Computação – Ciência, Engenharia e Arte

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ACADEMIA DE CIÊNCIAS DO ESTADO DE SÃO PAULO

AVISO

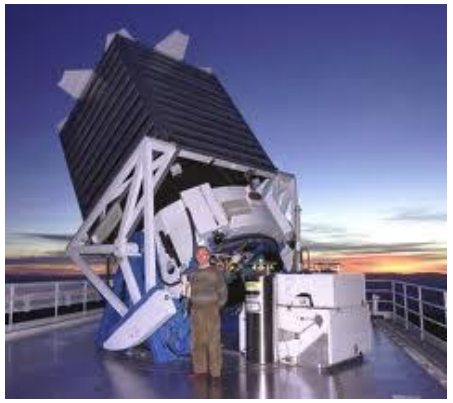
- Todas as perguntas serão respondidas

DURANTE O WEBINARIO utilizando o botão Q & A OU

POR EMAIL (posteriormente, se adicionar email as perguntas)

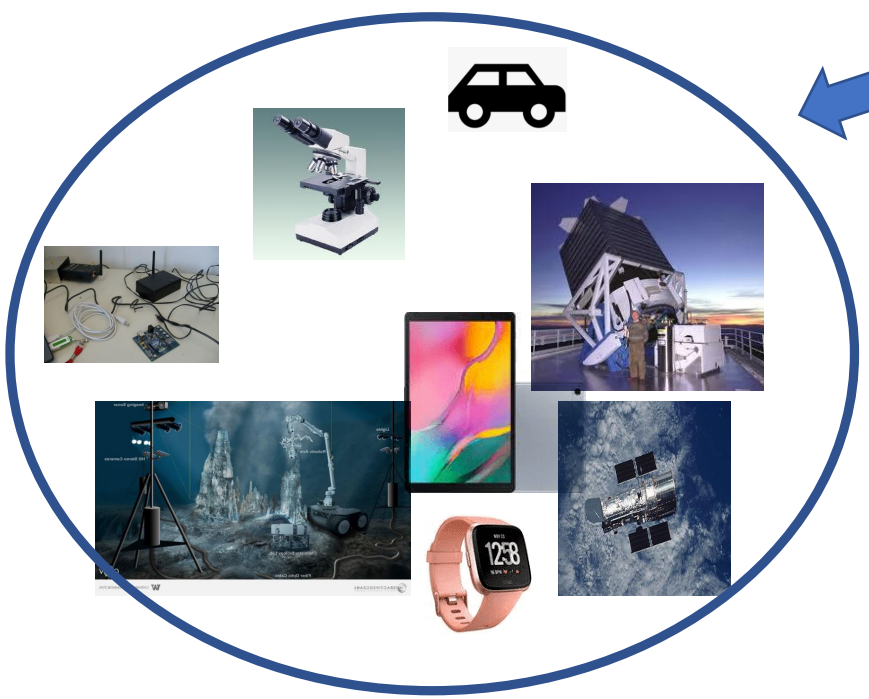
- O webinário será gravado e vai ficar disponível no canal YouTube da Agência FAPESP

A Computação permeia e influencia nossas vidas



Ciência, Engenharia e Arte

A Computação permeia e influencia nossas vidas (e vice-versa)



Ciência, Engenharia e Arte

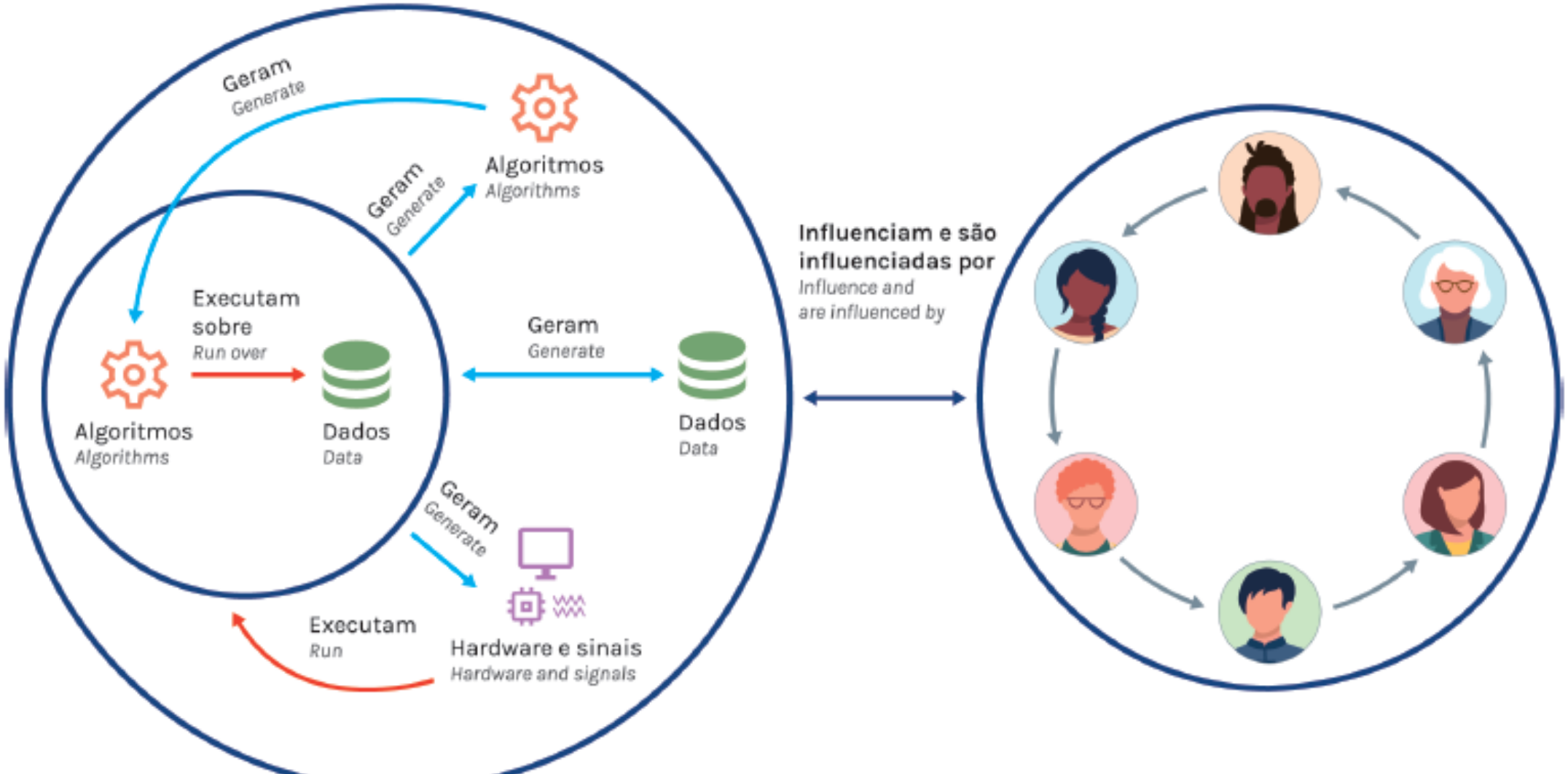
A FAPESP sempre reconheceu isso

- Financiamento de um dos primeiros computadores instalados em universidades no Brasil
- Papel fundamental na criação e consolidação da Internet
- Projeto Genoma
- Centros de pesquisa centrados em IA
- Programa em eScience e Data Science
- Pioneirismo em dados abertos
- Centros de Engenharia

