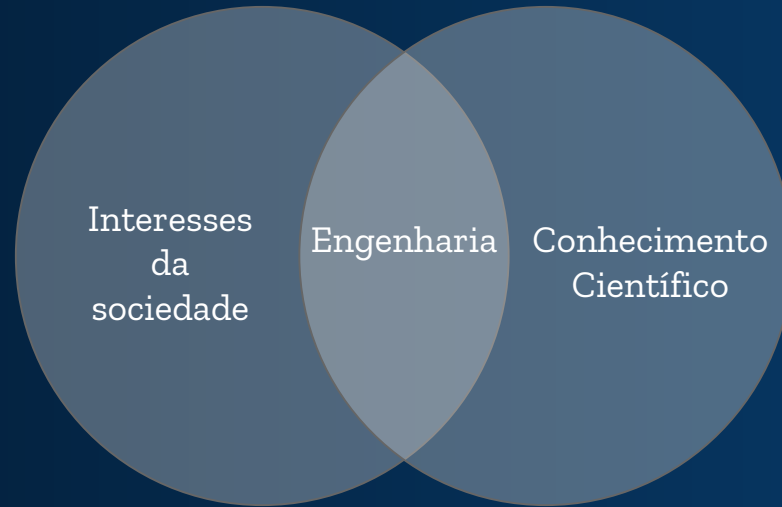


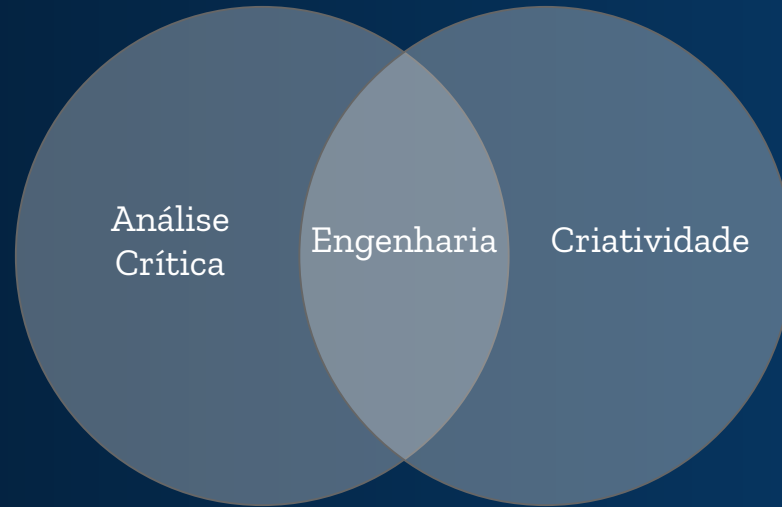
The background of the slide is a dark blue to black gradient, overlaid with a complex, glowing blue circuit board pattern. The circuit lines are of varying thickness and form, creating a sense of depth and technical complexity. The lines are primarily horizontal and vertical, with some diagonal and curved paths, suggesting a high-tech or engineering theme.

