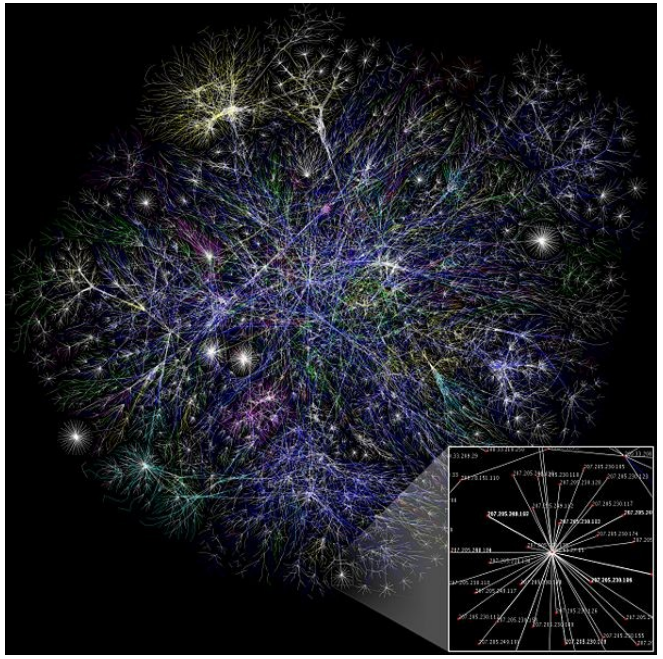
1982 – TCP/IP (merge protocol)

1990 – WorldWideWeb (by Tim Berners Lee (1955-) (CERN – HTML)





the Internet



cognitive science "idea of computers"

Bynum, Terrell Ward and **Moor**, James H., "**The Digital Phoenix: How Computers are Changing Philosophy"** British Journal of Philosophical Sciences, vol. 50 (1999), pp. 514-519

2000's

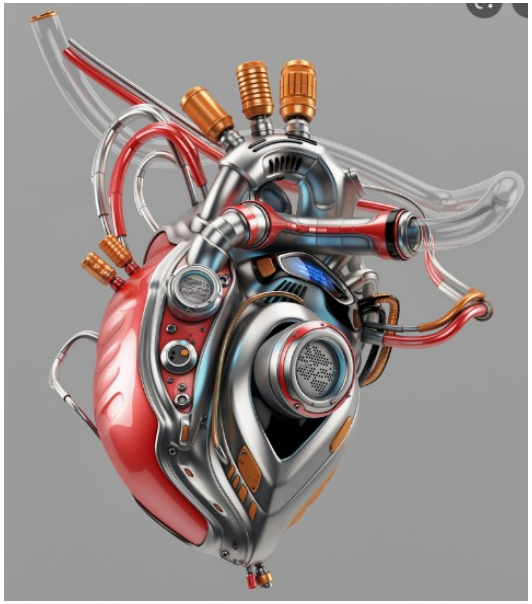
- social media
- e-commerce
- e-learning
- privacy
- ...

2010’s

- ubiquitous computing (ubicomp)
- Internet of Things (IoT)
- Wor**L**d of Mouth
- e-integration
- industry 4.0
- ...

2020's

- synthetic biology (artificial organs)
- genomics (gene editing)
- extended reality (meta)
- digital trust (blockchain)
- robots, cobots, drones
- cybersecurity *(perhaps more important than ever?)*
- generative AI (chatgpt)
- *...*