http://bv.fapesp.br

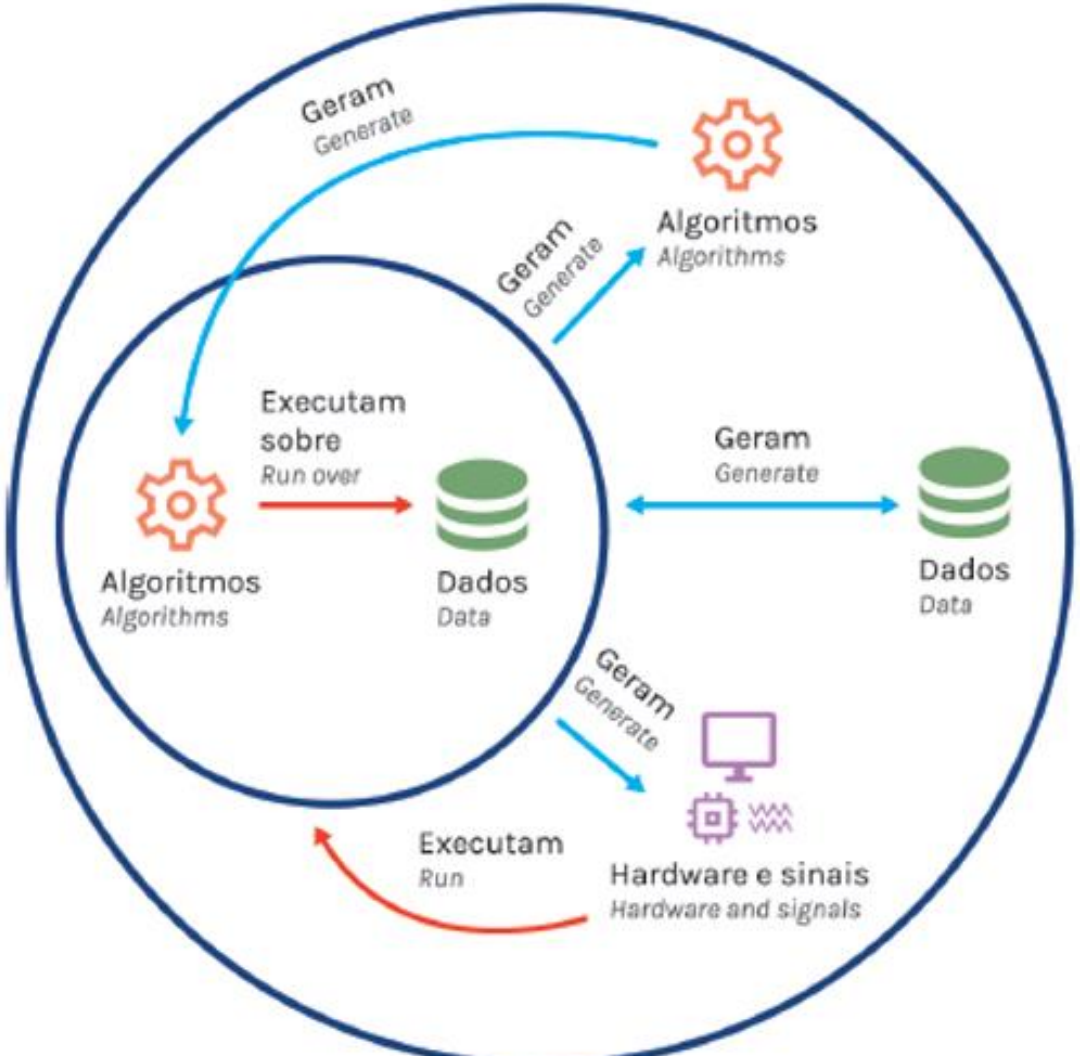
FAPESP 60 ANOS 1962 - 2022

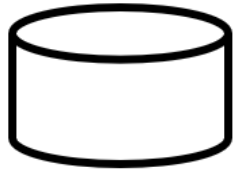
Círculos virtuosos – Ciência, Engenharia e Arte