Gabriel Bernardo
Luís Noronha

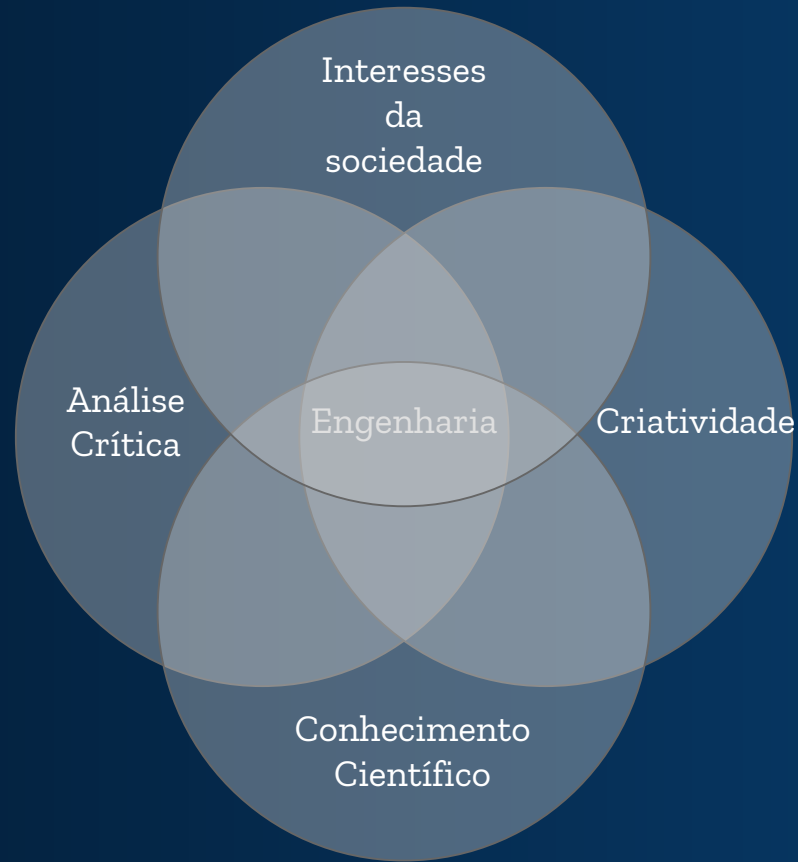
COMO E POR QUE OS PROJETOS
DE ENGENHARIA INFLUENCIAM
A SOCIEDADE?

Engenharia não existe fora
do domínio dos interesses
da sociedade





INOVAÇÃO
SOCIAL
ÉTICA



TÉCNICO
ANALÍTICO
CIENTÍFICO

1.

