MASTER CLASS

Digital Economy

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DIGITAL ECONOMY: SYLLABUS

ICT is transforming business, government, and society underpinning a growing digital economy that will shape the way we live, work, play in the future.

The course aims to complete students' knowledge in the digital economy. It especially emphasizes the central role of the information as well as the ICT impacts and major challenges on our societies and economies.

This course provides insights into the digital economy and the transformation of organizations and people via theoretical knowledge flanked by real and updated case studies.

DIGITAL ECONOMY- CHAPTERS

01

An introduction to digital economy

Differences between sustainable and disruptive innovations

Business models

Value chain

02

Artificial intelligence

The blockchain

03

Internet of thinghs

Cloud and 5G

Digital reality

04

Big data analytics

Consumer behavior in a digital environment

About me

Dr. Stefania Masè: s.mase@ipag.fr

- Double-PhD in Economics and Management, Macerata U. (Italy) and International Commerce, Sorbonne U. (France)
- Specialist degree in Advertising and Communication, Macerata U. (Italy)
- Marketing consultant for SME (Market Research)

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DIGITAL ECONOMY: MAIN CONTENT

ICT is transforming business, government, and society underpinning a growing digital economy that will shape the way we live, work, and play in the future. Digital Economy course aims to improve students' knowledge about **digitization**, and **digitalization** activities from a socio-economic as well as managerial perspective.

Digital Economy course especially emphasizes the role of information and communication technologies in our lives and in the institutions that surround us.

Which Institutions?

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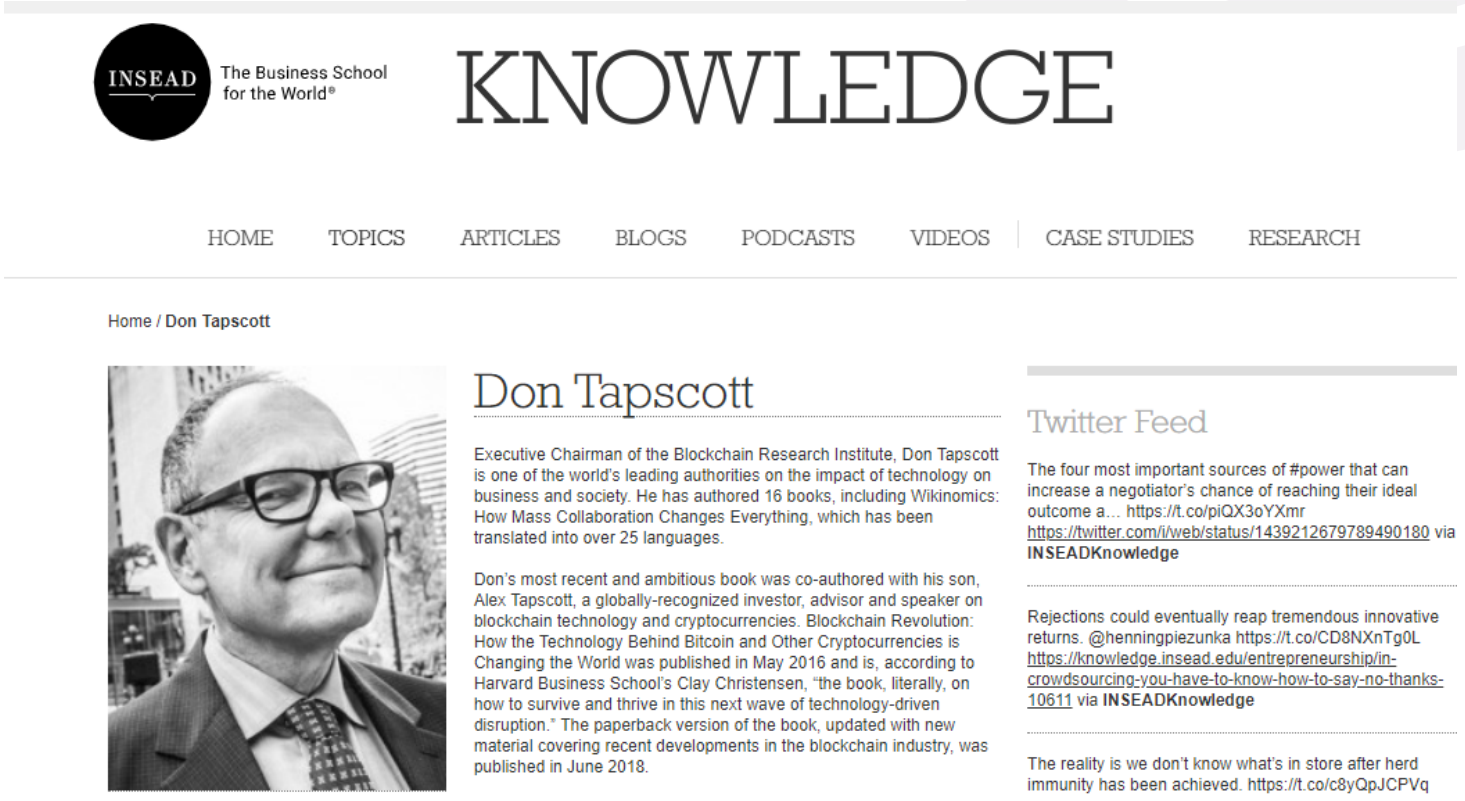
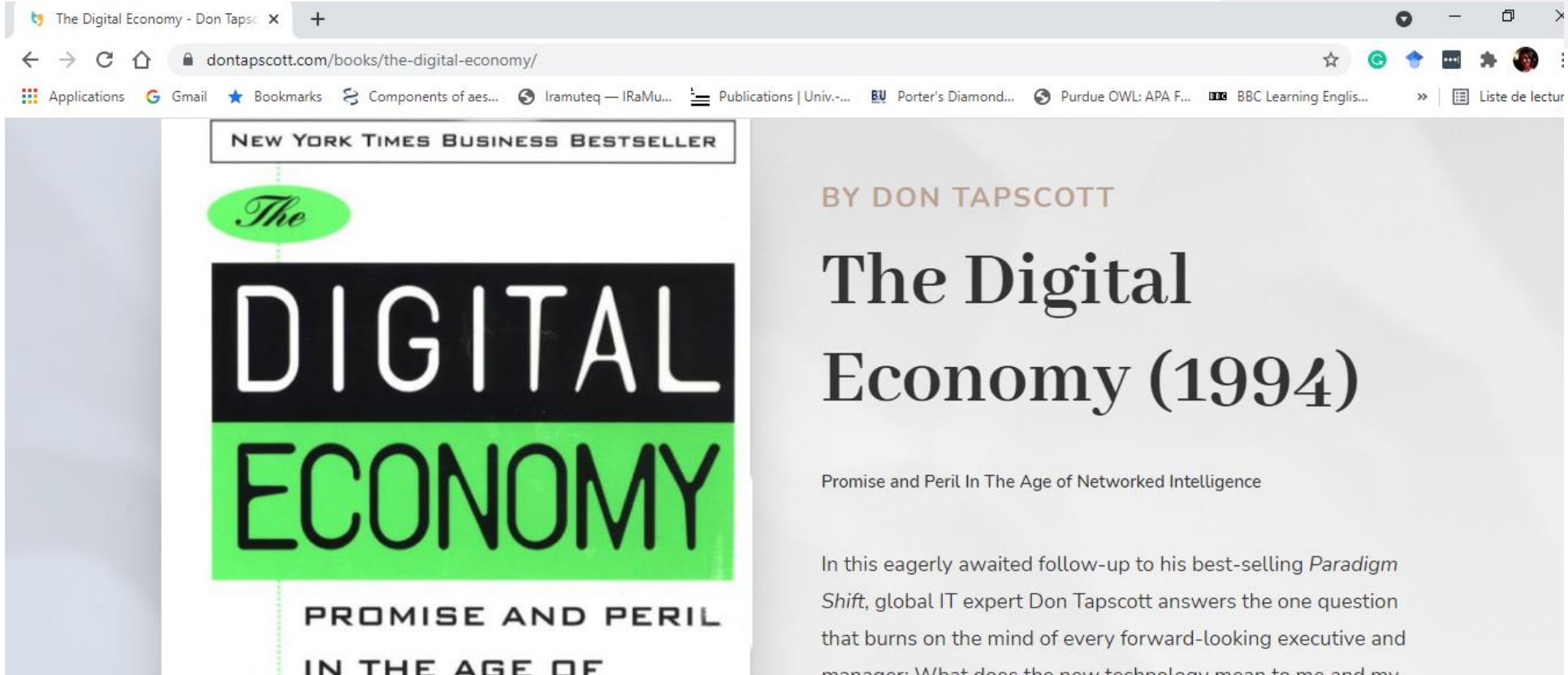
DIGITAL ECONOMY, A DEFINITION

The term digital economy was brought to attention in western economies in 1995 by Don Tapscott in his book **« The Digital Economy: Promise and Peril in the Age of Networked Intelligence »**.