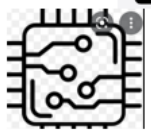


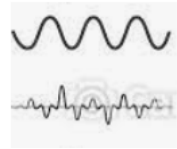
Computação – ciência, engenharia, arte

Linha mestra – Dados, Algoritmos, Hardware



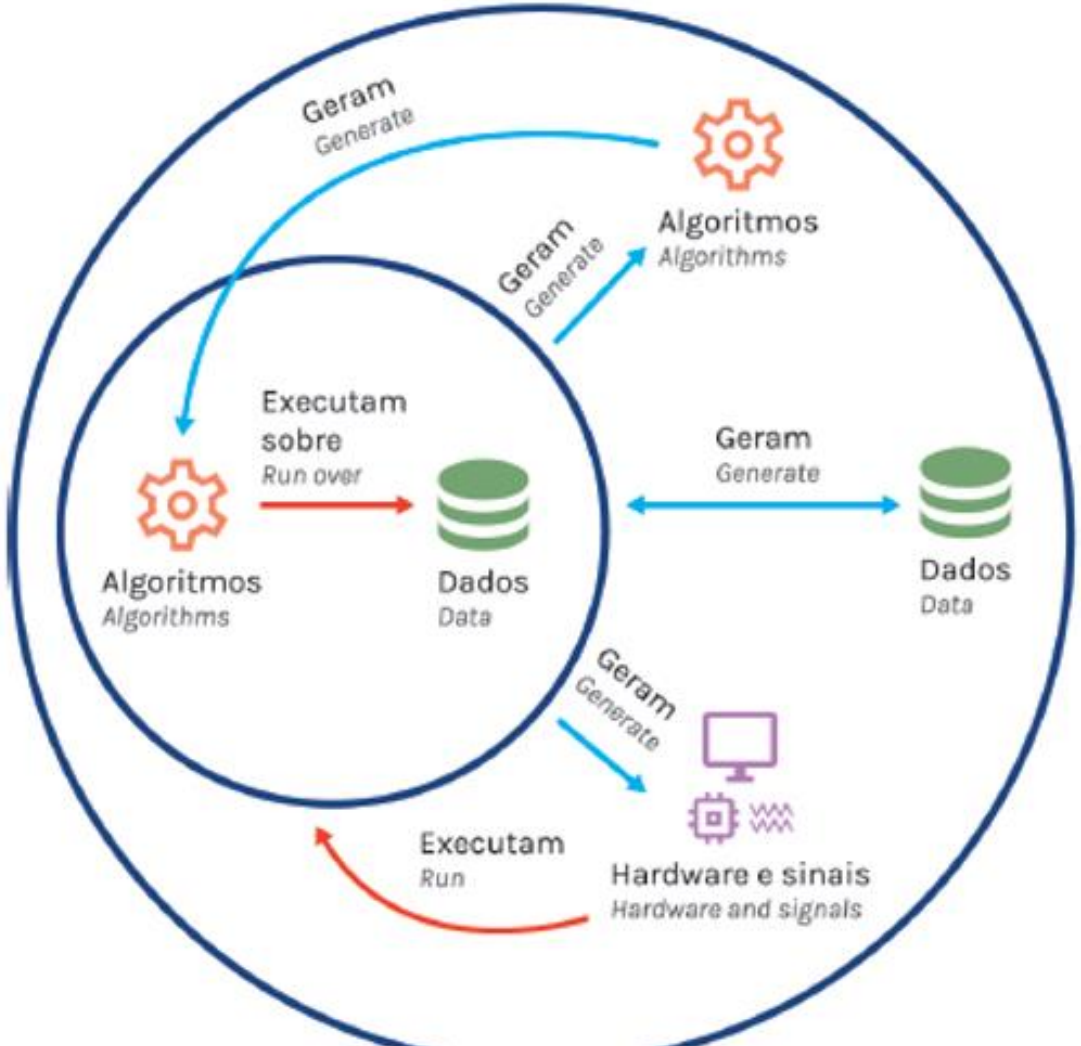


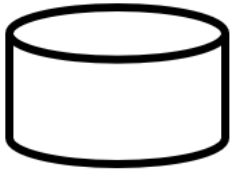


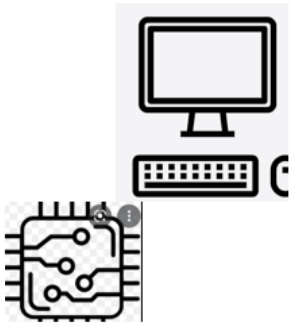
SINAIS 