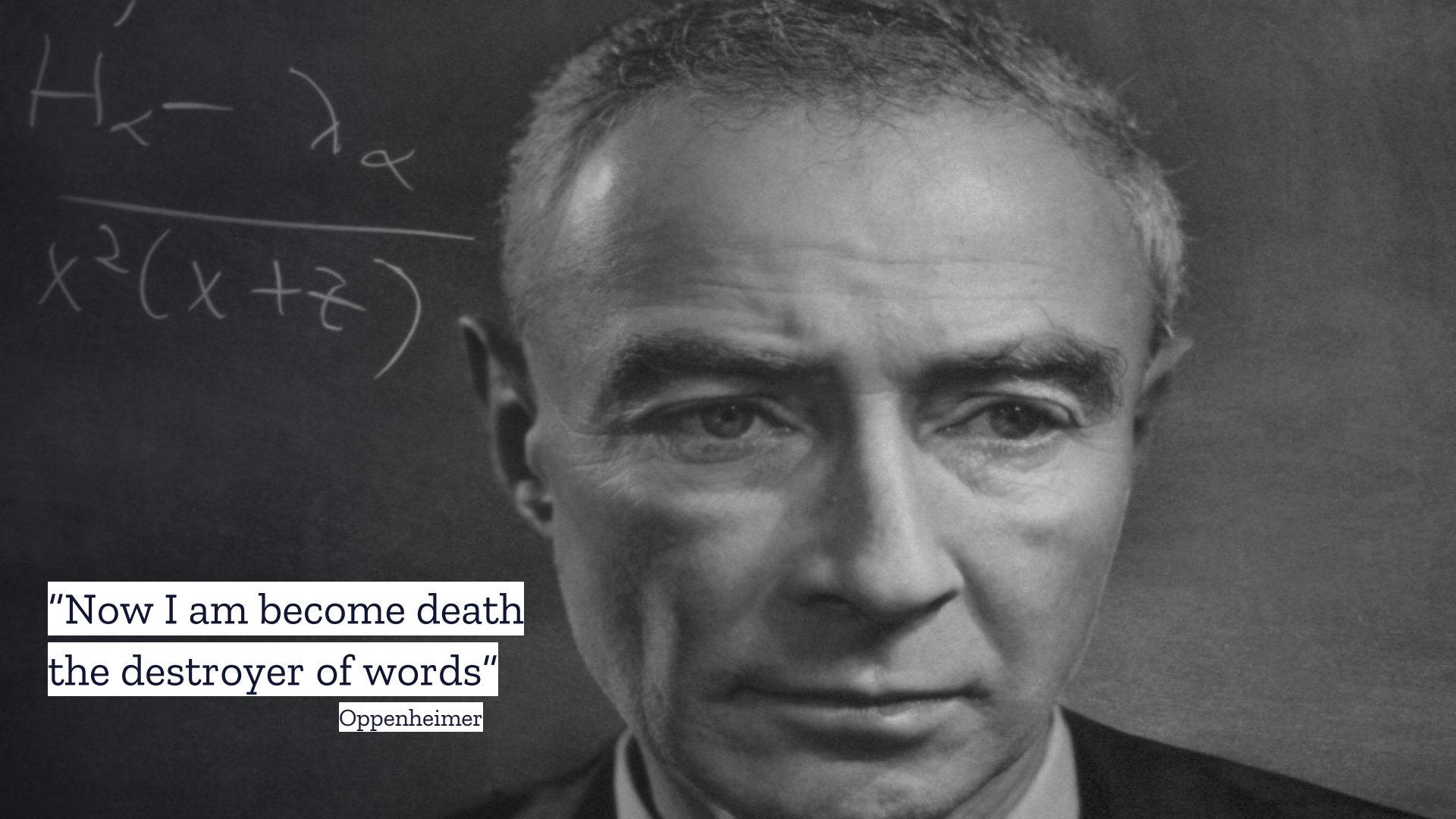
EFEITOS

NEGATIVOS

Trinity Atomic Site - New Mexico
16 de jul. de 1945



Nagasaki
ago. 1945



"Now I am become death
the destroyer of words"