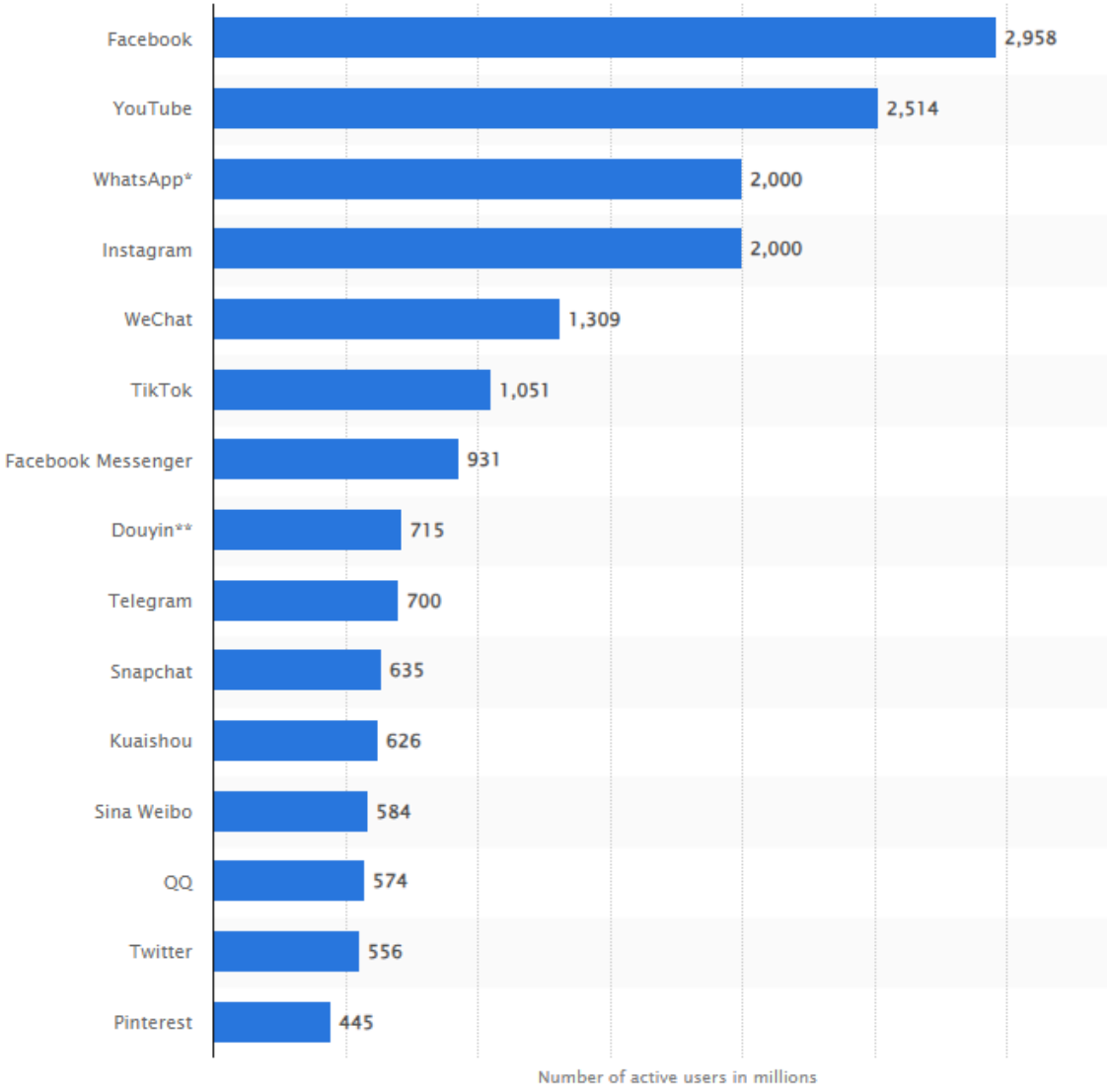


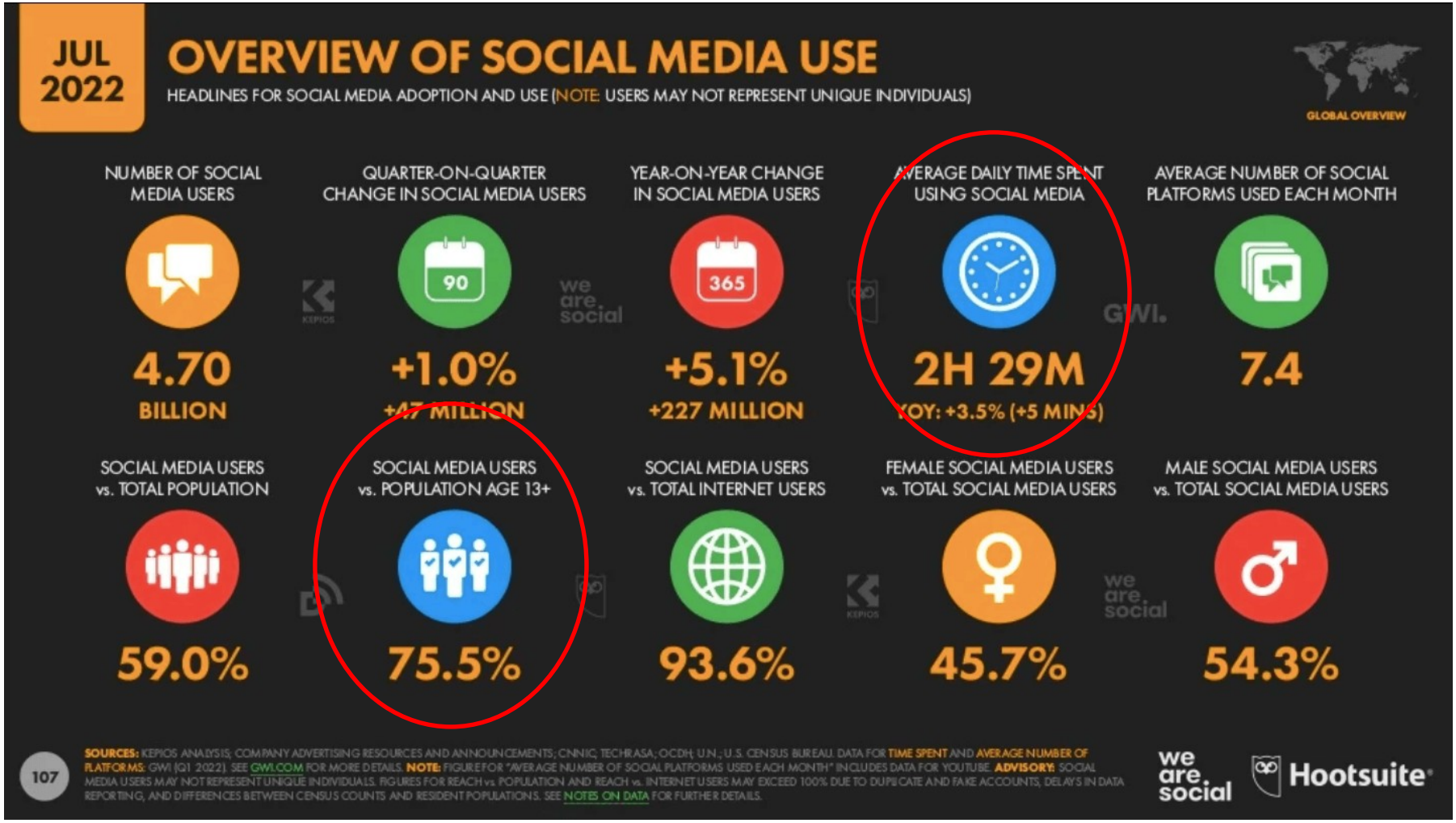
Social Media Landscape

SOME RIGHTS RESERVED

FredCavazza.net

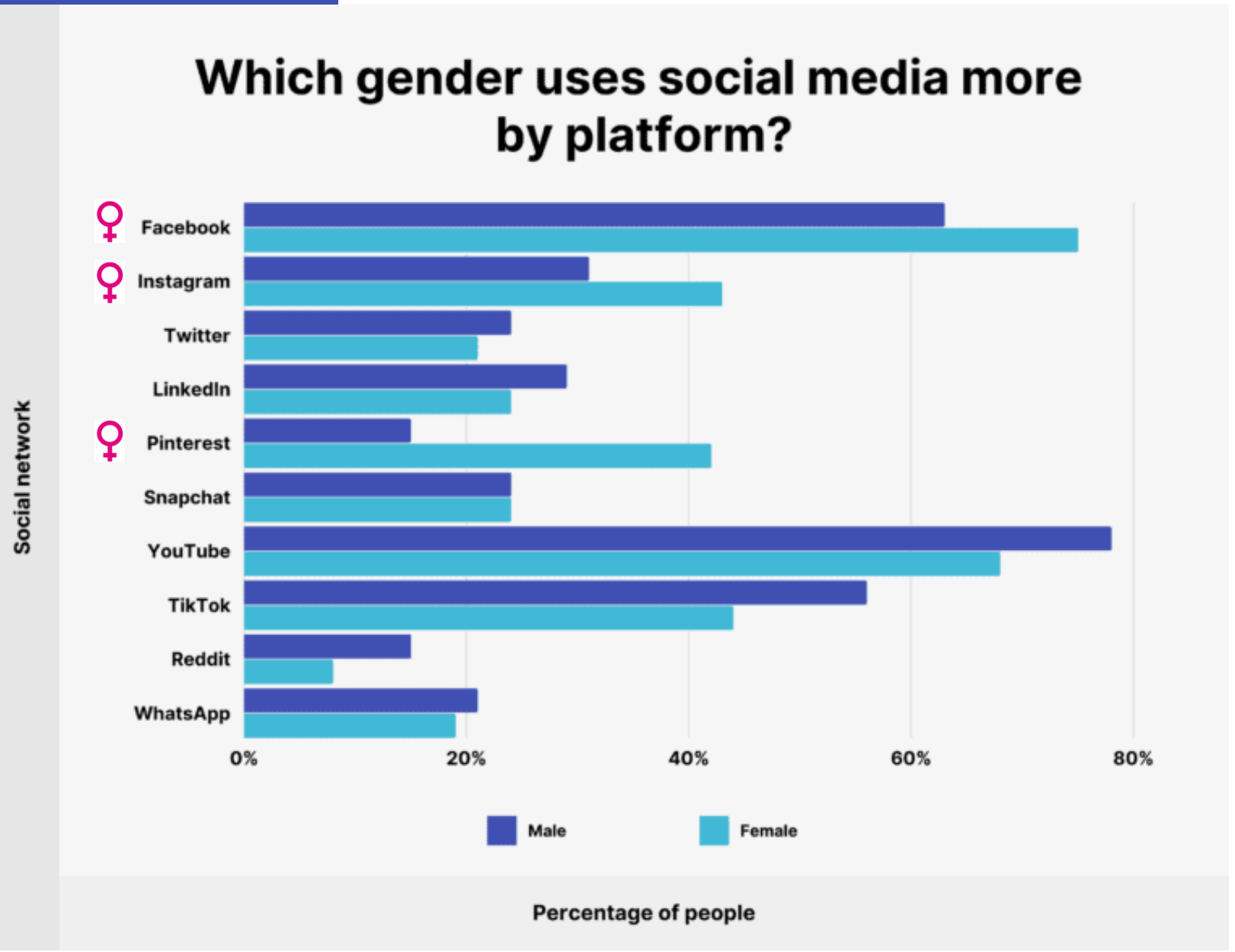
taken from statista




JUL 2022
OVERVIEW OF SOCIAL MEDIA USE
HEADLINES FOR SOCIAL MEDIA ADOPTION AND USE (NOTE: USERS MAY NOT REPRESENT UNIQUE INDIVIDUALS)
GLOBAL OVERVIEW
NUMBER OF SOCIAL MEDIA USERS
4.70
BILLION
QUARTER-ON-QUARTER CHANGE IN SOCIAL MEDIA USERS
90
+1.0%
YEAR-ON-YEAR CHANGE IN SOCIAL MEDIA USERS
365
+5.1%
+227 MILLION
AVERAGE DAILY TIME SPENT USING SOCIAL MEDIA
2H 29M
AVERAGE NUMBER OF SOCIAL PLATFORMS USED EACH MONTH
7.4
SOCIAL MEDIA USERS vs. TOTAL POPULATION
59.0%
SOCIAL MEDIA USERS vs. POPULATION AGE 13+
75.5%
SOCIAL MEDIA USERS vs. TOTAL INTERNET USERS
93.6%
FEMALE SOCIAL MEDIA USERS vs. TOTAL SOCIAL MEDIA USERS