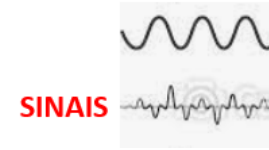
Computação – ciência, engenharia, arte

Linha mestra – Dados, Algoritmos, Hardware

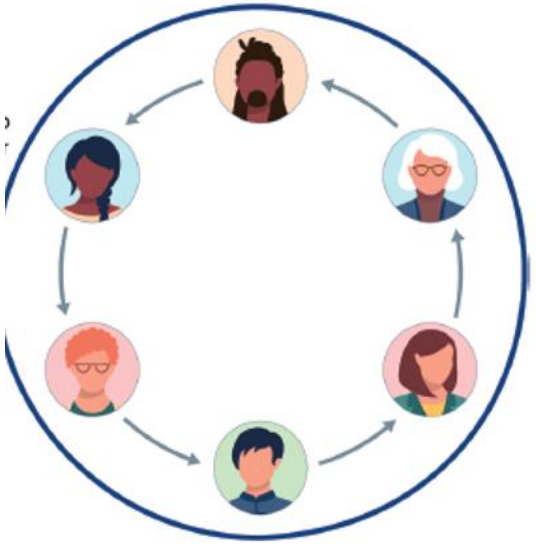


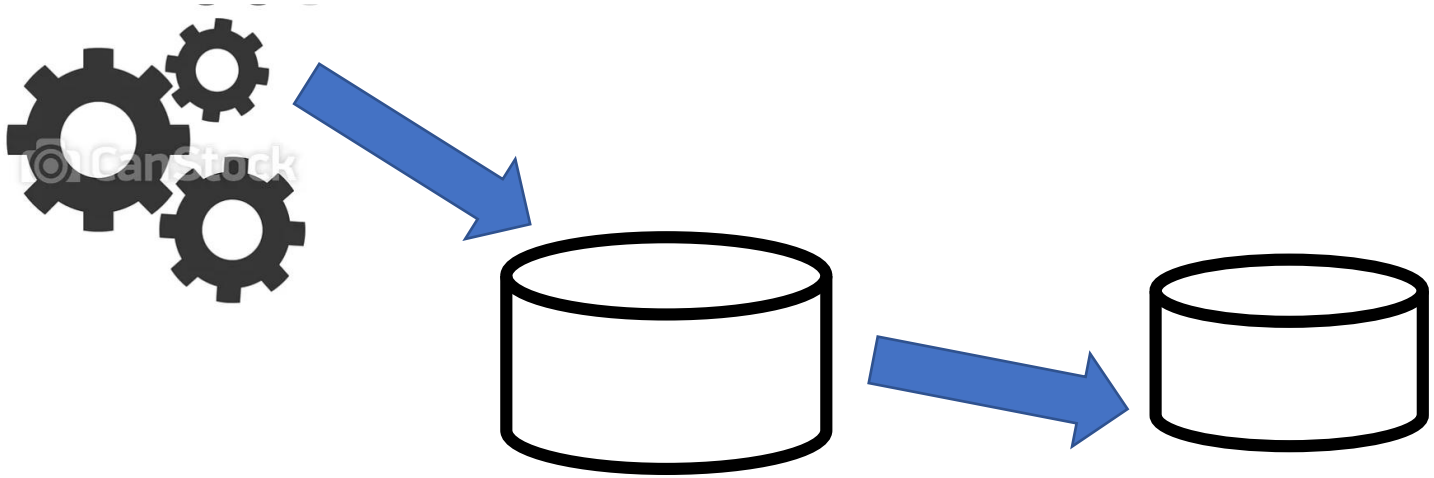


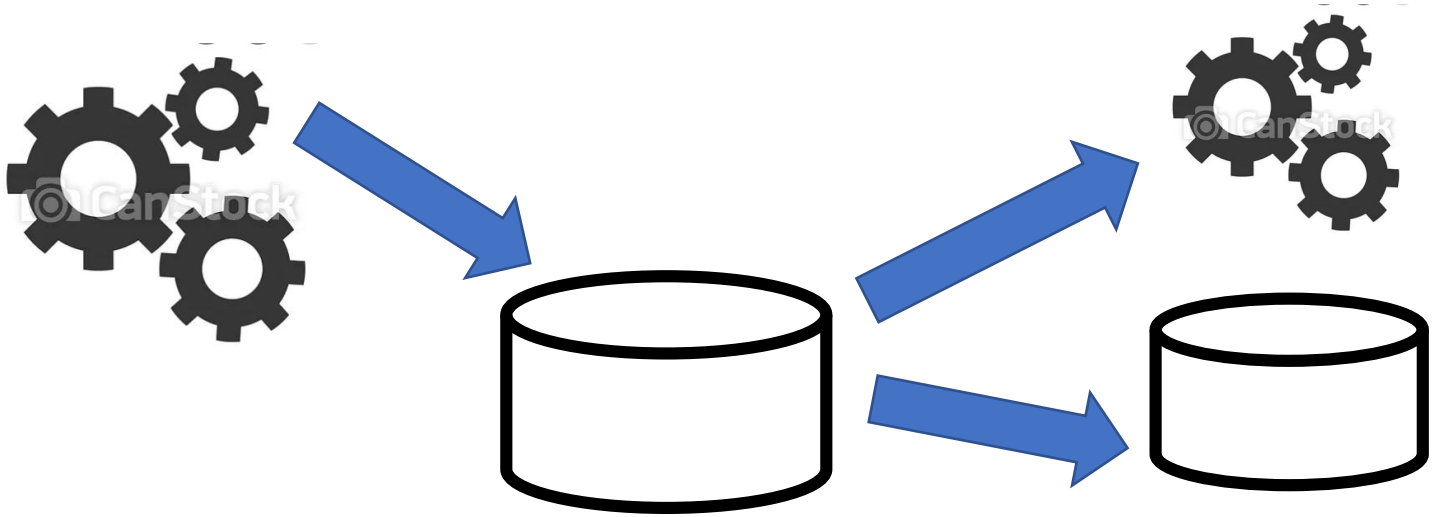




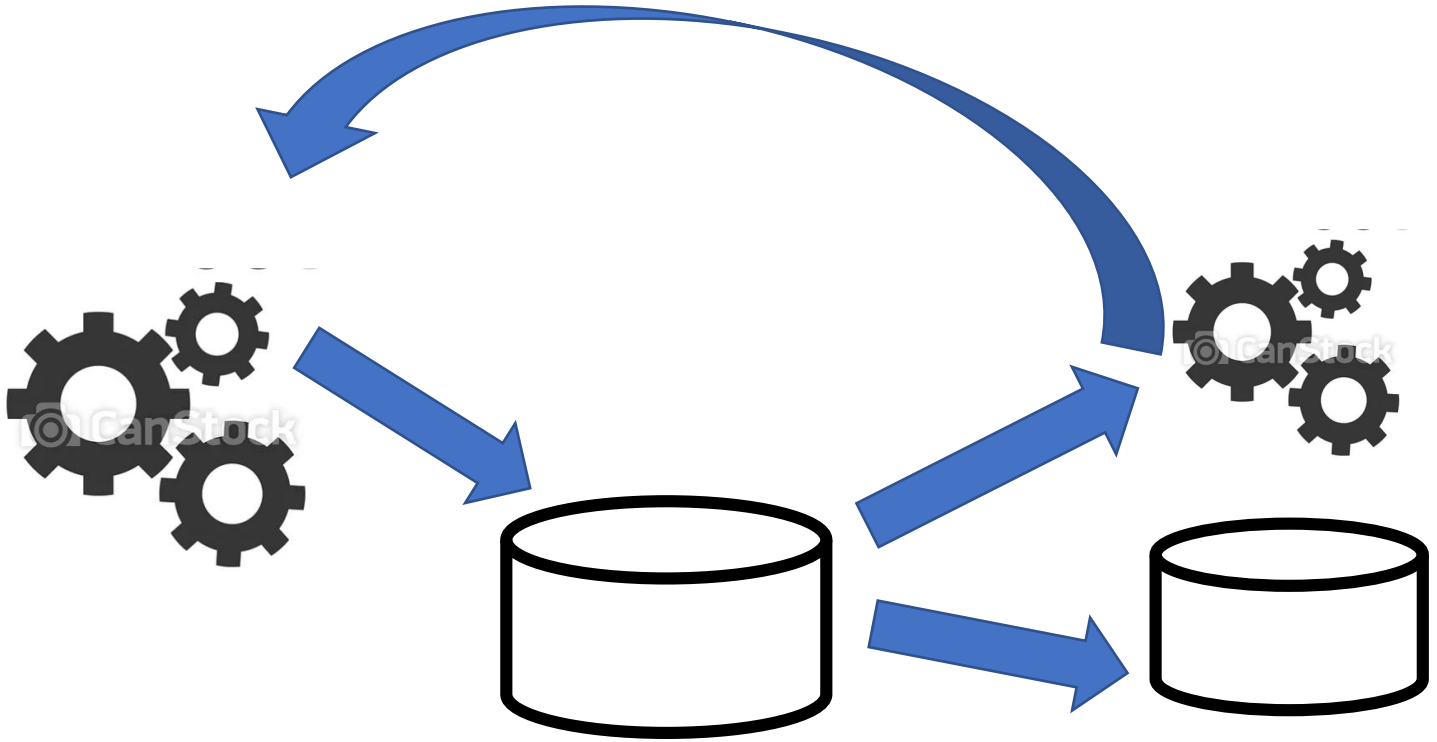
E PESSOAS