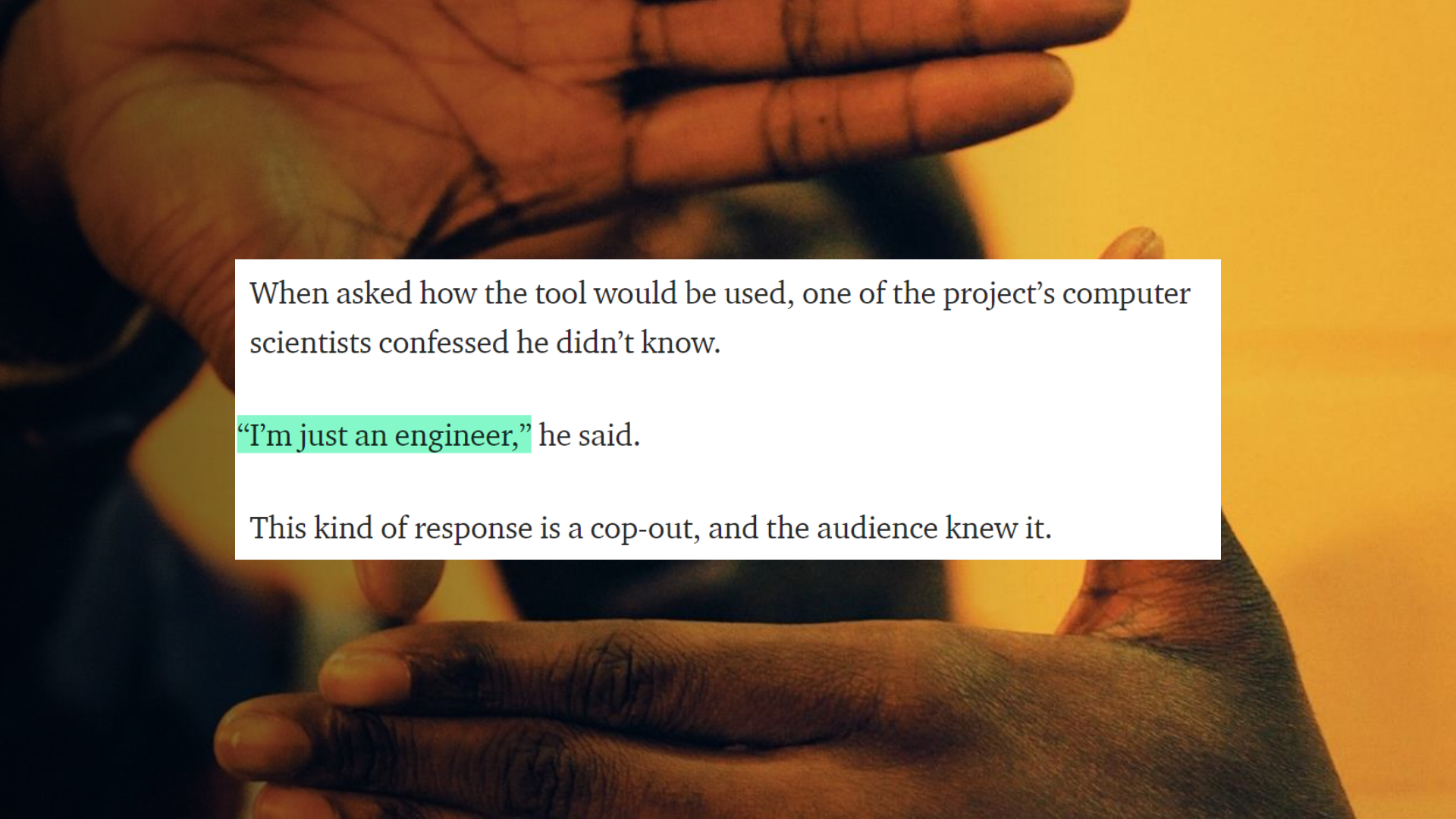
Oppenheimer



Data Violence

Como péssimas decisões de
engenharia podem danificar a
sociedade

Caso California



When asked how the tool would be used, one of the project's computer scientists confessed he didn't know.

"I'm just an engineer," he said.

This kind of response is a cop-out, and the audience knew it.



Reconhecimento Facial

Google Translate

- bir asker
- bir öğretmen
- bir doktor
- bir hemşire

- bir yazar
- bir Köpek
- bir dadı
- Bu bir kedi

- bir başkan
- bir girişimci
- bir şarkıcı
- bir öğrenci
- ...



- He is a soldier
- She's a teacher
- He is a doctor
- She is a nurse

- He is a writer
- He is a dog
- She is a nanny
- It is a cat

- He is a president
- He is an entrepreneur
- She is a singer
- He is a student
- ...

```
for(int i=0; i<10; i++){  
    if(i==0) procrastinate.continue();  
    else{  
        procrastinate.end();  
        work.start();  
    }  
    i--;  
}
```

Algoritmos não só refletem atitudes sociais problemáticas

Eles as reenforçam e amplificam!

A photograph of two young children, a boy and a girl, sitting at a wooden desk in what appears to be a classroom or office setting. They are both looking at a silver laptop computer. The boy, on the left, has his mouth wide open in an 'O' shape and his right arm raised high in the air. The girl, on the right, is also smiling broadly with her mouth open and is pointing her right index finger towards the laptop screen. She has two braids with blue hair ties. The background shows a modern office environment with a grey mesh chair, a red exit sign, and fluorescent lighting.

