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Open Museum **=** Make Art Accessible, make appreciators becoming creators, collectors and promoters

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Open Museum: Make Art Accessible, make appreciators becoming creators, collectors and promoters

BY

Zhenhua Yu

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Fine Arts in Visual Communication Design

> School of Design College of Art and Design Rochester Institute of Technology Rochester, NY August 10, 2022

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Abstract

As a human activity that expresses emotional power, beauty, technical ability, or conceptual ideas, art has a long history and a large fan base. However, while people's interest in art has never waned, it has rarely increased. The lack of interactivity of art in comparison to other information on the Internet is a significant disadvantage, and the recent reduction in museum visitors due to COVID-19 has also hampered the growth of the art industry. My thesis addresses these issues and attempts to create new opportunities for the growth of the art world by combining art appreciation, art collecting, and art re-creation. To solve the problem, I designed Open Museum, a web-based platform that lowers the barrier to art collecting in terms of both price and identification by using NFT technology and popularizes sculpture-based secondary creation by simplifying the node system that was already widely used in the 3D industry. The goal of Open Museum is to make art more accessible to a wider audience and to encourage more people to experience the joys of collecting and creating art. This project shows how Open Museum is progressing in various aspects, as well as how to achieve this goal.

Keywords

Art, Re-creation, Virtual Museum, Collect, NFT

Problem and Solution

Since the beginning of human civilization, art has accompanied the growth of human society, and in its long history, a lot of wonderful art has been created. At the same time, different countries and cultural environments have given birth to a variety of artistic styles, which has led to those beautiful artworks being distributed in museums around the world(JKan997 2019), and it is almost impossible for an ordinary person to go to every museum in person to enjoy his or her favorite artwork, which would cost a lot of money and time. Although the Internet allows people to enjoy art online, the shock of a three-dimensional appreciation of sculpture is simply not something that a few photos can provide. In recent years, the global panic caused by COVID-19 has forced museums to limit the number of people who can enter, making it more difficult for people to visit museums, resulting in a sharp decline in museum attendance(Noce 2022) and profit(Statista Research Department 2022), which is a heavy blow to the art industry.

Furthermore, while museums and art-related topics have a very stable fan base, they have not grown in a long time, and the global art market is in the same boat. According to the data, many museums saw a significant drop in revenue during COVID-19(Statista Research Department 2022), making it easy to imagine that many unknown artists must have suffered as well.

On the other hand, blockchain-based NFT is still in its early stages, and the lack of artists entering this new market has resulted in it being exploited by scammers and turning into a Ponzi scheme disguised as art. According to official data from the largest NFT trading platform, OpenSea, "over 80% of projects used Opensea's free mint tool were plagiarized works, fake collections, and spam."(OpenSea 2022) While NFT may be an opportunity to popularize art and help it reach a wider audience, for artists who like to try new things, simply rejecting it is not the best way to deal with it; rather, purifying the market by raising public awareness of art through their own participation is the way.

I designed the Open Museum platform to encourage more people to participate in the discussion of art topics and to improve the interactivity of art. The project aims to provide new energy and opportunities to the art industry by combining art appreciation, art collecting, and art re-creation.

First, Open Museum's interactive, real-time digital sculpture viewer for sculpture enthusiasts allows you to experience the joy of three-dimensional appreciation without leaving your room or even at your fingertips. Second, NFT technology is being used to push the boundaries of sculpture and collectibles. For a single piece of art, the original physical art, a fractional digital version, and a customized derivative collection can all exist concurrently and promote one another. Different price ranges are appropriate for different collectors. At the same time, NFT makes art authentication on chain simple and straightforward(Kaczynski 2022). Furthermore, the main drawback of NFT, which has been widely criticized for its high energy consumption, can be avoided by employing energy-efficient and eco-friendly layer 2 blockchain(Ravenscraft 2022). Third, in order to strike a balance between professionalism and accessibility to the art-making experience for the average person, Open Museum platform draws on the 3D/VFX industry's widely used node system to create a user-friendly browser-based operating system. Instead of learning specialized terminology, simple sculpture-based re-creation can be accomplished using only everyday words.

In addition to technological advancements, Open Museum focuses on assisting museums and artists in developing a brand and community around an artist or piece of artwork, encouraging the entire community to spontaneously promote the artwork out of love for it, which can increase visibility and profitability. Open Museum will also serve as a communication platform for young sculptors, art enthusiasts, and collectors, as well as an opportunity for collectors to provide feedback to artists during the process of creation or re-creation.