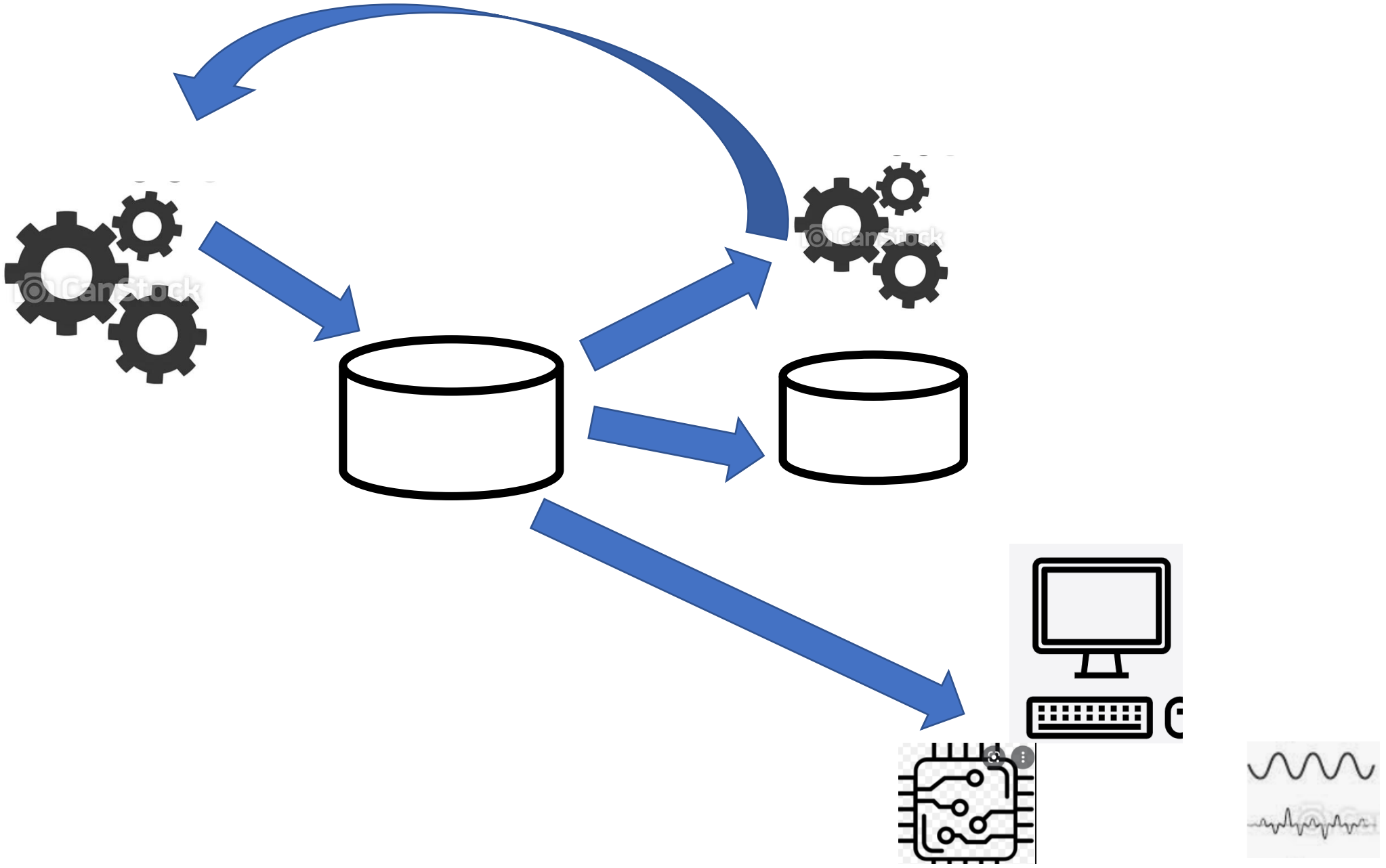


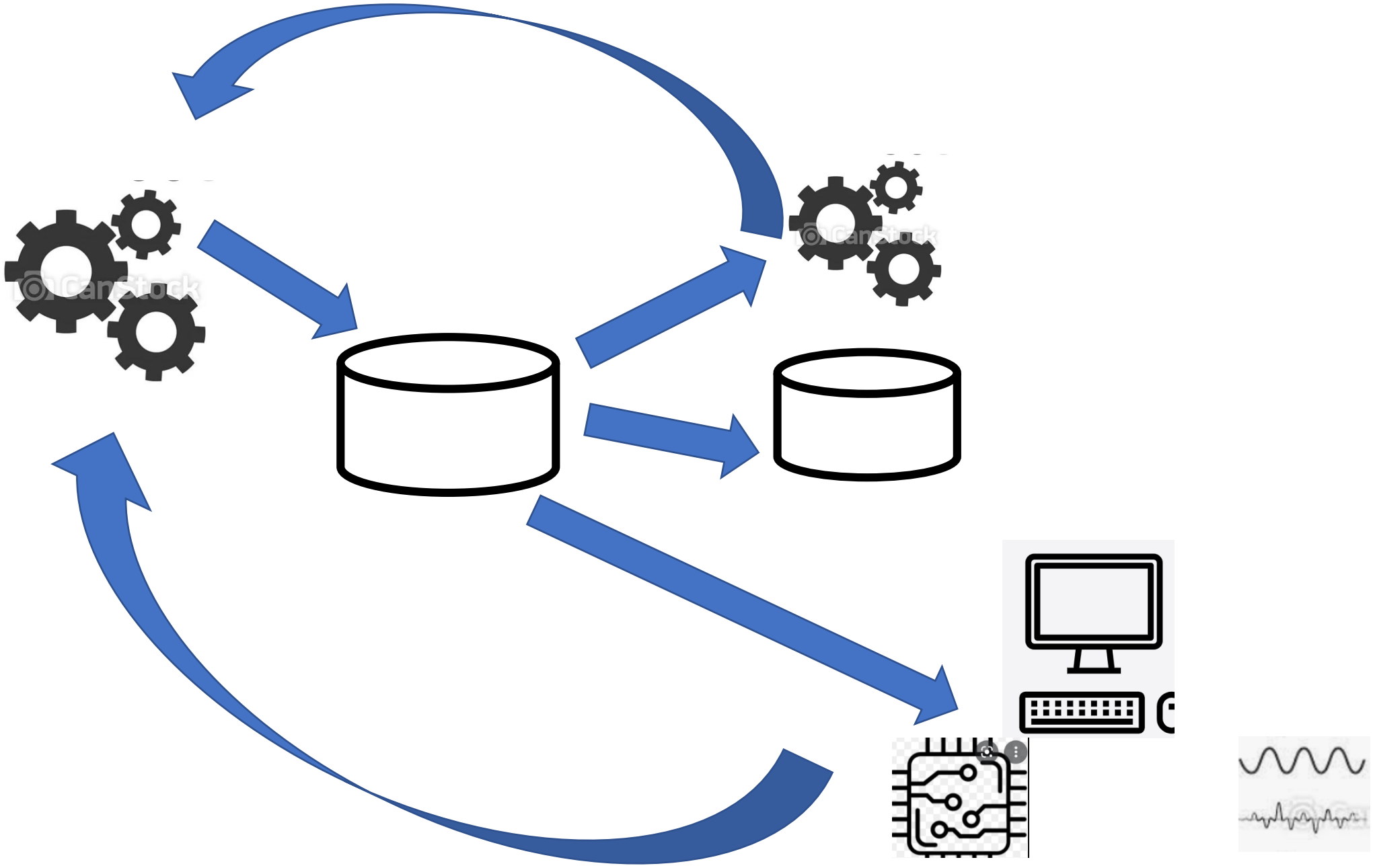


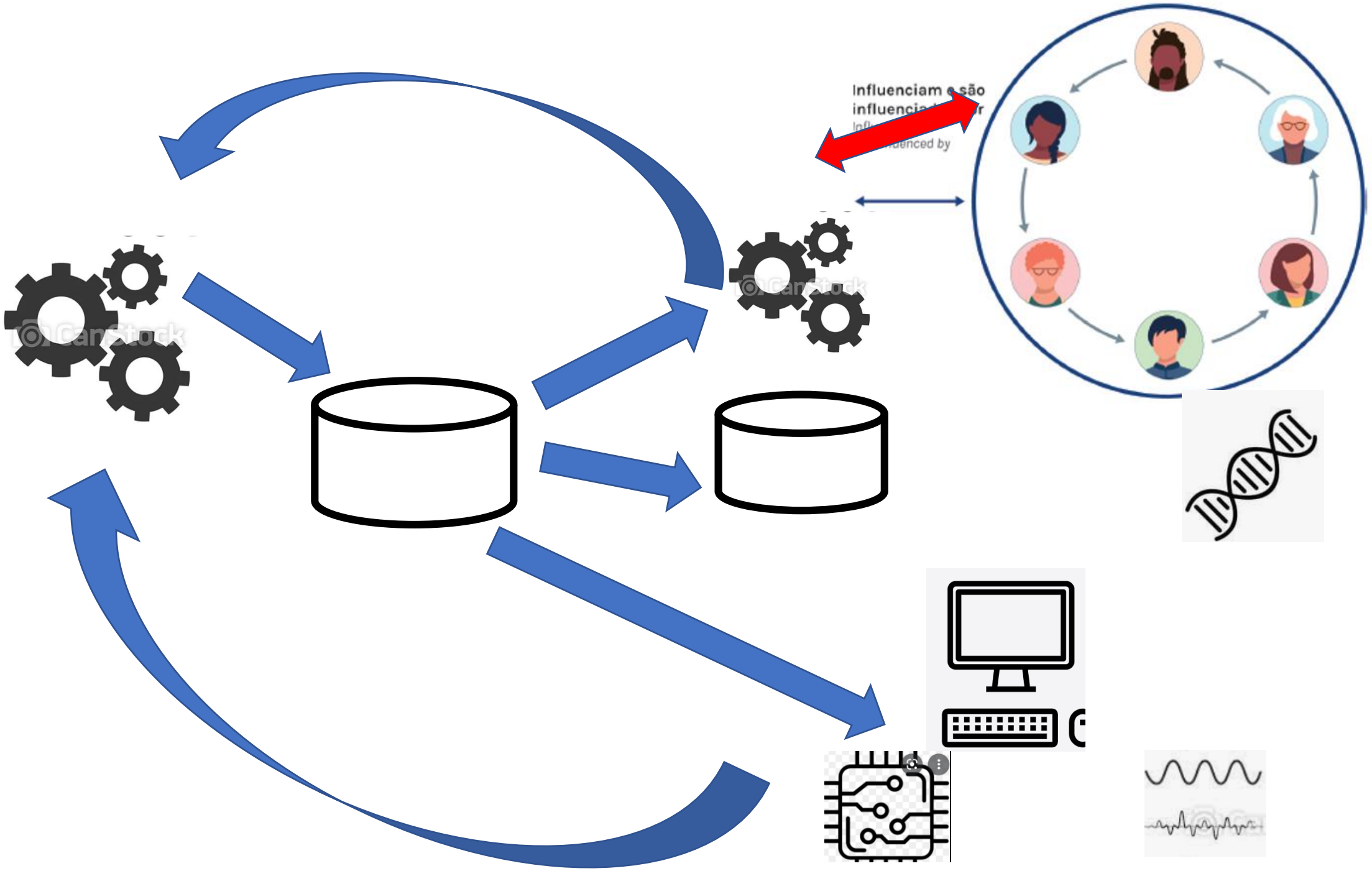


Ciência
Dirigida
Pelos
Dados








Influenciam e são
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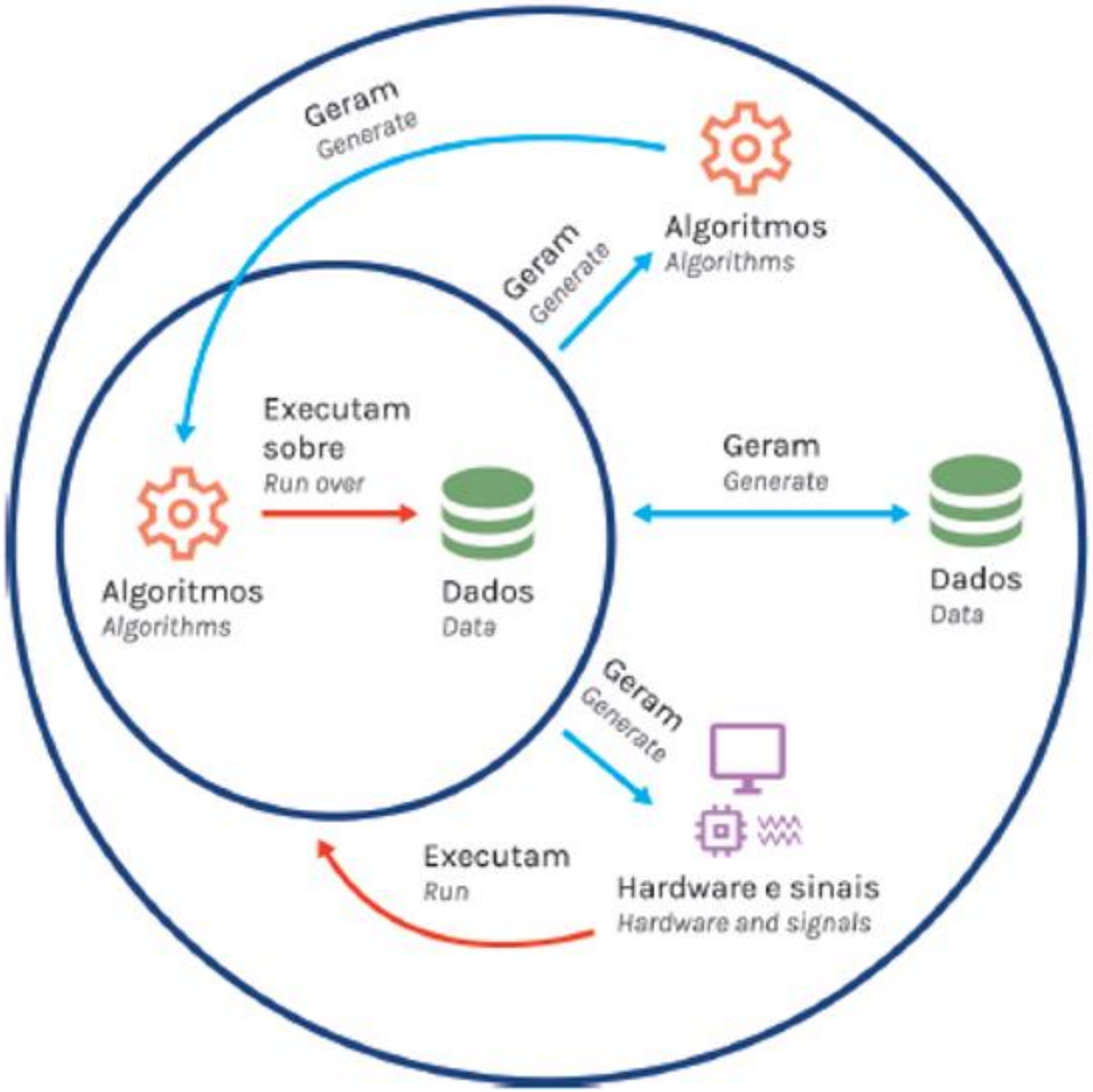
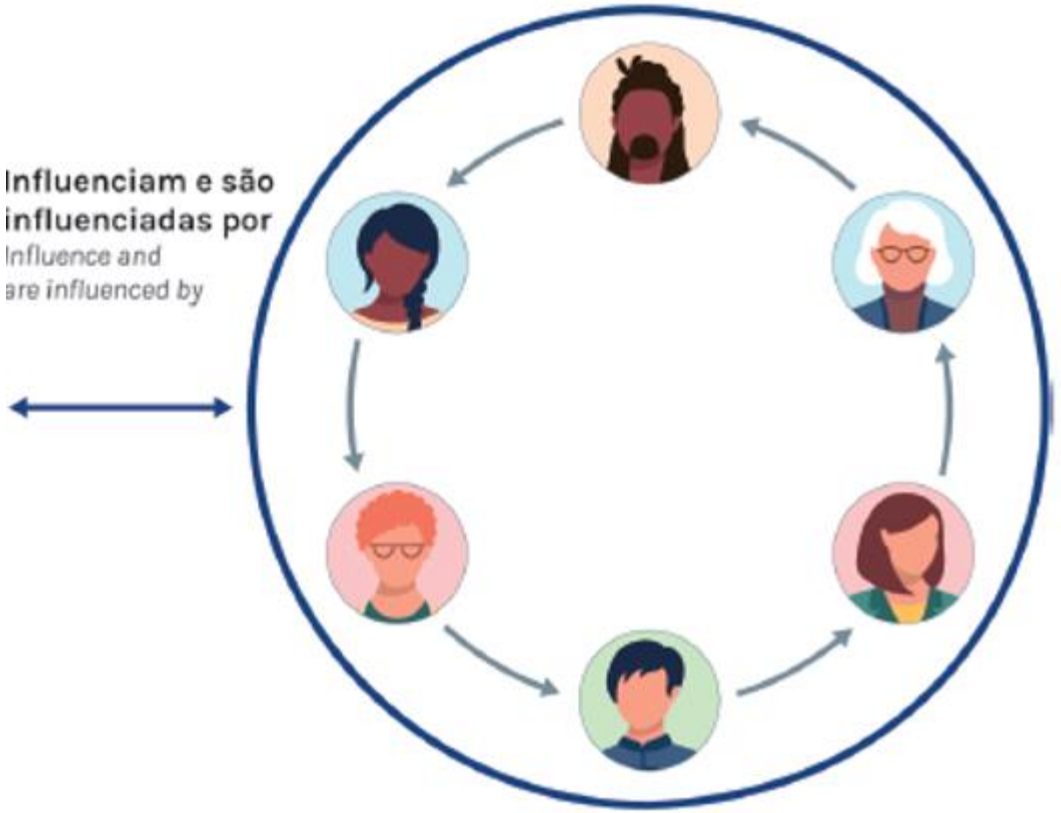
Influenced by