45.7%
MALE SOCIAL MEDIA USERS vs. TOTAL SOCIAL MEDIA USERS
54.3%
107
SOURCES: KEPIOS ANALYSIS; COMPANY ADVERTISING RESOURCES AND ANNOUNCEMENTS; CNNIC; TECHINASA; OECD; U.N.; U.S. CENSUS BUREAU. DATA FOR TIME SPENT AND AVERAGE NUMBER OF PLATFORMS: GWI (Q1 2022). SEE GWI.COM FOR MORE DETAILS. NOTE: FIGURE FOR "AVERAGE NUMBER OF SOCIAL PLATFORMS USED EACH MONTH" INCLUDES DATA FOR YOUTUBE. ADVISORY: SOCIAL MEDIA USERS MAY NOT REPRESENT UNIQUE INDIVIDUALS. FIGURES FOR REACH vs. POPULATION AND REACH vs. INTERNET USERS MAY EXCEED 100% DUE TO DUPLICATE AND FAKE ACCOUNTS, DELAYS IN DATA REPORTING, AND DIFFERENCES BETWEEN CENSUS COUNTS AND RESIDENT POPULATIONS. SEE NOTES ON DATA FOR FURTHER DETAILS.
we are social
Hootsuite

by Brian Dean · Updated Oct. 10, 2021

Which gender uses social media more by platform?