CRIANÇAS

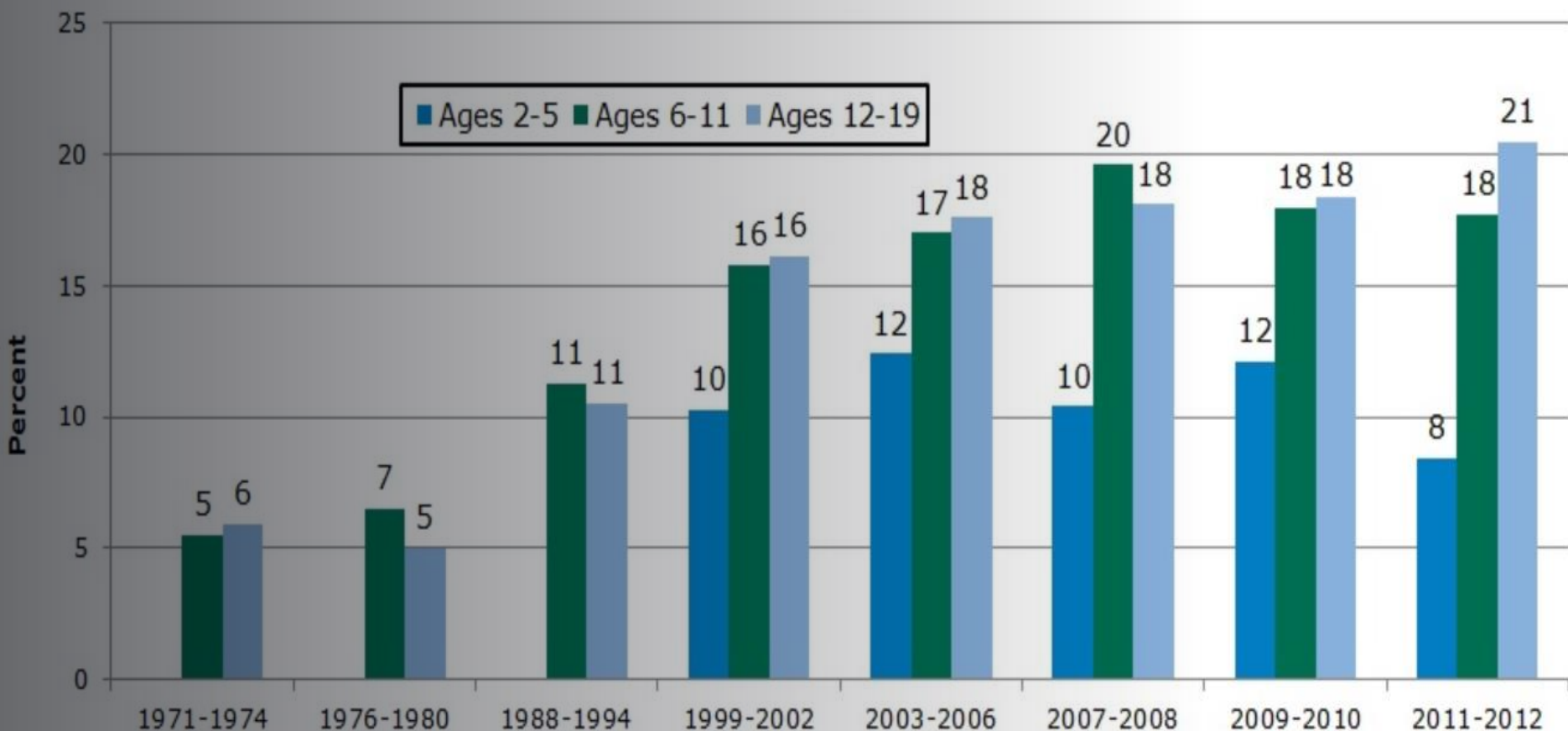
Tecnologia altera como
elas pensam e sentem



Obesidade

Figure 1

Percentage of Children Ages 2 to 19 Who Are Obese, by Age: Selected Years, 1971-2012





IMPACTO AMBIENTAL

Alterações ambientais afetam
diretamente como a sociedade vive

An aerial photograph showing a town completely inundated with muddy, brown floodwater. The buildings are mostly rectangular and appear to be made of brick or concrete, many of which are partially submerged or completely destroyed. Debris, including twisted metal and wooden planks, is scattered throughout the water. The overall scene is one of total devastation.

O desastre ecológico de Mariana

2015



Desastre de Bhopal

1984

Union Carbide (hoje, Dow Chemicals)

2.

