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HELSINKI**

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Metaverse and the New Digital Economy

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Week #2 2024



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Lesson Plan

16:00 – 18:30 (3*45 minute segments)

Socialised learning – mid break 15 minutes

Time	Content
16:00 – 16:30	Introduction to Decentraland and its digital economy terminologies
16:30 – 16:45	Creative Subsectors and the Digital Economy
16:45 – 17:25	Activity #1
17:25 – 17:40	15 Minutes Break
17:40 – 17:55	Activity #1 (Cont)
17:55 – 18:05	Social Impact of NFTs on the Metaverse article review
18:05 – 18:25	Activity #2
18:25 – 18:30	Reflection, Questions

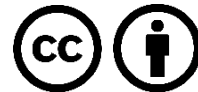


In Today's class we will...

- ✘ Discussion of creative subsectors such as digital art, streaming, gaming, etc.**
- ✘ Examination of how digital technologies are transforming the creative process**
- ✘ Exploration of innovative formats for content, performance, and exhibition in the digital era**
- ✘ Monetization strategies in the creative industries, including emerging technologies like NFTs, AR, VR, and Blockchain**



Terminologies: Digital Economy

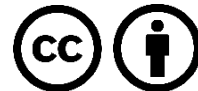


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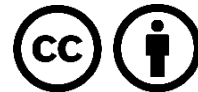
Ethereum <https://ethereum.org/en/>

- ✘ **Ethereum** is a decentralised smart-contract enabled blockchain →
- ✘ Ethereum gave birth to Web3
- ✘ Ether (ETH) is the native cryptocurrency on the platform
- ✘ Ether is also used as a gas asset within the Ethereum blockchain to pay for smart contract execution.
- ✘ It is open-source software
- ✘ 15 September 2022, Ethereum transitioned its **consensus mechanism** from proof-of-work (PoW) to proof-of-stake (PoS) in an upgrade process known as "the Merge". This has cut Ethereum's energy usage by 99%.
- ✘ Unlike Bitcoin, which has a limited supply, Ethereum has an infinite supply.
- ✘ Approx. there are 122.7 million ETH in circulation.



Ethereum Market <https://ethereum.org/en/>

- ✘ Ethereum is a coin because it has its own native blockchain on which it operates and functions.
- ✘ Various tokens are launched on Ethereum itself.



Ethereum Gas <https://etherscan.io/gastracker>

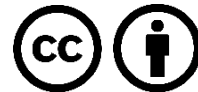
- ✘ **Gas** refers to the fee required to successfully conduct a transaction on the **Ethereum** blockchain.
- ✘ **Gas** fees are paid in **Ether (ETH)** and denominated in Gwei.
- ✘ By requiring a fee for every computation executed on the network, Ethereum prevents bad actors from spamming the network and computational wastage in code.
- ✘ The fundamental unit of computation is "gas".



**Ethereum transaction requires computational resources to execute.
Payment for computation is made in the form of a gas fee.**

[Missing a possibly copyrighted diagram showing where gas is needed in EVM operations]

Source: https://takenobu-hs.github.io/downloads/ethereum_evm_illustrated.pdf



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Ethereum Use Case #1 Stablecoins

<https://ethereum.org/en/>

- ✘ Stablecoins: are Ethereum tokens designed to stay at a fixed value, even when the price of ETH changes. They are cryptocurrencies that attempt to peg their market value to some external reference.
- ✘ Algorithmic stablecoins are experimental technology. You should be aware of the risks before using them.



Ethereum Use Case #2

DeFi

<https://ethereum.org/en/defi/>

- ✘ DeFi is a collective term for financial products and services that are accessible to anyone who can use Ethereum
- ✘ DeFi vs Traditional Finance

DeFi	Traditional finance
You hold your money.	Your money is held by companies.
You control where your money goes and how it's spent.	You have to trust companies not to mismanage your money, like lending to risky borrowers.
Transfers of funds happen in minutes.	Payments can take days due to manual processes.
Transaction activity is pseudonymous.	Financial activity is tightly coupled with your identity.
DeFi is open to anyone.	You must apply to use financial services.
The markets are always open.	Markets close because employees need breaks.
It's built on transparency – anyone can look at a product's data and inspect how the system works.	Financial institutions are closed books: you can't ask to see their loan history, a record of their managed assets, and so on.

Source: <https://ethereum.org/en/defi/>



Ethereum Use Case #3 DAOs

<https://ethereum.org/en/dao/>

- ✘ The backbone of a DAO is its smart contract, which defines the rules of the organization and holds the group's treasury.
- ✘ Once the contract is live on Ethereum, no one can change the rules **except by a vote**
- ✘ There are many considerations when governing a DAO, such as how voting and proposals work.