- YouTube : 57.4 million
- Instagram : 52.2 millon
- Meta : 34.4 million
- Tiktok : 26.6 million
- Twitter : 16 million
- Snapchat : 12.9 million
- LinkedIn : 12 million

P.S. ***12.7 million children between 0 – 9 years old***
84.7 million whole population

2022

ShiftDelete.Net

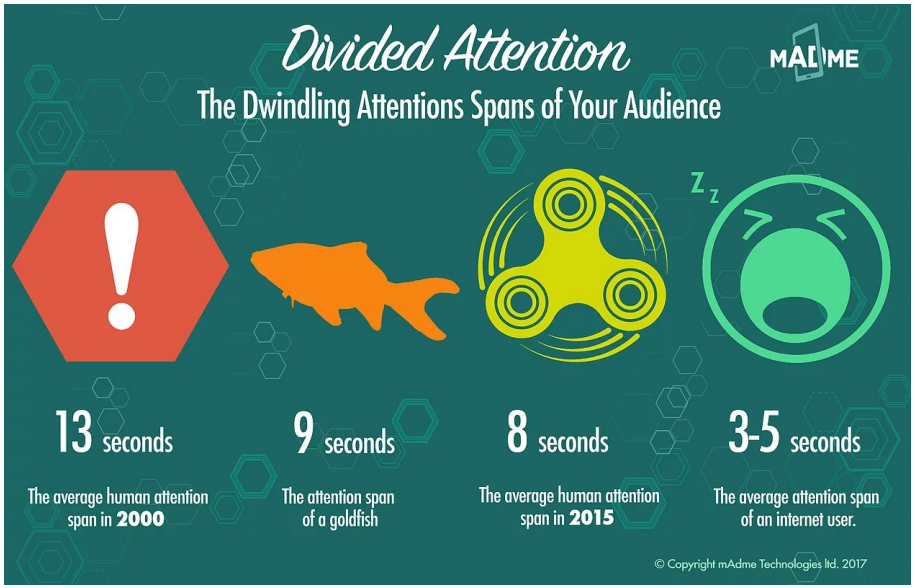
social media and cyber-unhappiness

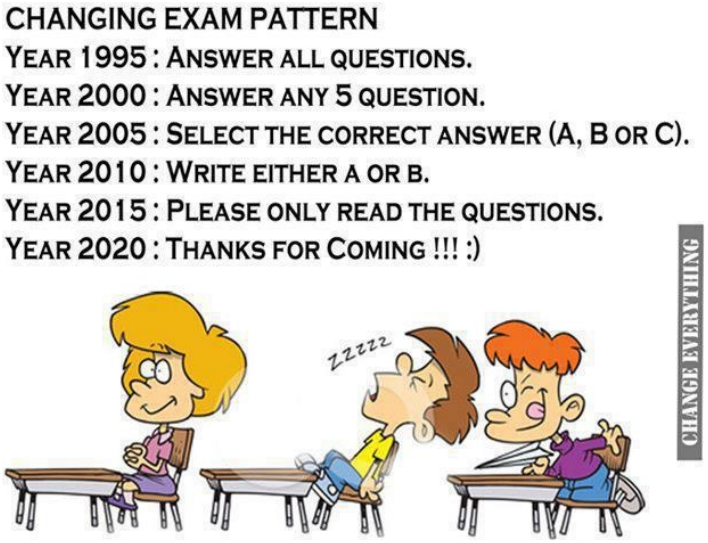
the paradox of choice and the concept of missed opportunity cost

"The Paradox of Choice: Why More is Less?" by Barry SCHWARTZ (2004)

"What does the paradox of choice mean for how I listen to all the songs I have? When I do have the time to hear one of them, often downloaded into my 60Gig iPod, I'm constantly aware, at some level of consciousness, that if I'm not completely satisfied with what I'm hearing, there are a thousand other songs on that iPod I could be listening to right now."

$$\frac{\text{same (limited) amount of time}}{\text{more possibilities (info-glut + digital shopping mall)}} = \text{shorter attention span}$$





the paradox of choice and the concept of missed opportunity cost

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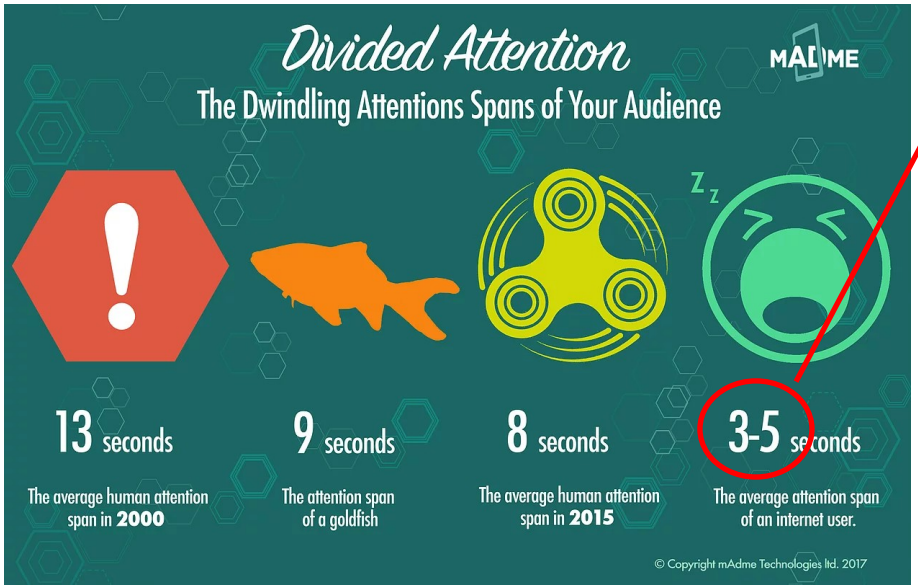
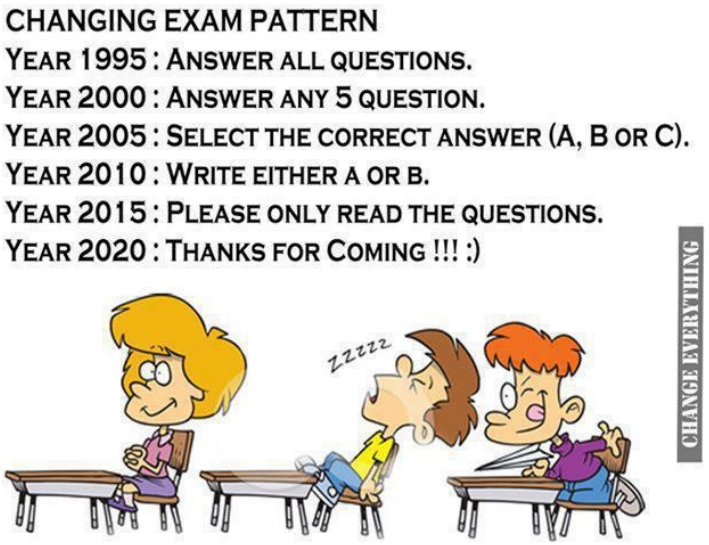
1 sec in 2023 !?