EFEITOS

POSITIVOS

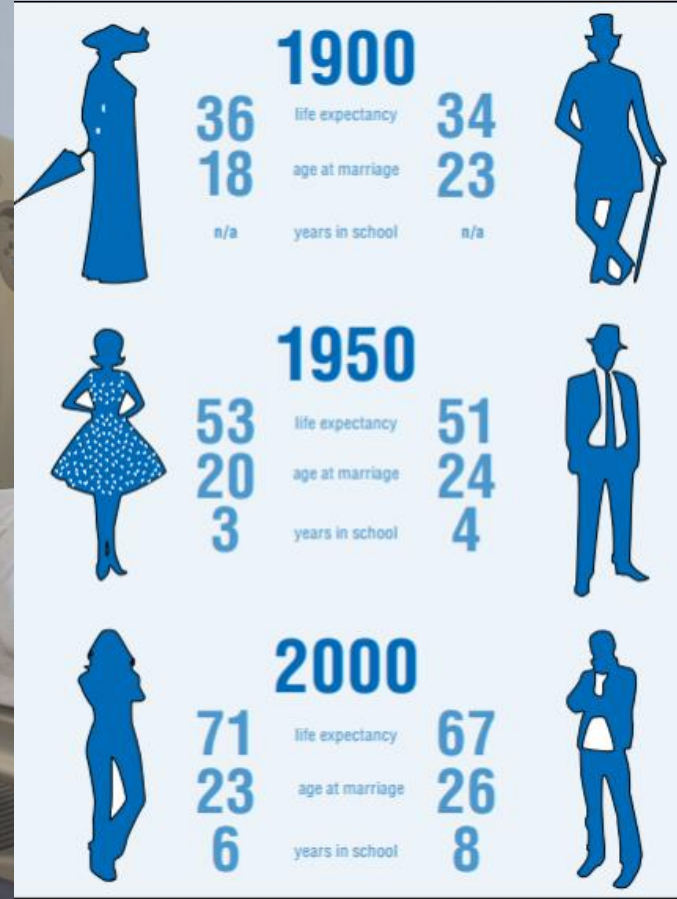


A stethoscope is positioned on the left side of the frame, resting on a blue surface. The background is a solid, deep blue color. The word "SAÚDE" is written in a white, serif font and is enclosed within a white rectangular box. The stethoscope's chest piece is visible, and the tubing curves upwards and to the left.

SAÚDE

Aumento da expectativa de vida

Remédios
Vacinas
Exames
Marca-passo



COMUNICAÇÃO

4000 a. C.: Invenção
da escrita pelos
Sumérios

1450: Invenção da
prensa móvel

1950: Internet



JAN
2018

DIGITAL AROUND THE WORLD IN 2018

KEY STATISTICAL INDICATORS FOR THE WORLD'S INTERNET, MOBILE, AND SOCIAL MEDIA USERS

TOTAL
POPULATION



7.593
BILLION

URBANISATION:
55%

INTERNET
USERS



4.021
BILLION

PENETRATION:
53%

ACTIVE SOCIAL
MEDIA USERS



3.196
BILLION

PENETRATION:
42%

UNIQUE
MOBILE USERS



5.135
BILLION

PENETRATION:
68%

ACTIVE MOBILE
SOCIAL USERS



2.958
BILLION

PENETRATION:
39%

we
are
social



we
are
social



SOURCES: POPULATION: UNITED NATIONS; U.S. CENSUS BUREAU; **INTERNET:** INTERNETWORLDSTATS; ITO; EUROSTAT; INTERNETLIVESTATS; CIA WORLD FACTBOOK; MIDEASTMEDIA.ORG; FACEBOOK; GOVERNMENT OFFICIALS; REGULATORY AUTHORITIES; REPUTABLE MEDIA; **SOCIAL MEDIA AND MOBILE SOCIAL MEDIA:** FACEBOOK; TENCENT; VKONTAKTE; KAKAO; NAVER; DING; TECHRASA; SIMILARWEB; KEPIOS ANALYSIS; **MOBILE:** GSMA INTELLIGENCE; GOOGLE; ERICSSON; KEPIOS ANALYSIS. **NOTE:** PENETRATION FIGURES ARE FOR TOTAL POPULATION (ALL AGES).

 **Hootsuite**

we
are
social **24**



Conectividade com amigos

Velocidade de comunicação

Contato com todo o mundo

Criação de relacionamentos


Grupos com interesses em comum.