[Missing a copyrighted picture of Inside City DAO, Community-Governed City on the Blockchain]

Example: CityDAO- community governed city on the blockchain
Source: <https://www.citydao.io/>



Ethereum Use Case #4 NFTs

<https://ethereum.org/en/nft/>

NFTs are used for many things, including:

- ✗ proving that you attended an event
- ✗ certify that you completed a course
- ✗ ownable items for games
- ✗ digital art
- ✗ tokenizing real-world assets
- ✗ proving your online identity
- ✗ gating access to content
- ✗ ticketing
- ✗ decentralized internet domain names
- ✗ collateral in DeFi

Creative Potentially Creative Uses

#	Collection	Type	Volume	Change (%)	Sales	Min Price (24H)	Max Price (24H)	Transfers	Owners	Total Assets
1	Kaito Genesis	ERC-721	28.7869 ETH	13.71%	9	2.75 ETH	3.4 ETH	6,114	794	1,500
2	Azuki	ERC-721	14.0156 ETH	-4.17%	5	2.72 ETH	3.2 ETH	254,111	4,133	10,000
3	BoredApeYacht Club	ERC-721	13.5 ETH	0.00%	1	12.42 ETH	13.88 ETH	302,885	5,378	10,000
4	PudgyPenguins	ERC-721	8.9699 ETH	0.00%	1	8.489 ETH	8.9699 ETH	181,325	4,942	8,888
5	Milady	ERC-721	7.678 ETH	-3.03%	2	3.52 ETH	4.99 ETH	155,070	5,310	10,000

Top NFTs. Source: <https://etherscan.io/nft-top-contracts>



Emerging NFT Use Cases

- × **Regenerative Finance (ReFi):** <https://ethereum.org/en/refi/>
 - × An alternative economic system built on regenerative principles
 - × An attempt to harness Ethereum to solve global-level coordination crises such as climate change
 - × A tool to drastically scale ecological benefit assets like verified carbon credit
- × **Decentralised Science (DeSci):** <https://ethereum.org/en/desci/>
 - × A global, open alternative to the current scientific system.
 - × Technology that enables scientists to raise funding, run experiments, share data, distribute insights, and more.
 - × Builds on the open science movement.



On-Chain vs. Off-Chain

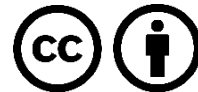
- ✘ **Blockchain technology provides a secure and open solution for transactions on-chain.**
 - ✘ **On-chain transactions are well-suited for high-value transfers, smart contract interactions, and applications that require the highest level of security and trustlessness.**
- ✘ **For users seeking speed, anonymity and cost efficiency, conducting a transaction off-chain might make sense.**
 - ✘ **Off-chain transactions are suitable for micro-transactions, instant payments, and scenarios where speed and cost-efficiency are paramount, such as retail transactions and gaming applications**



On-Chain vs. Off-Chain II

[Missing a copyrighted picture of Mathematics | Free Full-Text | Secure Access Control to Data in Off-Chain Storage in Blockchain-Based Consent Systems]

Source: Goint, M., Bertelle, C., & Duvallet, C. (2023). Secure Access Control to Data in Off-Chain Storage in Blockchain-Based Consent Systems. *Mathematics*, 11(7), 1592.



Decentraland: <https://decentraland.org>

- ✘ Decentraland: A metaverse platform that builds on the principle of a community-driven virtual space.**
- ✘ Decentraland has its own economy driven by the buying, selling, and trading of virtual assets and services. Users can monetize their creations by hosting events, selling virtual goods, renting out virtual spaces, and providing services to other users.**
- ✘ LAND parcels are the virtual real estate.**
- ✘ Users buy and sell LAND parcels by using MANA - the cryptocurrency of Decentraland.**



Decentraland Use Cases

- ✘ The primary purpose of decentraland is to be used as a game.

Other Use cases for Decentraland:

- ✘ Virtual business development
- ✘ Virtual events and conferences
- ✘ Virtual art and entertainment
- ✘ Virtual tourism and exploration
- ✘ Social interaction and networking
- ✘ Virtual Commerce and retail
- ✘ Research and Development – social dynamics in virtual environments

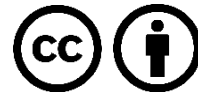
[Missing a copyrighted picture of Decentraland Map]



Images: <https://nftplazas.com/decentraland-map/>

Three native tokens of Decentraland

- [Missing a copyrighted image of three native tokens of Decentraland
- ESTATE, an ERC-721 nonfungible token representing merging pieces of digital land;
- LAND, an ERC-721 nonfungible token representing parcels of digital land;
- MANA, an ERC-20 (fungible) token that is the official currency of Decentraland. They can be swapped with other ERC-20 tokens.