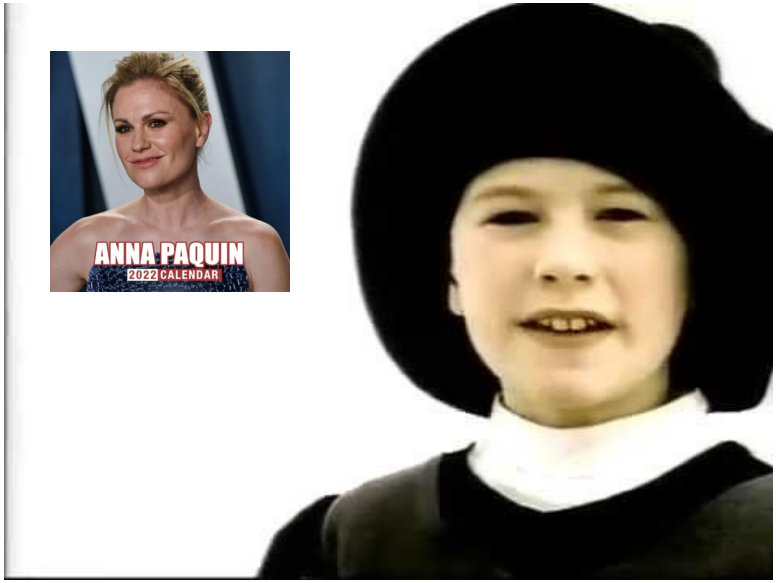


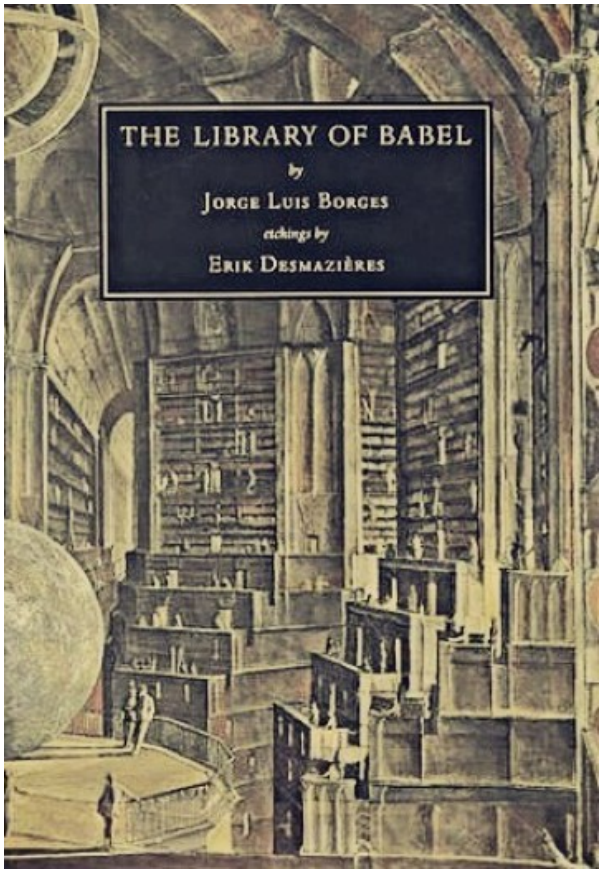


2040? - Cyberbabel? by David LOY (2007)

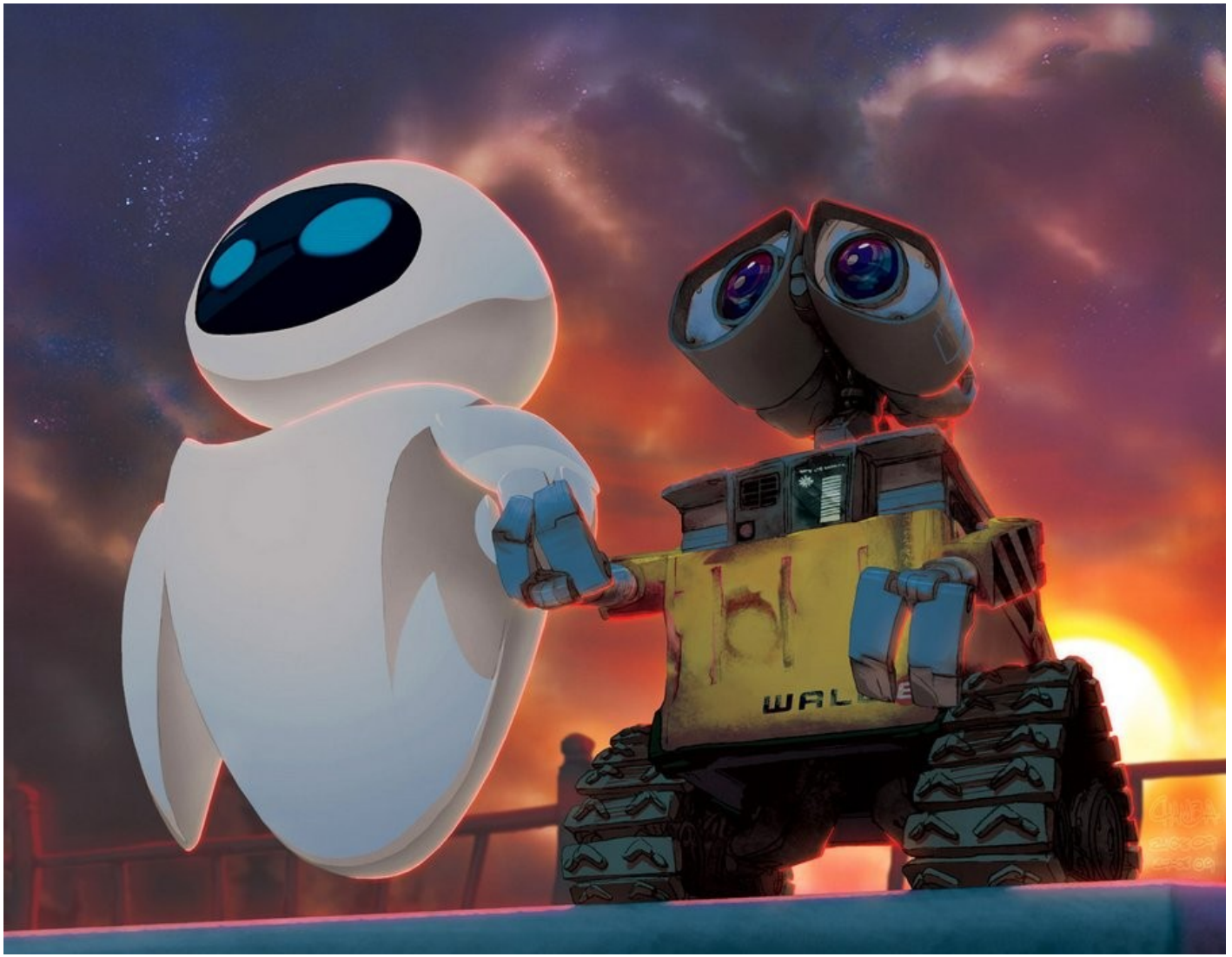
"There will be a road.
It will not connect two points.
It will connect all points.
It will not go from here to there.
There will be no there.
We will all only be here."