DIGITAL ECONOMY, A DEFINITION

The tech expert explains in his book that ICT innovations are having a big impact on the way companies organize their **value offer**, but no less importance must be given to the **strategies** applied to spread these **innovations** on the **markets**.



DIGITAL ECONOMY, A DEFINITION

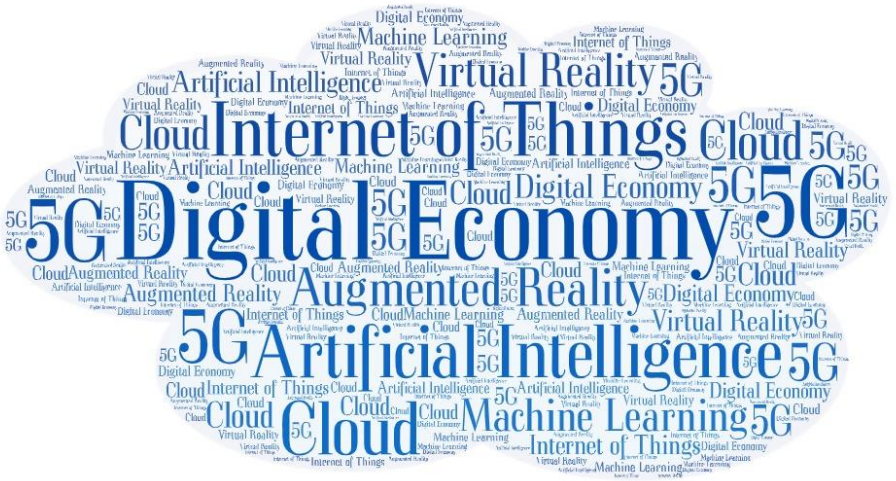
ICT innovations

⬇

Strategies

⬇

Markets



The interest in digital technology and the ICT world has recently increased thanks to the user-friendly design of these innovations that have made possible their large-scale distribution, resulting in a dramatic impact of the tech world on consumer behavior, globally.

DIGITAL ECONOMY, A DEFINITION

« The Digital Economy incorporates all economic activity reliant on, or significantly enhanced by the use of digital inputs, including digital **technologies**, digital **infrastructure**, digital **services** and **data** (…) » (OECD 2020:35)

Despite the growing importance of digital technologies in the global economy, a shared definition of Digital Economy has not yet been proposed.
In 2020, the OECD offers a roadmap for measuring the effects of the Digital Economy on the countries belonging to the G20.

https://www.oecd.org/sti/ieconomy/

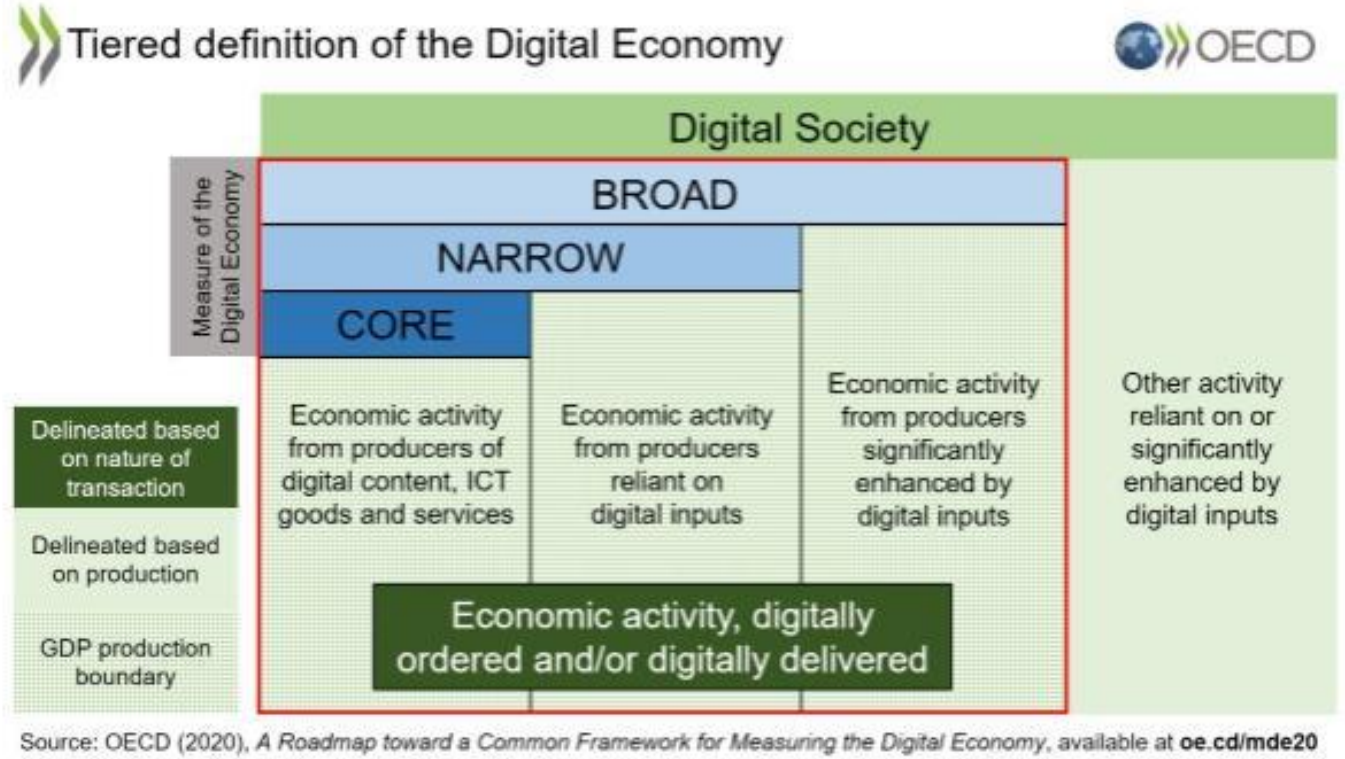
DIGITIZATION & DIGITALIZATION

Digitization indicates the conversion of analog information into digital format

Digitalization indicates the application of digital technologies in production and consumption activities.

This first clarification concerns the integration of old activities in the digital world, up to new business processes completely developed in the digital environment.

This split of the Digital Economy into digitization and digitalization also makes us understand how old jobs and roles developed in the non-digital environment are undergoing a profound transformation.



https://www.oecd.org/going-digital/topics/measurement/

Q&A

Do you believe the empowerment and the well-being boosted by the digital economy are shared by all users worldwide?