Design Process and Details

At the start of the project, after considering the art industry's long-standing issues and the impact of COVID-19, I realized that a lack of interactivity could be the reason for a lack of growth in art-related topics. The primary goal of Open Museum is to popularize art collecting and art re-creating, which were previously only available to a small number of people, and to make people realize that there are more ways to interact with art than simply appreciating it. Following that, I wanted to clarify Open Museum's role in achieving this goal. For artists, it's a platform where you can show your creativity, communicate directly with your audience, and talk with other artists to build your network in the art world. For museums, it can bring artworks that have lain dormant for decades or centuries back to life and discover their potential to provide museums with new ways to profit. For sculpture enthusiasts, interactive browser-based digital sculptures provide a one-of-a-kind appreciation experience without missing a single detail. And for those who want to develop the hobby of collecting art, it's an opportunity to do so while also supporting creative artists without having to worry about certification.

Open Museum mainly focuses on four aspects: appreciating, creating, collecting, and promoting, all of which are interconnected to ensure users have a smooth experience. For appreciation, the platform offers a search function based on region, museum, artist, and artwork's name, giving users the familiar experience of exploring a museum in person while also allowing them to quickly locate their favorite artworks(Appendix B, page 15). The individual artwork interface provides a wealth of background knowledge for users who want to delve deeper, as well as hyperlinks to related marketplaces, derivative arts, or even directly begin re-creating in studio mode(Appendix B, page 16). The unique yet simple folder-style gallery allows users to switch between flat and 3D views of digital sculptures with a single click, giving them the freedom to choose in terms of experience and convenience (Appendix B, page 17). The node system inherits a clear and concise hierarchy(Appendix B, page 22) and sculptures can be updated in real time on the website according to the addition and subtraction of nodes, giving users timely feedback(Appendix B, page 21). Furthermore, replacing terminology with everyday words makes recreating artwork as simple as taking some notes (Appendix B, page 23). The use of NFT technology is primarily reflected in the collecting part, and the benefit of separating it from the appreciating part is to avoid mutual influence, forming a linear process from appreciation to collection, instead of collecting for investment purposes, which is contrary to the platform's core goal. Relative independence is also a disguised way to encourage users to collect artwork after gaining a better understanding of it. The collecting section contains only a small amount of art-related information(Appendix B, page 26) but more attributes that can reflect the value of collecting, such as price, rarity, materials, decoration, and so on(Appendix B, page 27). Last but not least, promotion appears to have little to do with art, but it is an essential component. Good art needs to be appreciated and recognized to maximize its value.

Open Museum provides an embedded interactive 3D viewport for external mainstream platforms like Instagram and Twitter to bring attention to the platform(Appendix B, page 30). For internal, we combined commentary and chat functions to build a unique communication experience for each artwork or artist, bringing communication and collecting closer together(Appendix B, page 31). A social network with artwork at its core helps build a competitive and cooperative relationship between artists as well as between collectors(Appendix B, page 32). Overall, a minimal and visual-oriented design style was adopted while always keeping in mind that Open Museum is a platform centered around artwork and should not allow too much user interface design and graphic design to distract the user's attention. The access and presentation of NFT technology and crypto currency are restricted for the same reason.

Although the platform is still in its early stages, the core functionality and interface design components have made significant progress. To validate the feasibility of the project, I invited ten participants to test the completed parts, which primarily included the simplified node system and the most fundamental NFT creation and trading processes. Four of the ten participants had prior experience with 3D software, and two were familiar with NFT and had traded on other NFT platforms. In the test of the node system, nine people thought the entire experience was very smooth and satisfied with their final work, but the two testers with 3D experience thought that the platform still needed more customizability and that more kinds of node options should be added to enrich the creation possibilities. In terms of NFT creation and transactions, all ten testers successfully completed the process after reading a simple tutorial and admitted that trading using crypto currency was not as complicated as they once thought. Furthermore, three testers suggested that in addition to the scans of the sculptures provided by museums and artists, each user should be allowed to upload their own 3D models to build a freer platform and marketplace. This is a direction that could be explored at a later stage of the platform's development.

Conclusion

The main goal of this project is to use the emerging blockchain technology, specifically NFT technology, to grow the art industry as well as simplify some of the tools that once belonged to professional 3D artists into online gadgets that can be quickly learned and used by ordinary people, which can lower the threshold of art collecting and simplify the sculpture-based recreation process. The seamless integration of appreciation, collection, and creation presents an opportunity to reach out to a larger audience.

With this goal in mind, Open Museum may also make a significant contribution to the popularization of sculpture art. You will have a familiar in-person museum experience by using Open Museum's real-time interactive digital sculpture viewer. Open Museum is also a platform that can help museums and artists build a brand and community around an artist or piece of artwork, which can increase visibility and profitability at the same time.

Overall, Open Museum is a daring attempt to mix traditional art with blockchain technology, and it will bring new prospects and energy for the expansion of both fields.