Source: <https://cointelegraph.com/learn/a-beginners-guide-to-buying-virtual-real-estate-in-decentraland-mana>



Creative Subsectors and the Digital Economy



Let's look at how the Media Consumption of Creative Content has changed

[Missing a copyrighted image of Amazon.com: Mini Vinyl Record Player with Classic Yet Modern Design, 2 Built-in Stereo Speakers with Bluetooth Function for Entertainment and Home/Office Decoration (Orange) : Electronics]



Global Media Landscape

[Missing a copyrighted image of Global Media Landscape]

- ✦ **Source: GWI. (2021). The Global Media Landscape: Online, Offline, Streaming, and More. GWI. <https://www.gwi.com/reports/global-media-landscape>**



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The rise of the second-screeners

Viewers of educational (34%), cultural (31%) and children's TV (30%) are most likely to interact with the online content of a TV show

DISCUSSION: Looking to the future, what do you think “second screening” means for the consumption of content and media?

Source: GWI. (2021). The Global Media Landscape: Online, Offline, Streaming, and More. GWI. <https://www.gwi.com/reports/global-media-landscape>



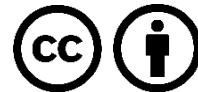
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The rise of gaming revenue visualized

[Missing a copyrighted image of The rise of gaming revenue visualized]

- ✘ Source: <https://www.visualcapitalist.com/wp-content/uploads/2020/11/history-of-gaming-by-revenue-share-full-size.html>



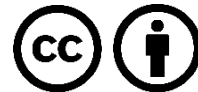
INSPIRATIONS of Creative Practice using Digital Technology



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INSPIRATIONS – Refik Anadol <https://refikanadol.com/>

- ✘ [Missing copyrighted images from <https://refikanadol.com/works/artificial-realities-coral/>]



INSPIRATIONS - <https://deca.art/eniosta>

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INSPIRATIONS - <https://www.kenkelleher.com/>

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INSPIRATIONS -

<https://www.ambervittoria.com/nfts>

✘ [Missing copyrighted images from <https://www.ambervittoria.com/nfts>]



INSPIRATIONS - <https://gianlucatraina.com/>

- ✘ [Missing copyrighted images from <https://gianlucatraina.com/>]
- ✘ To demystify: <https://www.instagram.com/reel/C3tS8YzsJM0/>



INSPIRATIONS – bjork.com

- ✘ [Missing copyrighted images from <https://www.bjork.com/>]
- ✘ <https://nftevening.com/bjork-will-perform-at-decentraland-metaverse-music-festival-2022/>



INSPIRATIONS - <https://www.reefdesignlab.com/>

✘ [Missing copyrighted images from <https://www.reefdesignlab.com/>]



INSPIRATIONS: Midjourney – Prompt to transform crumbled paper into staritect buildings

- ✘ [Missing copyrighted images from <https://www.dezeen.com/2023/06/29/tim-fuai-crumpled-paper-starchitect-building-designs/>]



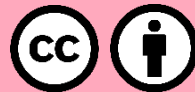
Digital Technologies that are transforming the creative process

- × Generative AI – DALL.e, Mid-journey, Leonardo.AI, Co-pilot Image Creator, MUSENET, Sora
- × NoCode Programs
- × Motionbank software (for the dancers that want to score their work)...
- × Digital Twin
- × Digital editing, painting, photoshopping software
- × 3D Modeling + Sculpting software
- × AR/ VR/ MR
- × Motion graphics and Graphics Software/Interfaces
- × Blockchain and NFTs
- × Let's add some more....





Class Discussion: How are technologies transforming the creative process?



15 Minutes BREAK



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Activity #1

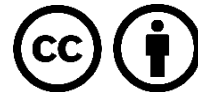
- ✘ Each group will be assigned a specific creative subsector to focus on, such as digital art, streaming, gaming, virtual reality (VR), augmented reality (AR), non-fungible tokens (NFTs), or blockchain in creative industries.

Answer the following:

1. How have digital technologies transformed the creative process within your group's subsector, providing new mediums and formats for content creation, performance, and exhibition?
2. What observations can your group make about interactivity and engagement when considering the use of digital technologies.
3. What monetization strategies can your group identify that are in use for your group's subsector? (HINT: focus on emerging technologies such as NFTs, AR, VR, and blockchain.) Bring a few examples from the creative industries.



Digital Economy – Social Impact of NFTs → week 3



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We made it!



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