Some GAPs need to be mentioned

59% of the global population have Internet access

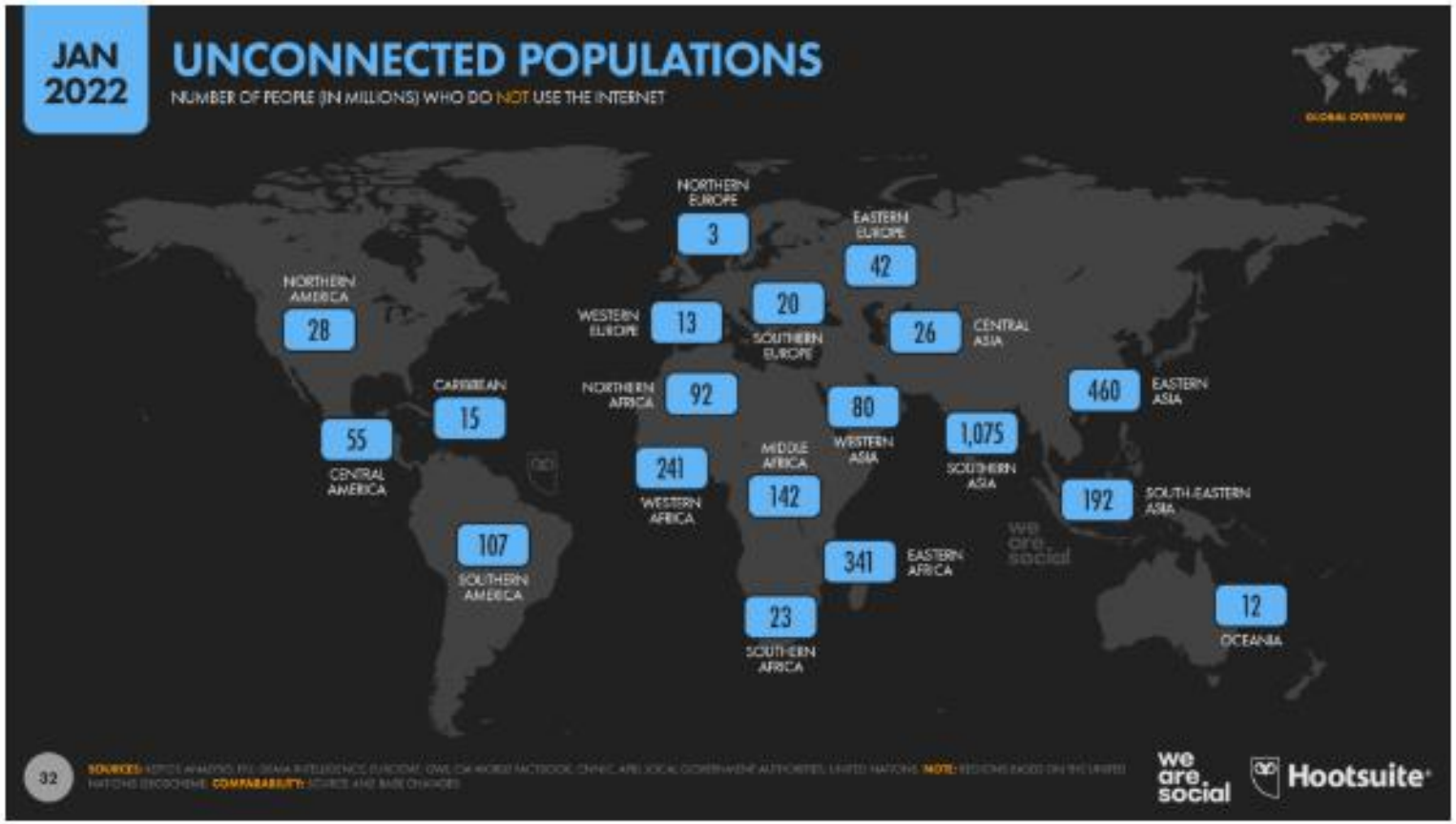
4.54 billion people

But 41% of the population cannot participate in Digital Economy 

We should still consider the gender gap, and the age gap

Some GAPs need to be mentioned

Bridge the digital divide to actively participate in the Digital Economy



DIGITAL ECONOMY: A DOUBLE FACET

The study Digital report 2022 focuses on **consumer behavior** on a global scale, the users of the goods and services distributed on marketplaces (or better said, marketspace to indicate the online market).

However, the Digital Economy can also be observed through its other facet, that of the **companies that innovate** their value offers through digital technologies.

DIFFERENCE BETWEEN SUSTAINABLE AND DISRUPTIVE INNOVATIONS

Disruptive innovation means to reinvent a technology, business model, or simply invent it all together. There are many great example for disruptive innovation, but our three favorites are Waze, Airbnb and Uber. Disruptive innovation generates new markets and values, in order to disrupt existing ones.

Disruptive innovators significantly alter and improve a product or service in ways that the market did not expect. Thus, firstly by discovering new categories of customers, and secondly by lowering costs and enhancing quality in the existing market. They do this partly by harnessing new technologies but also by developing new business models and exploiting old technologies in new ways.

As opposed to disruptive innovation, **sustaining innovation**, seeks to improve existing products. Meaning, it does not create new markets or values, but rather merely develop existing ones.

The "innovator's dilemma" is the tough choice any company faces when it has to choose between holding onto an existing market by doing the same, yet slightly better (**sustaining innovation**), or capturing new markets by embracing new technologies and adopting new business models (**disruptive innovation**).

In order to achieve cutting-edge innovation within a company while creating a long-lasting business advantage, the latter should aspire to achieve both **revolution** and **evolution**. In other words, **disruptive innovation** and **sustaining innovation** do not necessarily need to be alternative to one another, but rather complementary measures.

THE IMPACT OF DIGITAL INNOVATIONS ON BUSINESS MODELS

amazon

Business Model Canvas

KEY PARTNERS
- Suppliers
- Transport partners
- Manufacturers
- Sellers from the Marketplace
- Technologic partners (AWS)

KEY ACTIVITIES
- Constant improvement of the platform
- Managing logistics and supply chain
- Merchandising
- Maintenance

KEY RESOURCES
- Brand
- Platform
- Employees
- Network
- Warehouses

VALUE PROPOSITIONS
- Fast delivery
- Low prices
- Large choice of products and services
- Large choice of sellers on the marketplace
- Store front for the sellers
- Convenience

CUSTOMER RELATIONSHIPS
- Comments and review about the products
- Online help and support
- Low prices
- Self-service

CHANNELS
- Website and application
- Social Media
- AWS
- Affiliates

CUSTOMER SEGMENTS
- Content creators
- Geographical
- Global consumers
- Sellers
- Business developers

COST STRUCTURE
- Software development and digital infrastructures
- Customer services
- Content & Marketing
- Warehouses

REVENUE STREAMS
- Amazon prime subscriptions
- AWS
- Marketplace
- Physical and online stores
- Commission on every purchase

THE IMPACT OF DIGITAL INNOVATIONS ON BUSINESS MODELS

BUSINESS MODEL CANVAS

Key partners

- Worldwide suppliers (more than 100 000)
- Local authorities
- Service suppliers

Key activites

Distribution of many products ranging from food, ready-to-wear, cosmetics, stationery, household appliances ...

Key ressources

- Brand
- Brick and mortar stores
- Storage and distribution systems
- Employees

Offer

Provides a wide variety of products, at the lowest price, and the most convenient way possible

A store ideally located with a wide range of hours where you can find all types of essential and secondary products

Customer relationship

- Simple customer relationship
- Is trying to improve the customer experience (Walmart mall renovation)

Distribution channels

- On the shopping mall
- Click and collect
- Delivery
- On the website

Client segment

Walmart is targeting everybody :

- Domestic and international people
- Urbanan rural areas
- All age categories
- Males and females
- Married, single, children, no children...