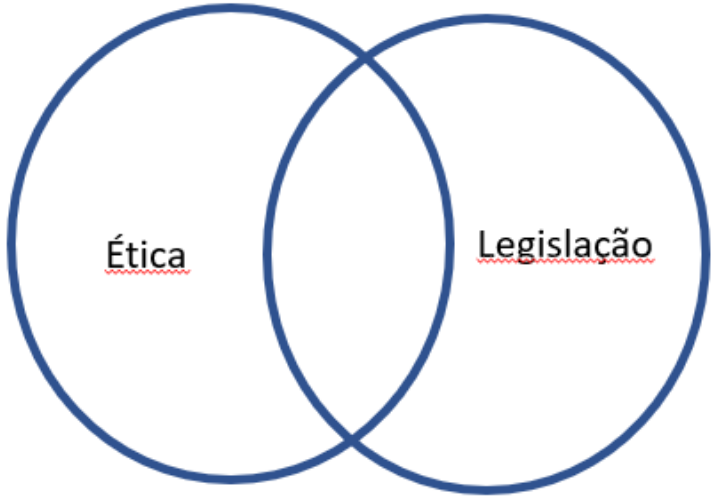
Pessoas influenciam e são influenciadas por

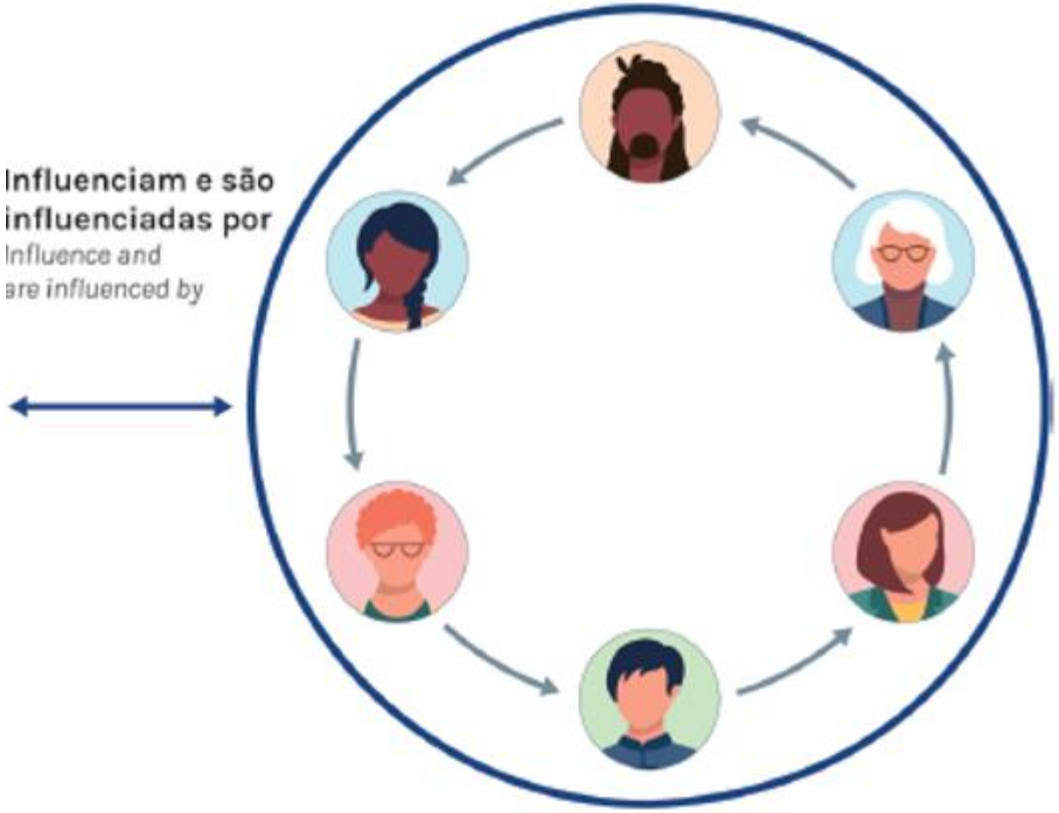


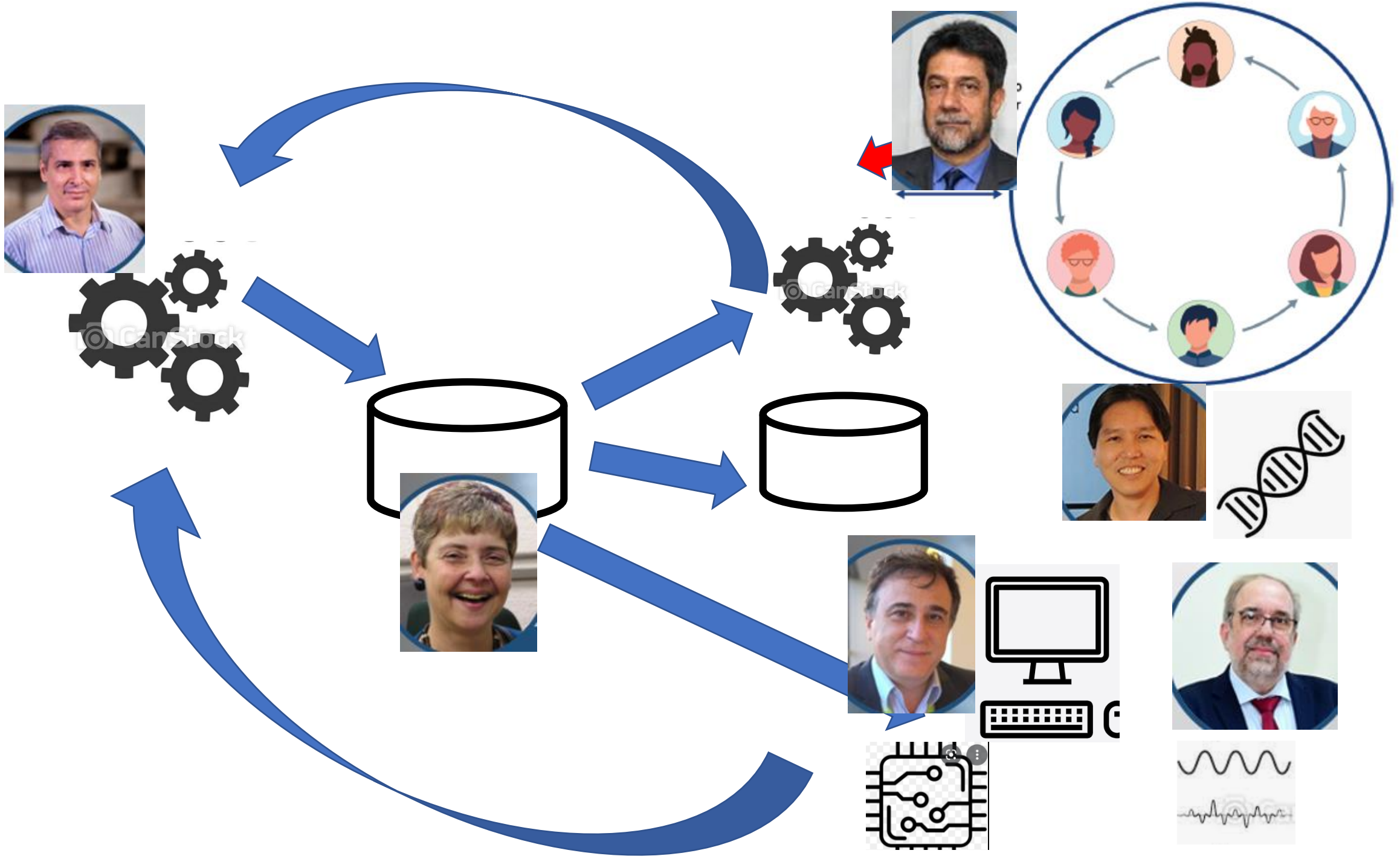


Pessoas influenciam e são influenciadas por

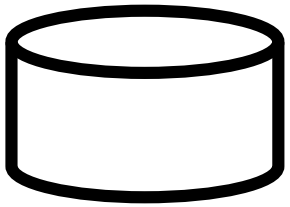
Aspectos éticos e legais







Dados – a parte “estática”