(1994 MCI advertisement)





2060? – human dystopia?

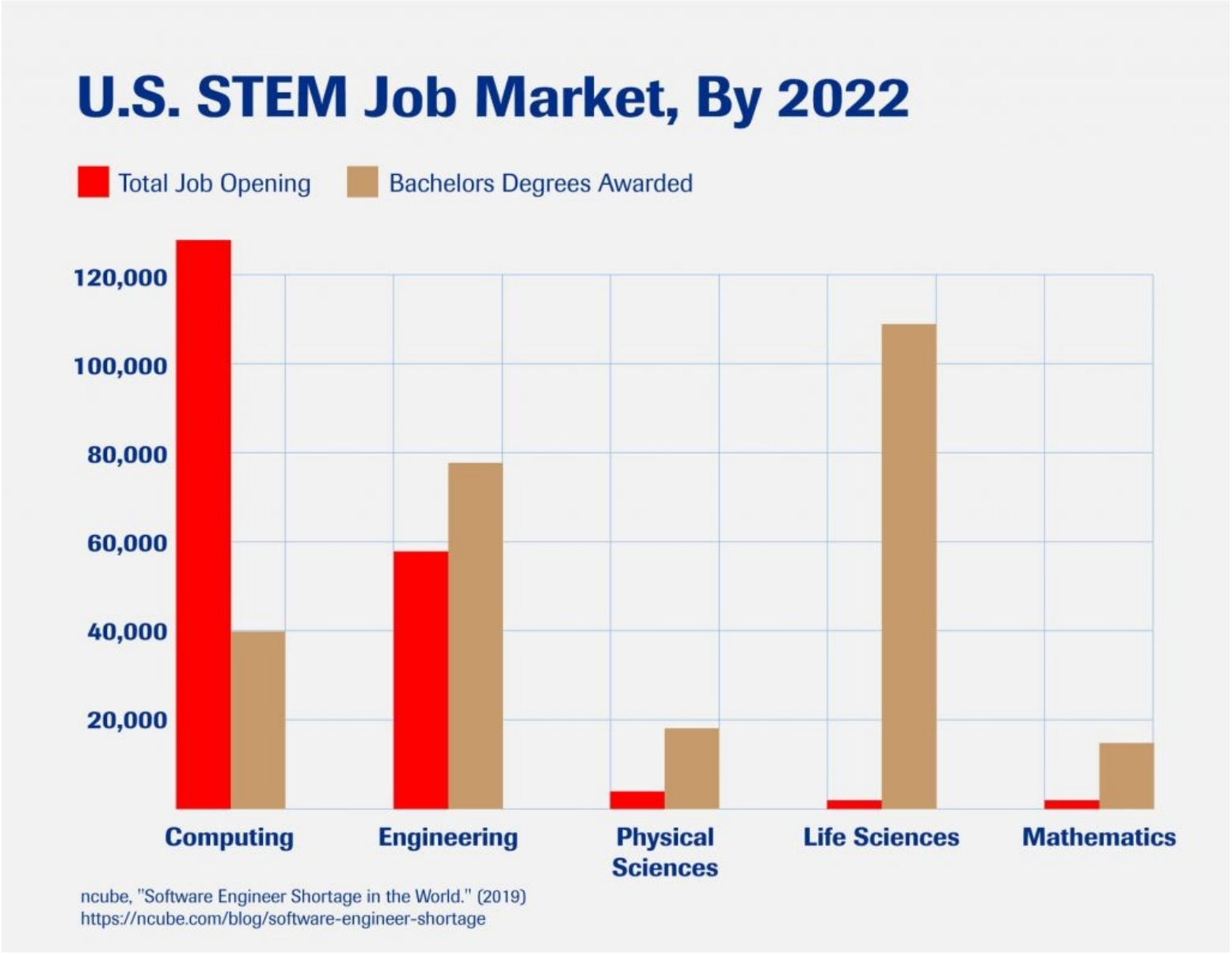


today... global warming

today… slaughterbots

today… generative AI