BUT : low income and middle class

Cost structure

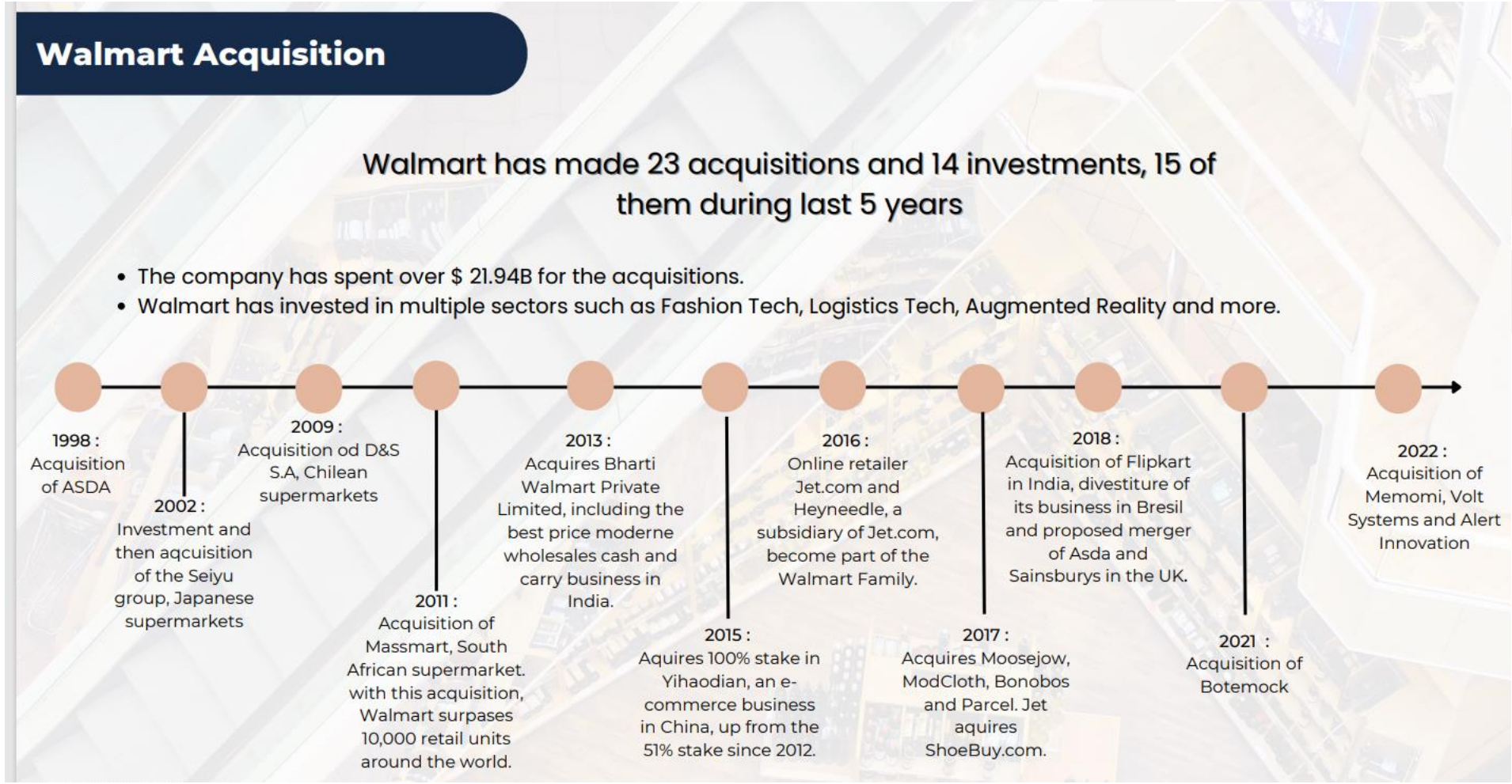
- Stores
- Human resources
- Research and development
- Communication campaign
- Social media
- Supply chain
- Market studies (to "hire" new supplier)

Income source

- Services
- Retail sales
- Sale of advertising space (2 billions in 2021)

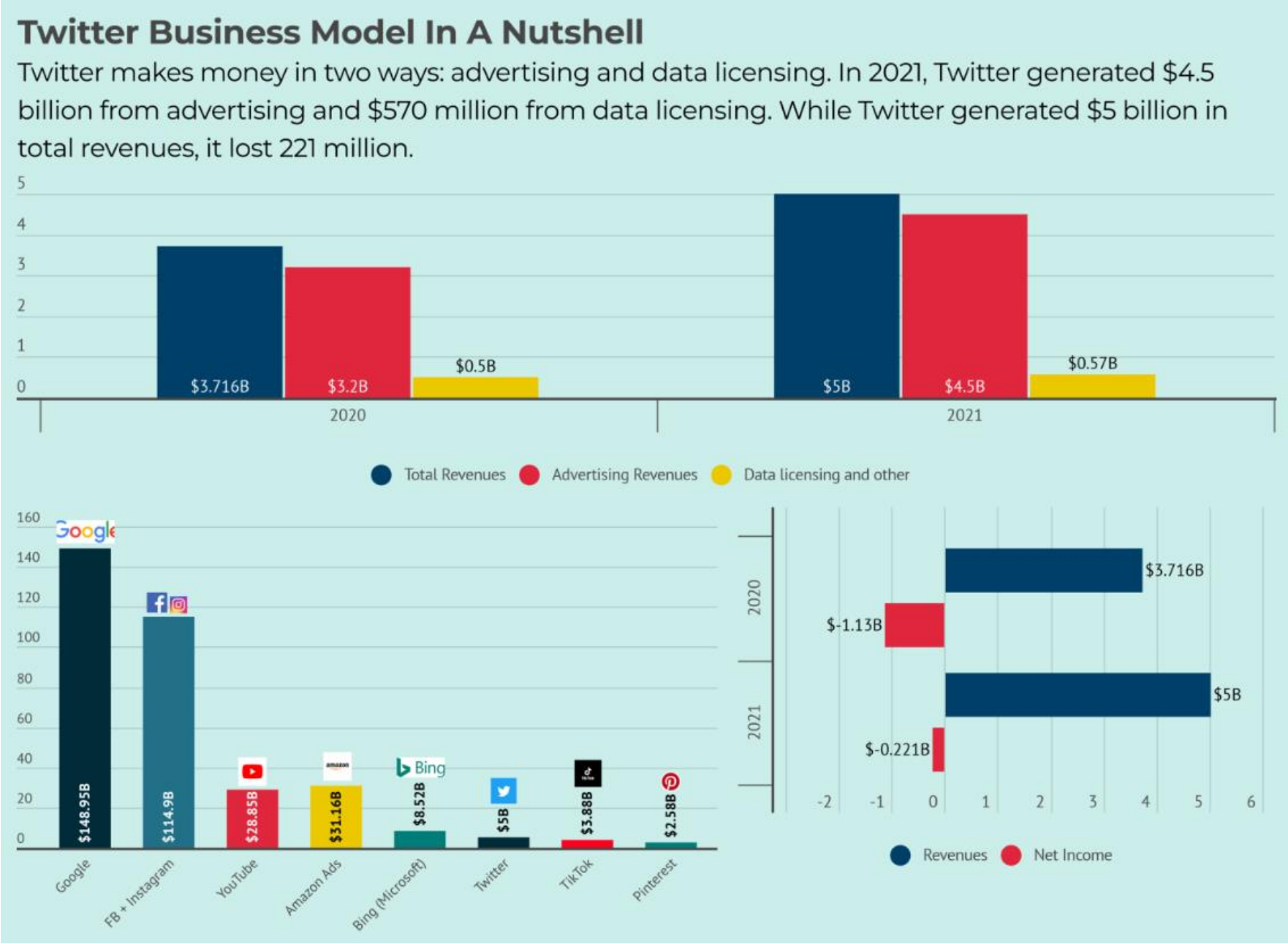
Bison S., Aouf H., Accossato N., Pisani C., Cambier A. (2022)

THE IMPACT OF DIGITAL INNOVATIONS ON BUSINESS MODELS



Bison S., Aouf H., Accossato N., Pisani C., Cambier A. (2022)