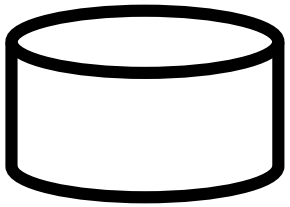
BIG + DATA = exigem novos algoritmos e dispositivos para processamento

BIG + DATA

Volume e velocidade

Integridade
Qualidade
Privacidade
Heterogeneidade
Segurança
Ciclo de vida

Dados – a parte “estática”



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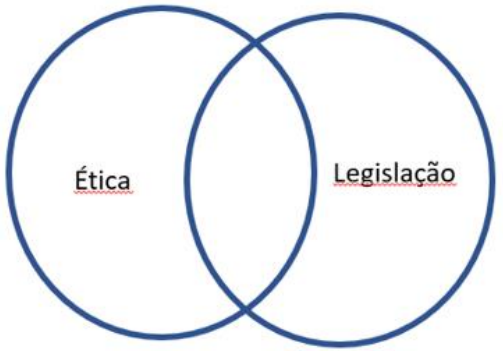
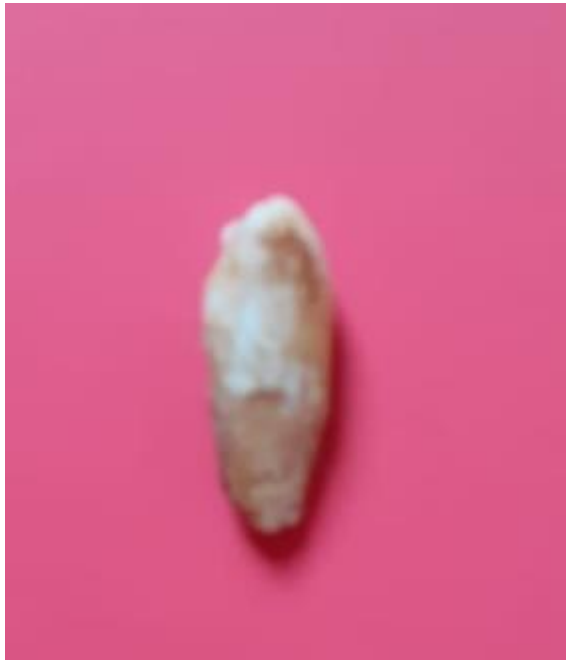


BIG DATA (telescópio Webb Nasa)

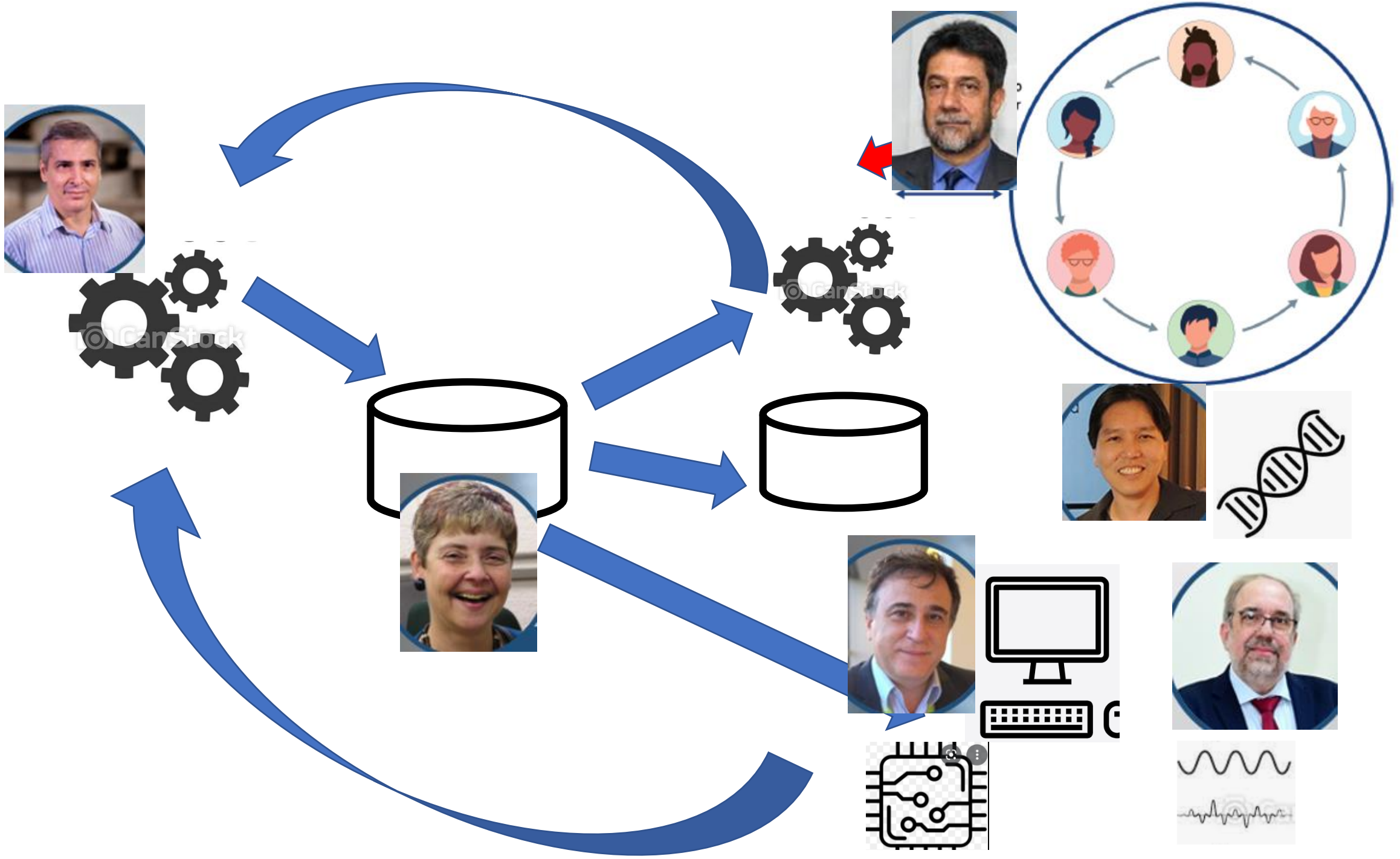
SMALL DATA – um dente



Imagens (fotos, radiografias)
Texto (anamnese,prontuario)
Análises químicas
Genômica
Gravação de som ou video (intervenções)
Especificação numérica (impressora 3D)
Séries temporais (sensores)

Pode chegar a muitos Gbytes

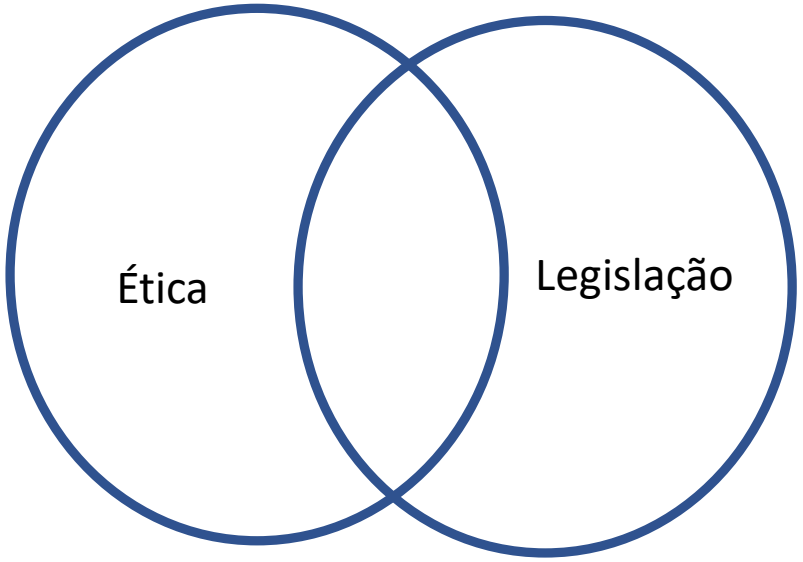
Volume não significa maior valor (para quem e para o que?)