Comércio

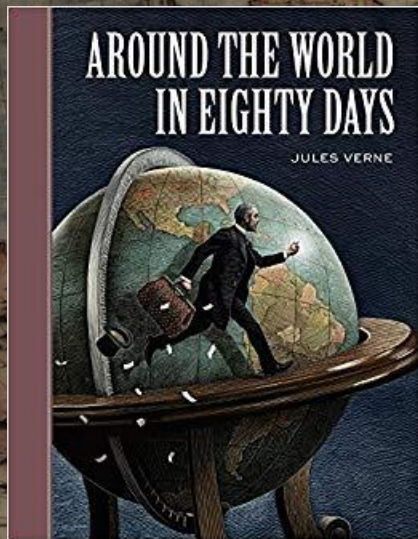
Vídeo-conferências

EaD

A woman wearing a brown headwrap and a patterned top with a decorative collar is talking on a black mobile phone. She is standing outdoors with a rural landscape of hills and fields in the background under a clear blue sky.

A mudança na
agricultura da Uganda
devido aos celulares

O mundo ficou menor ou maior?



Jato G650 bate recorde com volta ao mundo em 41 horas

Aeronave percorreu 37.614 quilômetros com uma média de 915 km/h e apenas 1 hora e 30 minutos parados para abastecimento

📅 30 OUT 2013 ⌚ 07h20 atualizado às 07h20



TRANSPORTE

**MORTON STREET, CORNER OF BEDFORD, LOOKING TOWARD BLEECKER STREET,
MARCH 17, 1893.**

Evolution of Ground Transportation?

Personal Transportation



The Next
BIG
Thing?

Public Transportation


ACESSIBILIDADE

22,2% da população brasileira tem
algum tipo de deficiência



Como seriam as
cidades sem
elevadores?





E a vida sem o
plástico?



A revolução da geladeira

1870: bananas

1876: comércio de carne para a Argentina

1938: caminhões refrigerados

WW2: sangue e remédios



Surgimento de supermercados

Melhora da nutrição

Inserção da mulher no mercado de trabalho

The background is a technical drawing with various mechanical parts. In the top left, there are two interlocking gears. A pair of glasses is positioned in the upper right quadrant. A caliper is shown in the lower right, with its jaws open. The drawing includes various dimension lines and labels such as $\phi 52H7/56$, 74.0 , $85h11/m10$, and 10 .

3.

CONSIDERAÇÕES

FINAIS

Princípios

Precisão e Rigor

Assegurar, sábio e fielmente, o uso do conhecimento adequado em serviço dos outros.

Respeito Pela Vida, Lei e o Bem Público


Devem dar o devido peso à todas as leis relevantes, fatos e orientações publicadas e também o interesse público majoritário.

Honestidade e Integridade

Adotar altos níveis de padrão de conduta profissional, franqueza, justiça probidade.

Responsabilidade: Ação de Escutar e Informar

Deve prevalecer o alto padrão de liderança ao explorar e gerenciar a tecnologia, prestando sempre à sociedade e ser sensível à vontade pública.

A woman with brown hair tied back, wearing a blue long-sleeved uniform, is focused on working on the engine of a motorcycle. She is using a tool to adjust a component. The motorcycle is black and silver, and the background is a workshop setting.

Nós não somos "só"
engenheiros

A glowing lightbulb hangs from a red cord in the foreground, casting a warm, golden light. The background is a blurred workshop or laboratory with various tools and equipment, suggesting a creative or technical environment. The lightbulb is the central focus, symbolizing an idea or a project in progress.

Meu projeto funciona?

Meu código está rodando?

Meu projeto é economicamente viável?

A glowing lightbulb hangs from a red cord, casting a warm light. The background is dark and blurred, showing other lights and structures, suggesting an indoor setting like a restaurant or cafe.

**Meu projeto faz o mundo um lugar
melhor ou pior?**



Obrigado!

Referencias

- <https://medium.com/s/story/data-violence-and-how-bad-engineering-choices-can-damage-society-39e44150e1d4>
- <https://tecnicoemineracao.com.br/causas-do-rompimento-da-barragem-de-rejeito-em-mariana/>
- <https://nyupress.org/books/9781479837243/>
- https://www.huffpostbrasil.com/entry/heres-why-facial-recognition-tech-cant-figure-out-black-people_us_56d5c2b1e4b0bf0dab3371eb
- <https://www.dailymail.co.uk/health/article-4647420/Human-life-expectancy-reach-125-years-old-2070.html>
- <https://www.nap.edu/read/1829/chapter/10>