THE IMPACT OF DIGITAL INNOVATIONS ON BUSINESS MODELS

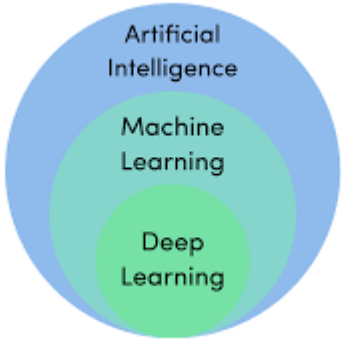


https://fourweekmba.com/how-does-twitter-make-money/

Deep Learning

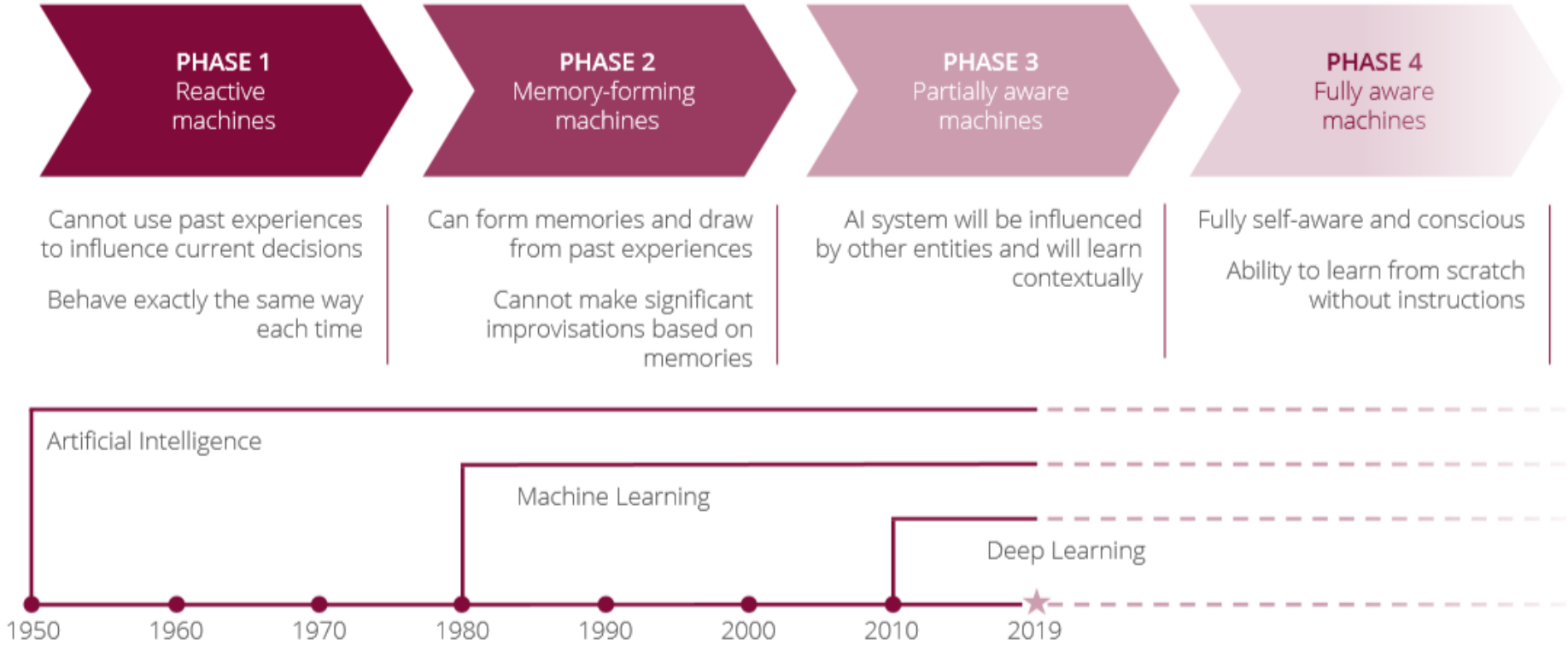
AI Evolution

1940 AI first tentatives



Haenlein, M. and Kaplan, A. (2019)

The evolution of Artificial Intelligence



Artificial Intelligence: its applicability to the various activities carried out by human beings risks being potentially disruptive to the current socio-economic equilibrium

in the G20 economies, **14% of existing jobs** could disappear due to automation activities over the next 15 to 20 years

32% of jobs could radically change due to automation activities

OECD (2020)

Top 100 AI start-ups in 2019

Healthcare
Butterfly Network · IDx · PAIGE · Atomwise · insitro · iz.ai · Niramai · ARTERYS · LeanTaaS · OWKIN · Qventus · medopad · gauss · mindstrong

Industrials
sense · KEBOTIX · C3.ai · Nyngen · LANDING AI · falkonry

Media
ARRAIY · New Knowledge · AI FOUNDATION

Software Development
mabl · applitools

Training Data
Mighty AI · defined crowd · AI.REVERIE

Automotive industry
drive.ai · nuro · DEEPSCALE · Mapillary · PERCEPTIVE AUTOMATA · pony.ai · DEEPMAP · nexar · MOMENTA · AEYE · Iris Automation

Semiconductor
cerebras · habana · SYNTIANT · thinci · GRAPHCORE · Horizon Robotics · MYTHIC

Telekom
Mist

Legal, Compliance & HR
EigenTechnologies · LawGeex · textio · onfido

Cybersecurity
AGARI · anodot · SHAPE SECURITY · AREA 1 · perimeterx · DEMISTO · JASK · VECTRA

Agriculture
BENSON HILL BIOSYSTEMS · TARANIS

Real Estate
HOVER · SKYLINE

Retail
twentybn · ABEJA · SIGNIFYD · AIFI · sift

Ads, sales & marketing
GONG · Unbabel · fullstory · gamalon · bouncex

Government
Face++ 旷视 · one concern · 商汤 sensetime · 依图 YITU · SHIELD AI · FORTEM TECHNOLOGIES

Finance & Insurance
4Paradigm · DATAVISOR · BEHAVOX · AppZen · BIOCATCH Less Friction. Less Fraud. · (h[s]) HYPERSCIENCE

Data management
dataiku · dremio · tamr · MACHINIFY · H2O.ai · DataRobot · TRIFACTA · SIGOPT

Other applications
sparkcognition · AUTOMATION ANYWHERE · Descartes Labs · ELEMENT AI · Orbital Insight · UiPath · PROWLER.io the decision company

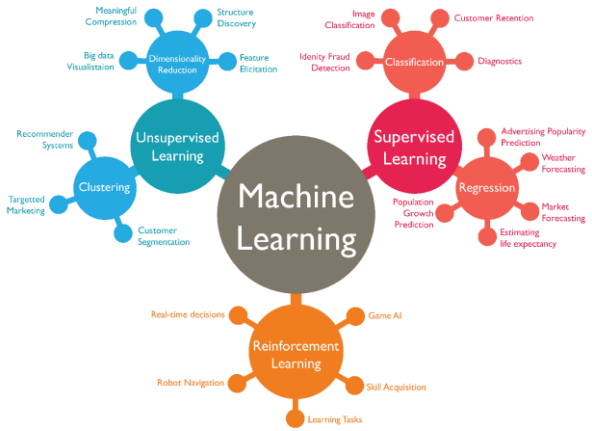
Statista (2020)

Artificial Intelligence

Machine Learning

Robotics

Artificial Neural Networks



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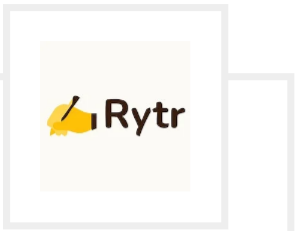
What about that?