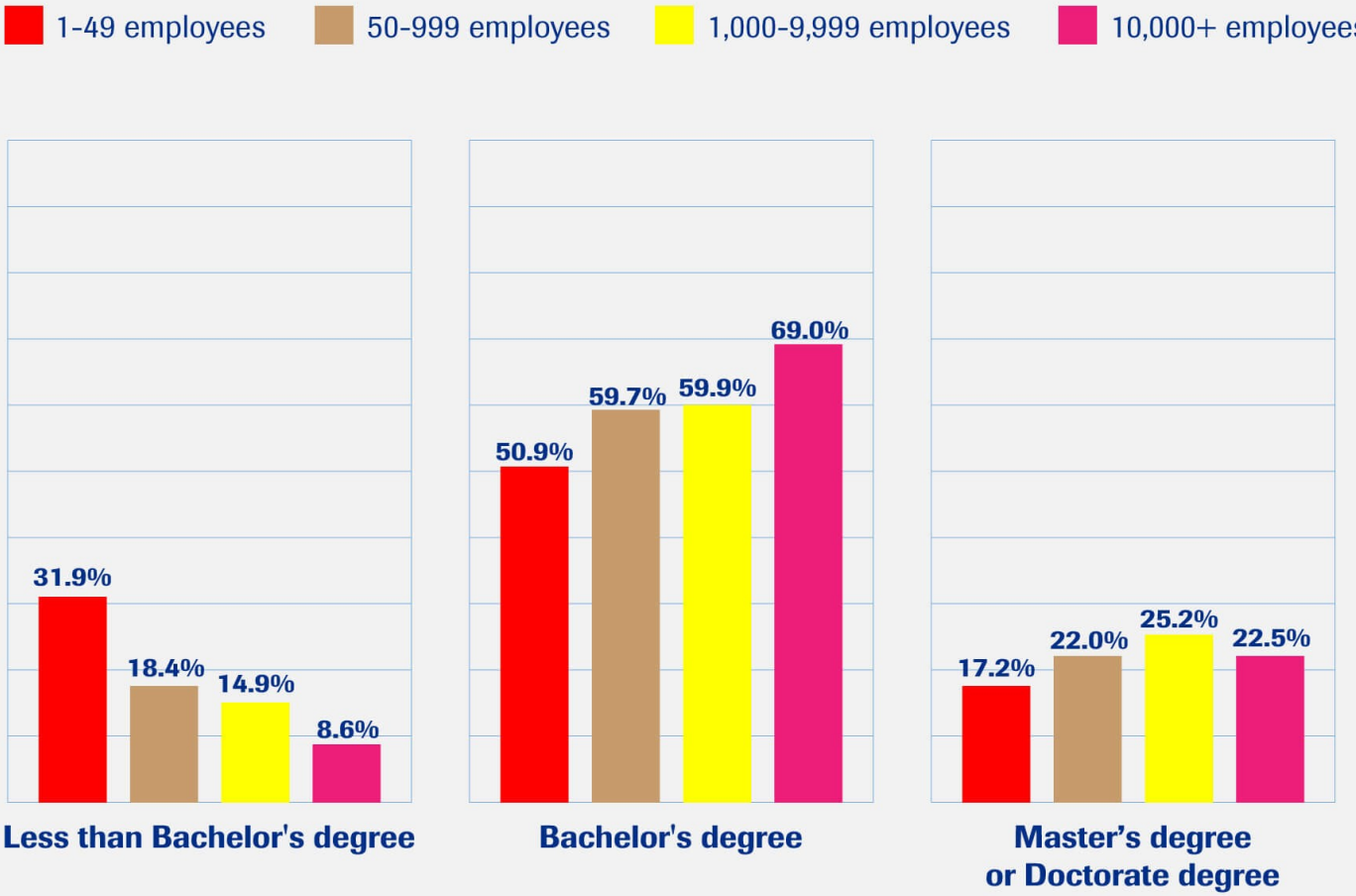
today... e-learning



today... e-learning

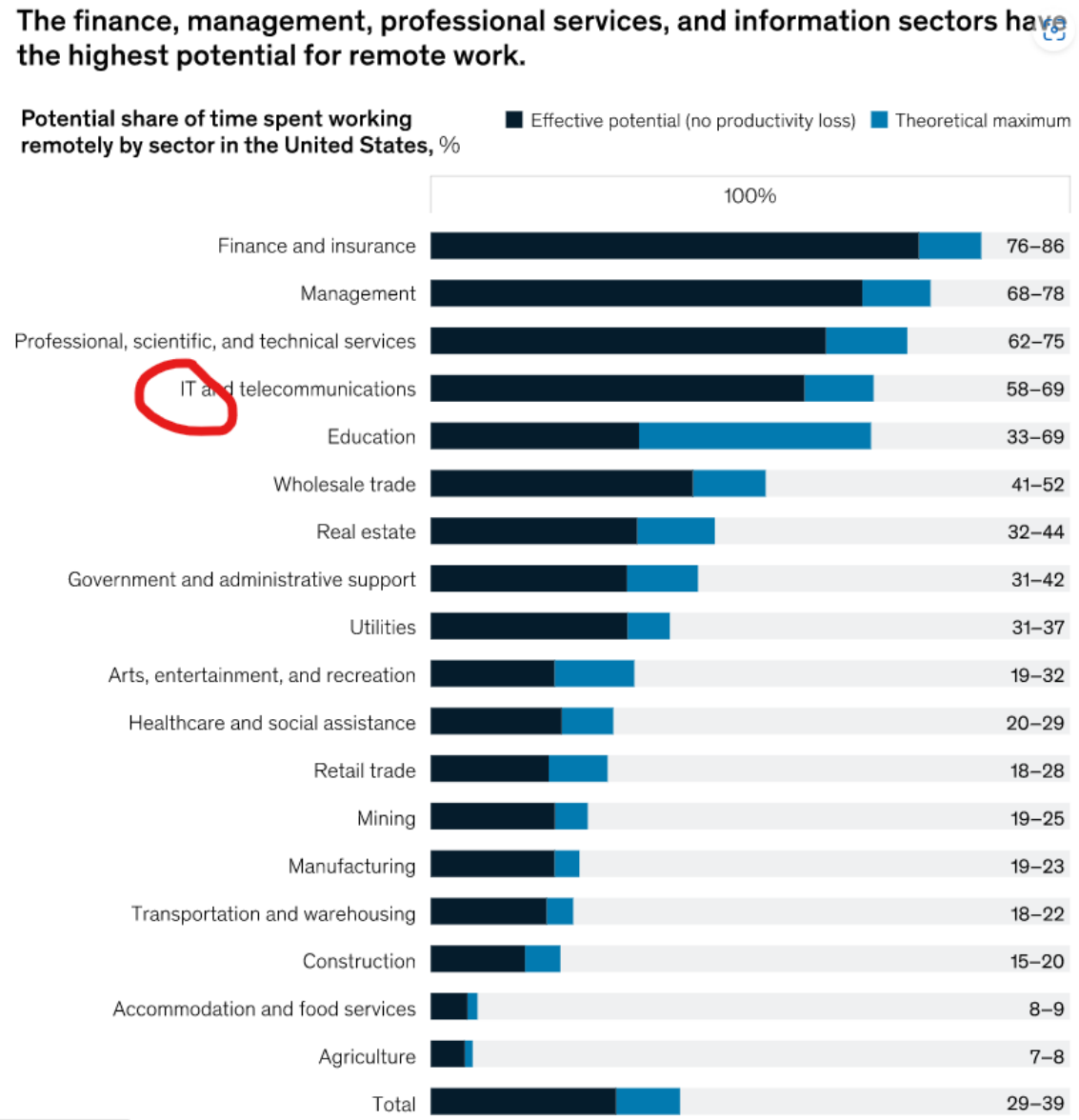
Do Software Developer Jobs Require a Degree?