Ideias centrais

- Dados – a parte estática (Claudia)
- Algoritmos – a parte dinâmica
  - IA – (André)
  - Aplicações externas (cidades inteligentes) – André
  - Aplicações em saúde, agricultura e sinais (João Romano)
  - Interior do corpo (bioinformática) – Helder
- Hardware - Marcelo Zuffo
- Questões éticas, legais e sociais - Virgílio

Aspectos éticos e legais – lebre e tartaruga



Dependência de contexto
(bem comum vs privacidade individual)

Incompatibilidade de legislação
(GDPR) e (US)

Implementação e interpretação
(GDPR, LGPD)

Anonimização nem sempre protege
(Group harm)

Unesco – uso ético da IA – nov 2021

Recognizing that the development of AI technologies necessitates a commensurate increase in data, media and information literacy as well as access to independent, pluralistic, trusted sources of information, including as part of efforts to mitigate risks of misinformation, disinformation and hate speech, and harm caused through the misuse of personal data,

Danos causados pelos usos indevidos de dados pessoais

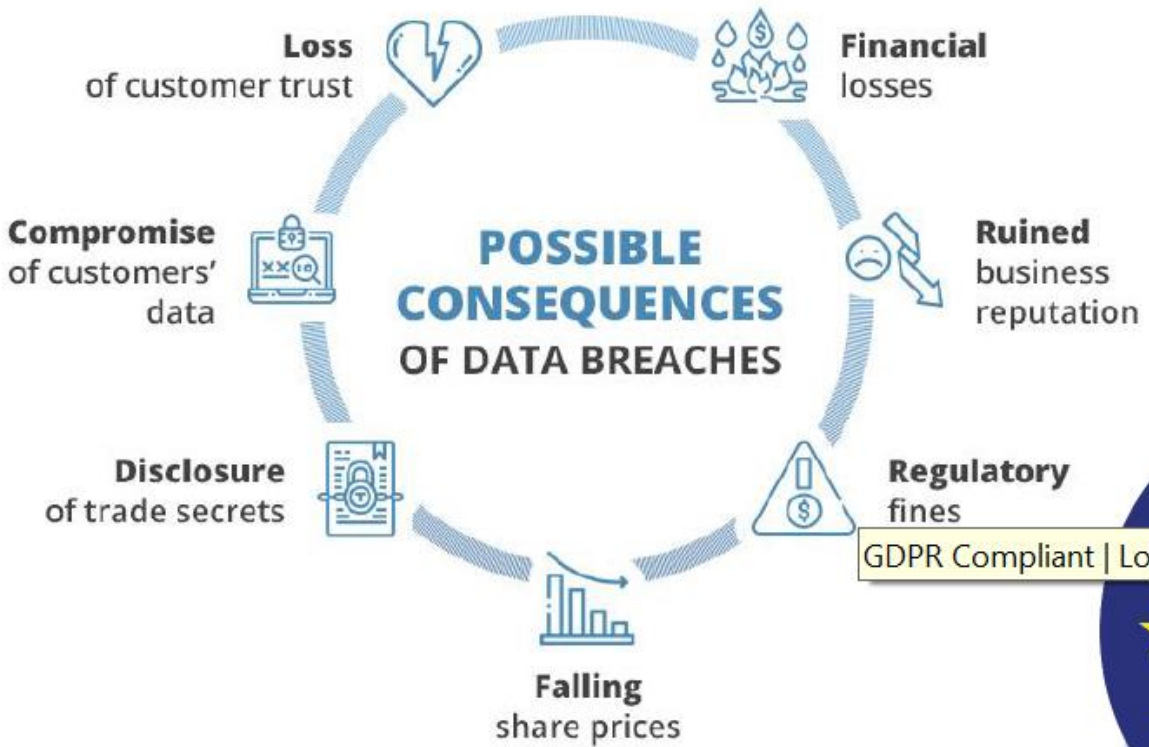
Dados de populações indígenas

GIDA
Global Indigenous Data Alliance

CARE Principles for Indigenous Data Governance

CARE - https://www.gida-global.org/care

Aumento da preocupação com a segurança cibernética...

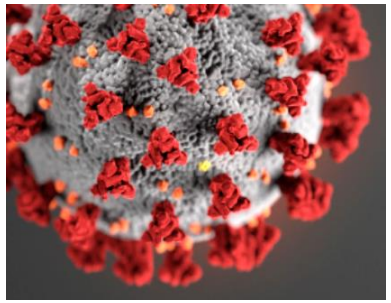
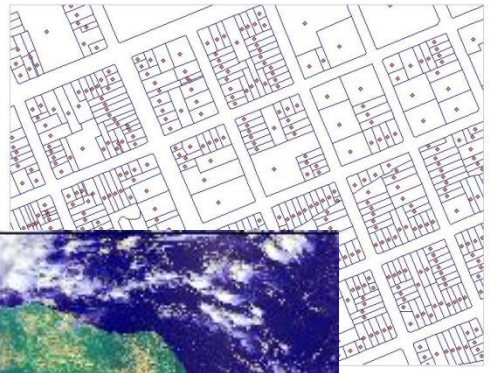
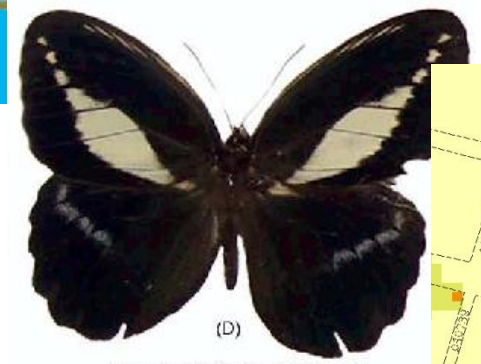
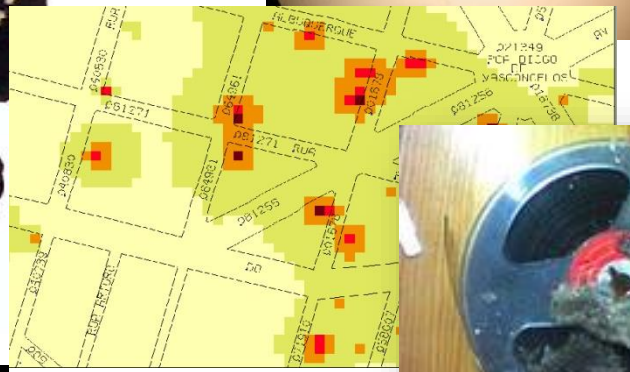
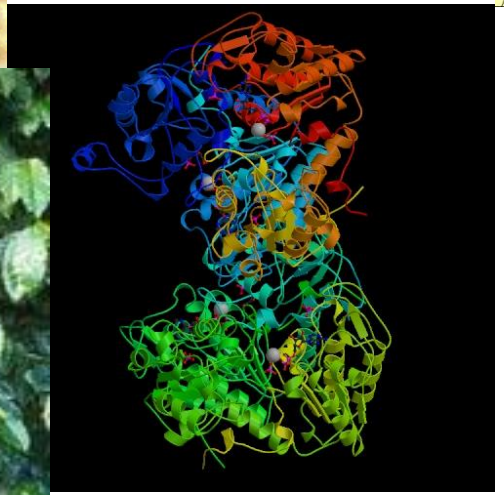
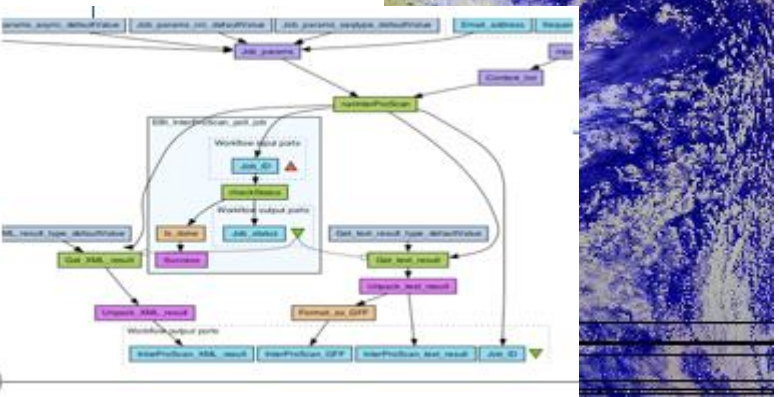
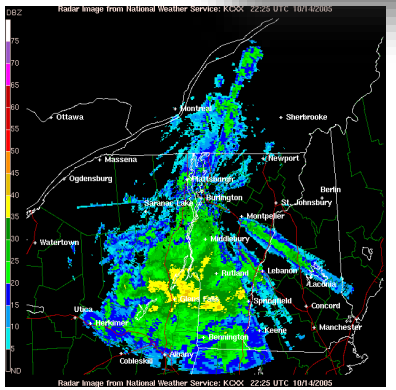


PCI

GDPR Compliant | LoginRadius

GDPR

LGPD
Lei Geral
de Proteção
de Dados Pessoais

@Marcus Farbiarz, SIDI

(MINHA motivação) Dados minha pesquisa