Best Value



Ryter

If you're new to AI writing tools, definitely consider Ryter. It's a simple tool with a lot of bang for its buck.
Learn More

Most Powerful

Jasper

With its commands and recipes, Jasper gives you a lot of options to draft content quickly at scale.
Learn More

Best Phone App

Paragraph AI

For an all-in-one content marketing and SEO AI writing platform, be sure to check out
Learn More

https://renaissancerachel.com/best-ai-writing-tools/

Paragraph AI

ParagraphAI

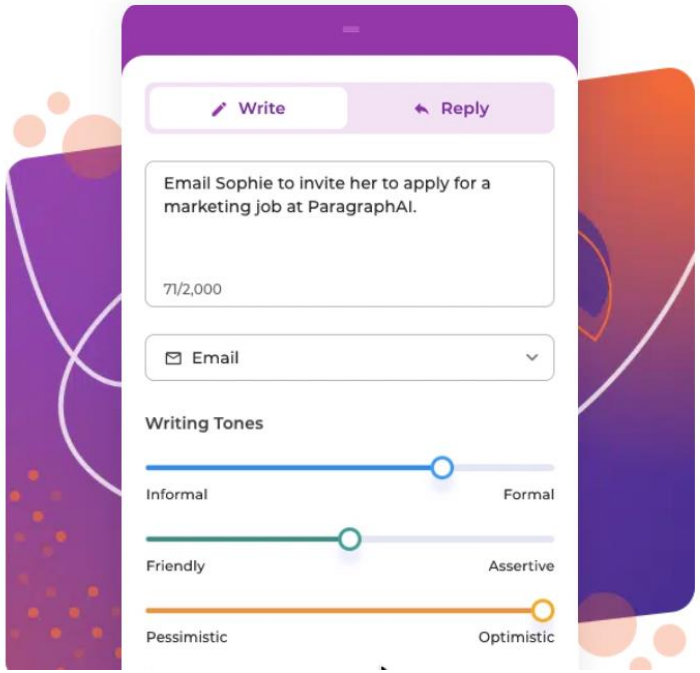
Resources Upgrade Company Feedback Chrome Plugin

Top App!

#1 AI Writing App to Write Better, Faster

Download ParagraphAI for FREE and see how it takes your writing to the next level.

Chrome Plugin iOS & Android



Paragraph AI.webm

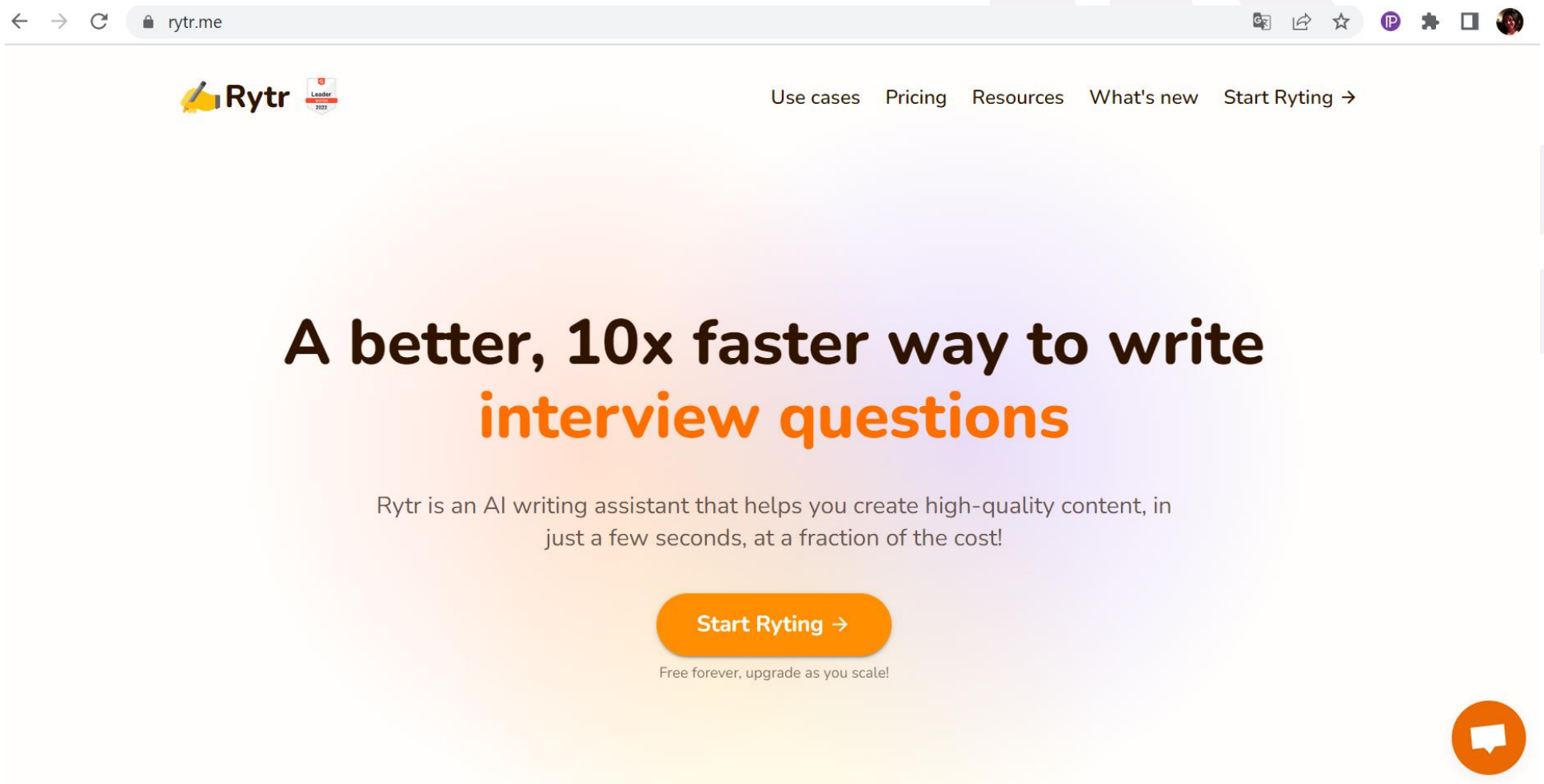
Paragraph AI

THE RESULT:

The future of Information and Communication Technology (ICT) looks very promising. With the advent of the third wave of ICT, we are seeing a rapid proliferation of technologies that are revolutionizing the way we interact with the world. This wave of ICT is characterized by the convergence of computing, communication, and information technologies, as well as the emergence of the Internet of Things (IoT). This wave of ICT is enabling us to create new, innovative solutions that are transforming industries, businesses, and even our everyday lives. I am very optimistic about the future of ICT and the impact it will have on our lives.

Written with ParagraphAI.

Rytr



Ryter.webm

Rytr

THE RESULT

As ICT continues to developed, it has gone through different stages of growth. This is known as the three waves of ICT – The first wave covers the emergence and development of the internet, the second wave covers the applications and business models that come with it and finally, we are currently in the third wave which is focused on artificial intelligence (AI) technologies. Scenario analysis reveals what can be expected from ICT development over time. We will look at how different elements such as technology infrastructure, user adoption, social impact, governance implementation affect ICT's future development trajectory as well as examine possible future scenarios that could arise from this.

My recent case study …

WORK

AI writing is here, and it's worryingly good. Can writers and academia adapt?

https://www.euronews.com/next/2022/11/08/ai-writing-is-here-and-its-worryingly-good-can-writers-and-academia-adapt