The highest level of education software developers have completed:



HackerRank, "2020 HackerRank Developer Skills." (2020)
https://info.hackerrank.com/rs/487-WAY-049/images/HackerRank-2020-Developer-Skills-Report.pdf

today... remote working



morals and morality

morals correspond to one's personal beliefs about right or wrong

morality (from the Latin *moralitas* "manner, character, proper behavior") has three principal meanings.

1. in its first descriptive usage, morality means a code of conduct held to be authoritative in matters of right and wrong. Morals are created by and define society, philosophy, religion, or individual conscience.
2. in its second, normative and universal sense, morality refers to an ideal code of conduct, one which would be espoused in preference to alternatives by all rational people, under specified conditions.
3. in its third usage, 'morality' is synonymous with ethics, **the systematic philosophical study of the moral domain**.

ethics

ethics is a major branch of philosophy, encompassing right conduct and good life. It is significantly broader than the common conception of analyzing right and wrong. A central aspect of ethics is "the good life", **the life worth living or life that is simply not only satisfying**, which is held by many philosophers to be more important than moral conduct.

ethics describes standard codes of behavior expected of an individual by a group (nation, organization or profession) to which an individual belongs

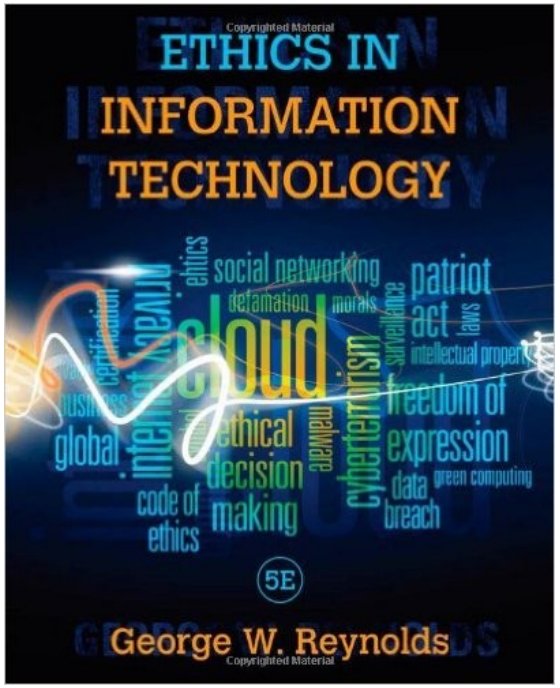
laws and moral acts

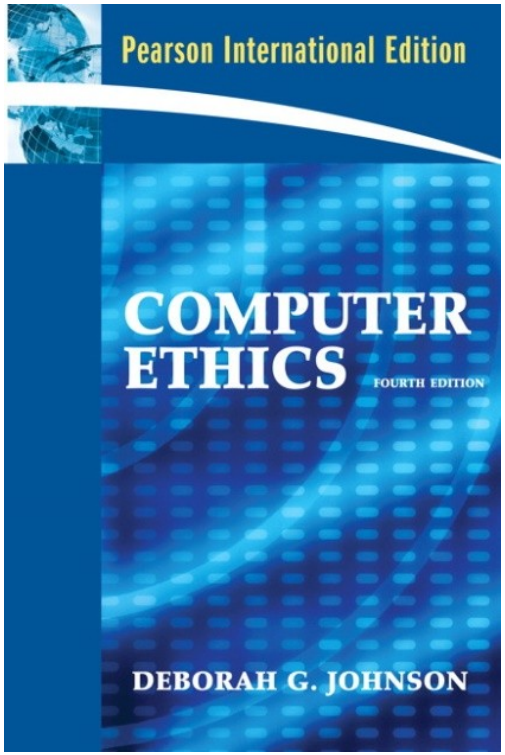
laws are a system of rules that tells us what we can and cannot do. Laws are enforced by a set of institutions (the police, courts, law-making bodies). Legal acts are acts that conform to the law.

moral acts conform to what an individual believes to be the right thing to do. Laws can proclaim an act as legal, although many people may consider the act immoral.

e.g. abortion, euthanasia…

references





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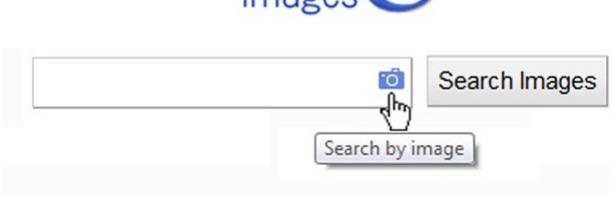
Google
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