Other possibilities from generative AI

petapixel.com/best-ai-image-generators/

PetaPixel

News Reviews Guides Learn Equipment Spotligl

The Best AI Image Generators in 2023

UPDATED JAN 03, 2023 PESALA BANDARA

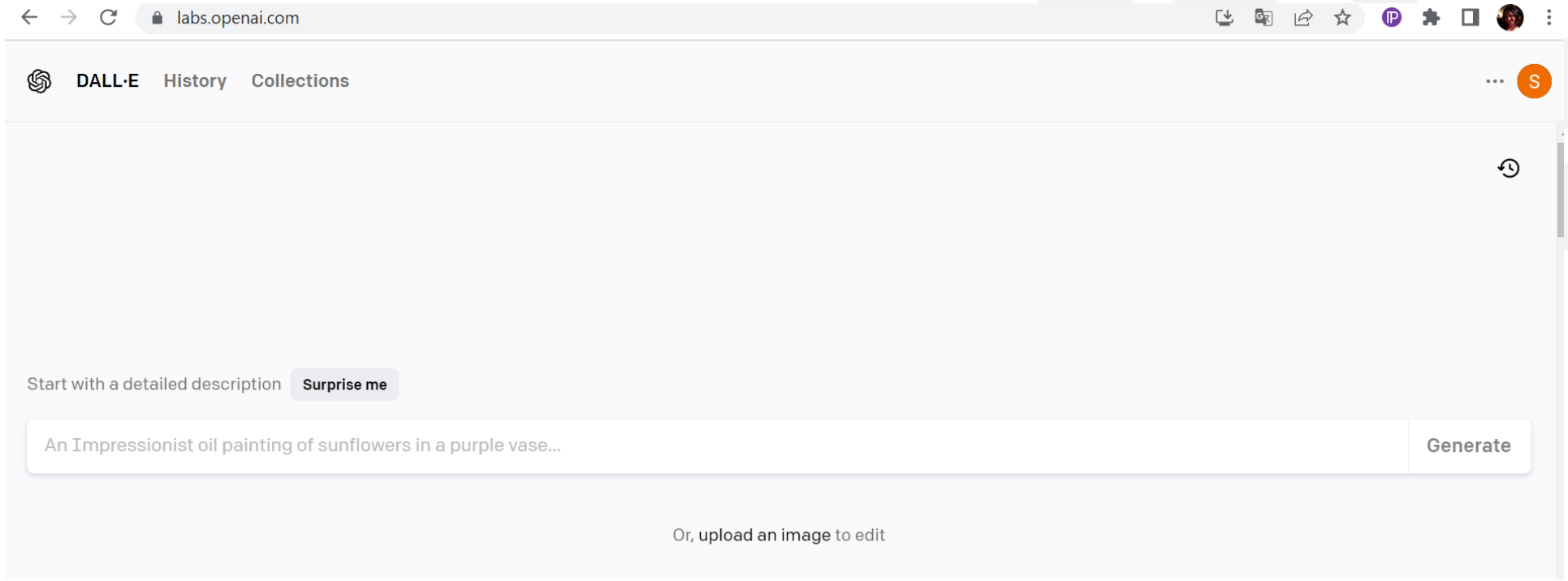
En attente de pubads.g.doubleclick.net...

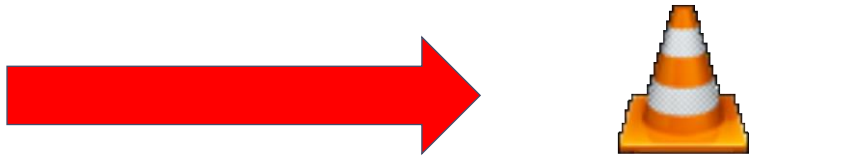
Other possibilities from generative AI

At the start of 2022, there were hardly any AI text-to-image generators available to the public, but with DALL-E finally becoming available in beta in July and Stable Diffusion being released a month later, there are now suddenly an array of AI image generators vying to be the best software on the market.
So if you're feeling confused about which AI Image generator you should use in 2023, this is a complete guide to the best options out there.

https://petapixel.com/best-ai-image-generators/

Other possibilities from generative AI





DALLE.webm

Other possibilities from generative AI

My result from DALL-E application

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Other possibilities from generative AI

https://petapixel.com/best-ai-image-generators/

At a Glance

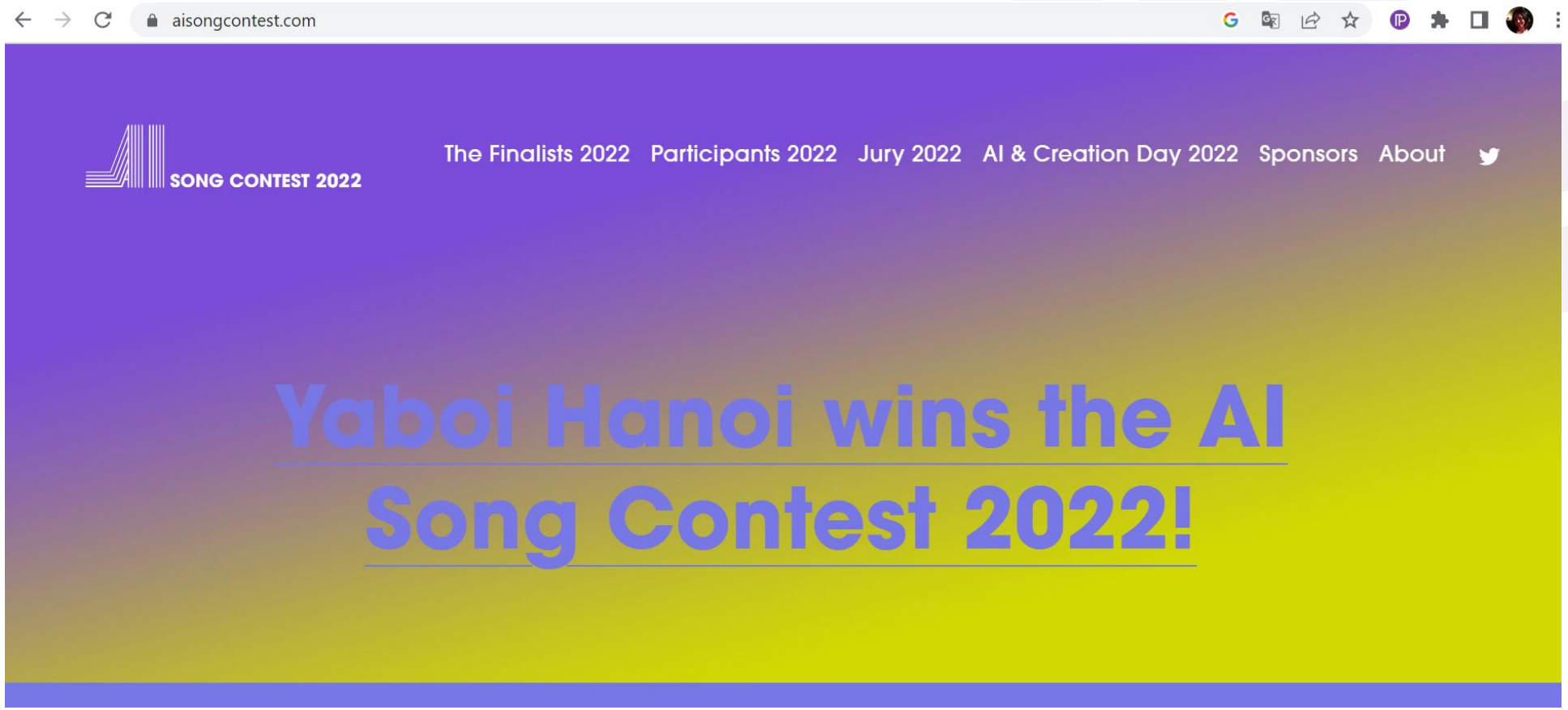
- DALL-E 2
- Stable Diffusion
- Midjourney
- Craiyon (Formerly DALL-E mini)
- TikTok
- Nightcafe AI

What can you do with Generative AI

Writing AI

Blog idea and outline
Blog section writing
Brand name
Business idea pitch
Business ideas
Call to action
Copywriting framework AIDA
Copywriting framework PAS
Cover letter
Email
Facebook, twitter, linkedin ads
Google search ads
Interview questions
Job descriotion
Keyword extractor
Keywords generator
Landing page & website copies
Etc

But also…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Yaboi Hanoi wins the AI Song Contest 2022!

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Drafting legislation in the era of AI and digitisation
Alice VASILESCU
Published on: 16/06/2022
Last update: 05/07/2022
Document
Translate
On 1 January 2021 the European Commission launched a study on 'Drafting legislation in the era of AI and digitisation'.
The contract was awarded to the University of Bologna. Prof. M. PALMIRANI led the team that carried out the study. During 2021 the Commission and the University of Bologna intensively worked together on this most exciting topic. Results surpassed expectations. I.e., the study convincingly demonstrated the potential of the use of innovative/advanced IT (including AI) to substantially improve the core business of the Commission, i.e., developing legislation and policy.
The vision that emerged centres around a paradigm shift enabled by 'machine processable law' and a 'hybrid AI approach with human oversight' which refers to the combination of advances in IT (Artificial Intelligence, Machine Learning, Natural Language Processing, etc.), the use of standards and progress in understanding the theory and practice of law making. A well-integrated IT ecosystem with an 'Augmented LEOS' at its core has the potential to digitally transform legislative processes and facilitate a structural

But also…

slashdot.org/software/ai-coding-assistants/

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But also…

VALL-E

Neural Codec Language Models are Zero-Shot Text to Speech Synthesizers

[Paper]

Chengyi Wang, Sanyuan Chen*, Yu Wu*, Ziqiang Zhang, Long Zhou, Shujie Liu,*
Zhuo Chen, Yanqing Liu, Huaming Wang, Jinyu Li, Lei He, Sheng Zhao, Furu Wei

Microsoft

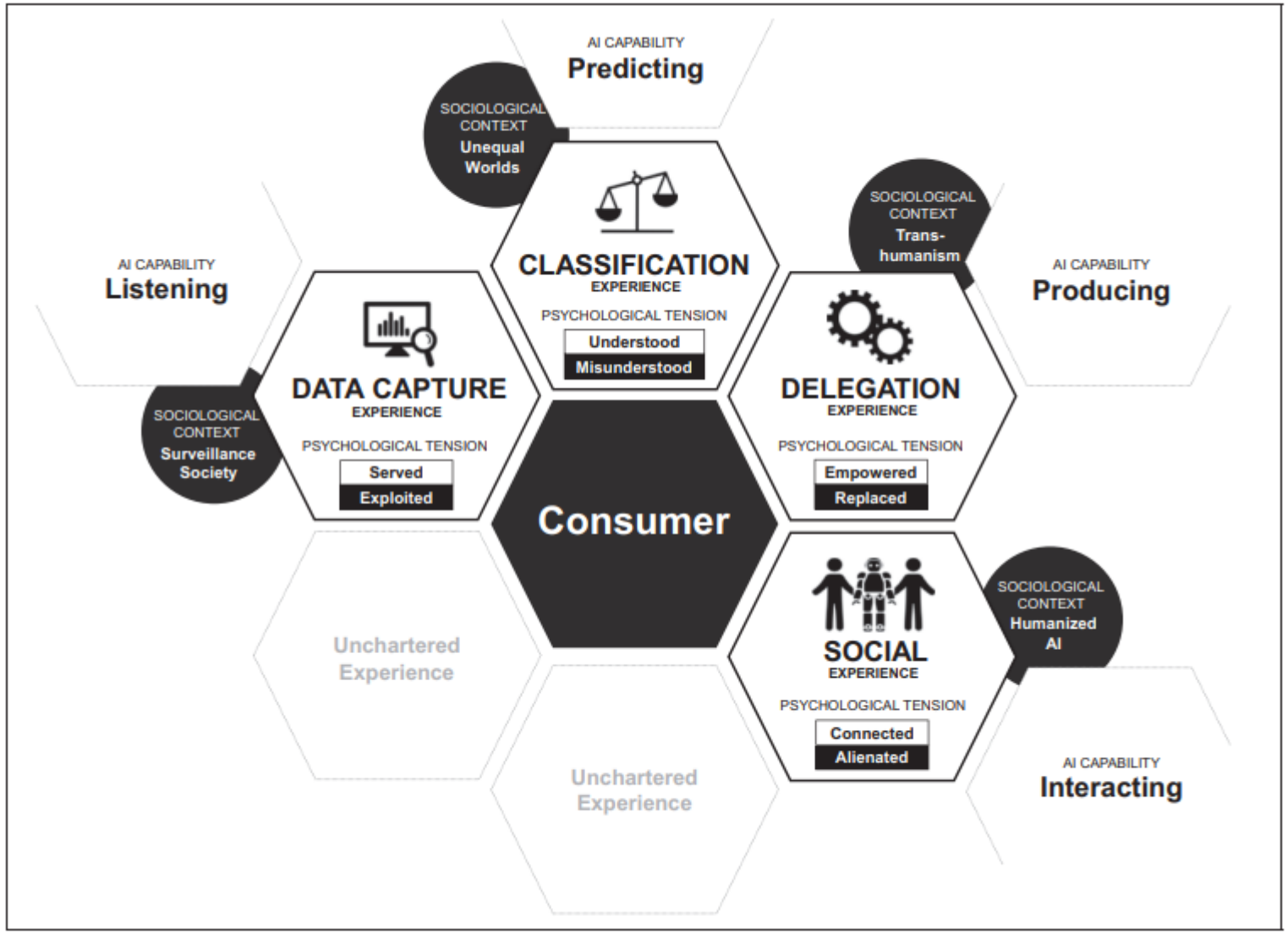
Abstract. We introduce a language modeling approach for text to speech synthesis (TTS). Specifically, we train a neural codec language model (called VALL-E) using discrete codes derived from an off-the-shelf neural audio codec model, and regard TTS as a conditional language modeling task rather than continuous signal regression as in previous work. During the pre-training stage, we scale up the TTS training data to 60K hours of English speech which is hundreds of times larger than existing systems. VALL-E emerges in-context learning capabilities and can be used to synthesize high-quality personalized speech with only a 3-second enrolled recording of an unseen speaker as an acoustic prompt. Experiment results show that VALL-E significantly outperforms the state-of-the-art zero-shot TTS system in terms of speech naturalness and speaker similarity. In addition, we find VALL-E could preserve the speaker's emotion and acoustic environment of the acoustic prompt in synthesis.

This page is for **research demonstration purposes** only.

Question

As consumers, are we happy about these technological developments?
Which one is more interesting/scaring/impressive in your opinion?

Consumers' experiences with AI



Puntoni, et. Al., 2021

Onlife

The Onlife Initiative

Radical impact of information and communication technologies (ICTs) on the human condition: modify relationships to ourselves, to others, and to the world.

springer.com/gp/book/9783319040929

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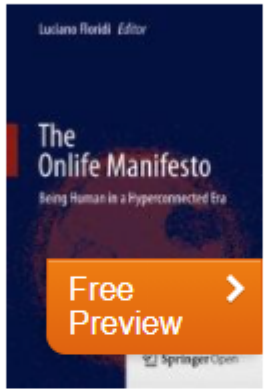

Open Access

The Onlife Manifesto

Being Human in a Hyperconnected Era

Editors: **Floridi**, Luciano (Ed.)

Open Access: this content is freely downloadable as an eBook!

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About this book | About the authors | Reviews

What is the impact of information and communication technologies (ICTs) on the human condition? In order to address this question, in 2012 the European Commission organized a research project entitled *The Onlife Initiative: concept reengineering for rethinking societal concerns in the digital transition*. This volume collects the work of the Onlife Initiative. It explores how the development and widespread use of ICTs have a radical impact on the human condition.

Onlife

The deployment of information and communication technologies (ICTs) and their uptake by society radically affect the human condition, insofar as it modifies our relationships to ourselves, to others and to the world.
The ever-increasing pervasiveness of ICTs shakes established reference frameworks through the following transformations:

i.the blurring of the distinction between reality and virtuality;

ii.the blurring of the distinctions between human, machine and nature;

iii.the reversal from information scarcity to information abundance;

iv.the shift from the primacy of entities to the primacy of interactions.

Onlife

We believe (see the Preface that introduces The Manifesto) that ICTs are not mere tools but rather environmental forces that are increasingly affecting:

1. our self-conception (who we are);
2. our mutual interactions (how we socialize);
3. our conception of reality (our metaphysics); and
4. our interactions with reality (our agency).

References

Kai-Uwe Brock, J ; and Wangenheim, F.v. (2019). California Management Review, Vol. 61(4), 110-134.

Puntoni, S., Walker Reczek, R., Giesler, M., and Botti, S. (2021). Consumers and Artificial Intelligence : An Experiential Perspective. Journal of Marketing, Vol. 85 (1), pp. 131-151