Appendix A: References and Bibliography

Jkan997. "Map of museums all over the world." Wikipedia, April 9, 2019. https://en.wikipedia.org/wiki/Museum#/media/File:World_museums.png.
Statista Research Department. "Share of annual revenue lost by museums worldwide during the coronavirus (COVID-19) pandemic in 2020." Statista, Feb 8, 2022.
https://www.statista.com/statistics/1201763/expected-revenue-loss-of-museums-worldwide-during-covid-19.
Statista Research Department. "Number of visitors to the Louvre in Paris from 2007 to 2020." Statista, Aug 5, 2021.
https://www.statista.com/statistics/247419/yearly-visitors-to-the-louvre-in-paris.
Noce, Vincent. "Louvre's attendance last year dropped to 1986 levels." The Art Newspaper,
January 5, 2022.
https://www.theartnewspaper.com/2022/01/05/louvres-attendance-last-year-dropped-to-levels-last-seen-in-1986.
Statista Research Department. "Global art market volume of transactions from 2007 to 2021." Statista, Mar 30, 2022.
https://www.statista.com/statistics/885518/global-art-market-volume-of-transactions.
Kaczynski, Steve, and Duke Kominers, Scott. "How NFTs Create Value." Harvard Business
Review, November 10, 2021. https://hbr.org/2021/11/how-nfts-create-value.
Ravenscraft, Eric. "NFTs Don't Work the Way You Might Think They Do." Wired, Mar 12,
2022. https://www.wired.com/story/nfts-dont-work-the-way-you-think-they-do.
Pearson, Jordan. "More Than 80% of NFTs Created for Free on OpenSea Are Fraud or Spam,
Company Says." Vice, January 28, 2022.
https://www.vice.com/en/article/wxdzb5/more-than-80-of-nfts-created-for-free-on-
opensea-are-fraud-or-spam-company-says.
OpenSea (@opensea). "However, we've recently seen misuse of this feature increase
exponentially. Over 80% of the items created with this tool were plagiarized works,
fake collections, and spam." Twitter, January 27, 2022.
https://twitter.com/opensea/status/1486843204062236676.
Massey, Luke, and the Greater London National Park City Initiative. "Aerial shot of the British
Museum, London." Wikipedia, June 30, 2015.
https://en.wikipedia.org/wiki/British_Museum#/media/File:British_Museum_(aerial).
jpg.
Delso, Diego. "Galería Nacional, Londres, Inglaterra." Wikipedia, August 7, 2014.
https://en.wikipedia.org/wiki/National_Gallery#/media/File:Galer%C3%ADa_
Nacional,_Londres,_Inglaterra,_2014-08-07,_DD_035.JPG.
Diliff. "The Natural History Museum." Wikipedia, January 1, 2006.
https://en.wikipedia.org/wiki/Natural_History_Museum,_London#/media/File:Natural_ History Museum London Jan 2006.jpg.
Diliff. "The southern entrance of the Victoria and Albert Museum in London, England."
Wikipedia, March 24, 2014.
https://en.wikipedia.org/wiki/Victoria_and_Albert_Museum#/media/File:Victoria_&_
Albert_Museum_Entrance,_London,_UKDiliff.jpg.

Shadowssettle. "The Science Museum, London, as seen from Exhibition Road." Wikipedia, August 1, 2020.

https://en.wikipedia.org/wiki/Science_Museum,_London#/media/File:Science_Museum,_Exhibition_Road_(cropped).jpg.

- Scan the World. "Scan the World Pietà (Michelangelo).stl." Wikipedia, February 21, 2018. https://en.wikipedia.org/wiki/Piet%C3%A0_(Michelangelo)#/media/File:Scan_the_ World_-_Piet%C3%A0_(Michelangelo).stl.
- Scan the World. "Scan the World The Thinker (Auguste Rodin).stl." Wikipedia, August 18, 2014. https://en.wikipedia.org/wiki/The_Thinker#/media/File:Scan_the_World_-_The_ Thinker (Auguste Rodin).stl.
- Scan the World. "Scan the World Venus de Milo.stl." Wikipedia, July 1, 2014. https://en.wikipedia.org/wiki/Venus_de_Milo#/media/File:Scan_the_World_-_Venus_ de_Milo.stl.
- Gorman, Michael. "5 Ways to Expand Your Art Promotion." Art Business News, March 12, 2020. https://artbusinessnews.com/2020/03/5-ways-to-expand-your-art-promotion.
- Job, Rita. "6 Things You Can Do To Promote Your Art." Agora Gallery, August 25, 2016. https://www.agora-gallery.com/advice/blog/2016/08/25/promote-your-art.

Appendix B: Thesis Defense Presentation

Zhenhua YuVCDE 2022 SpringCommittee :Mike Strobert, Adam Smith

•Open Museum

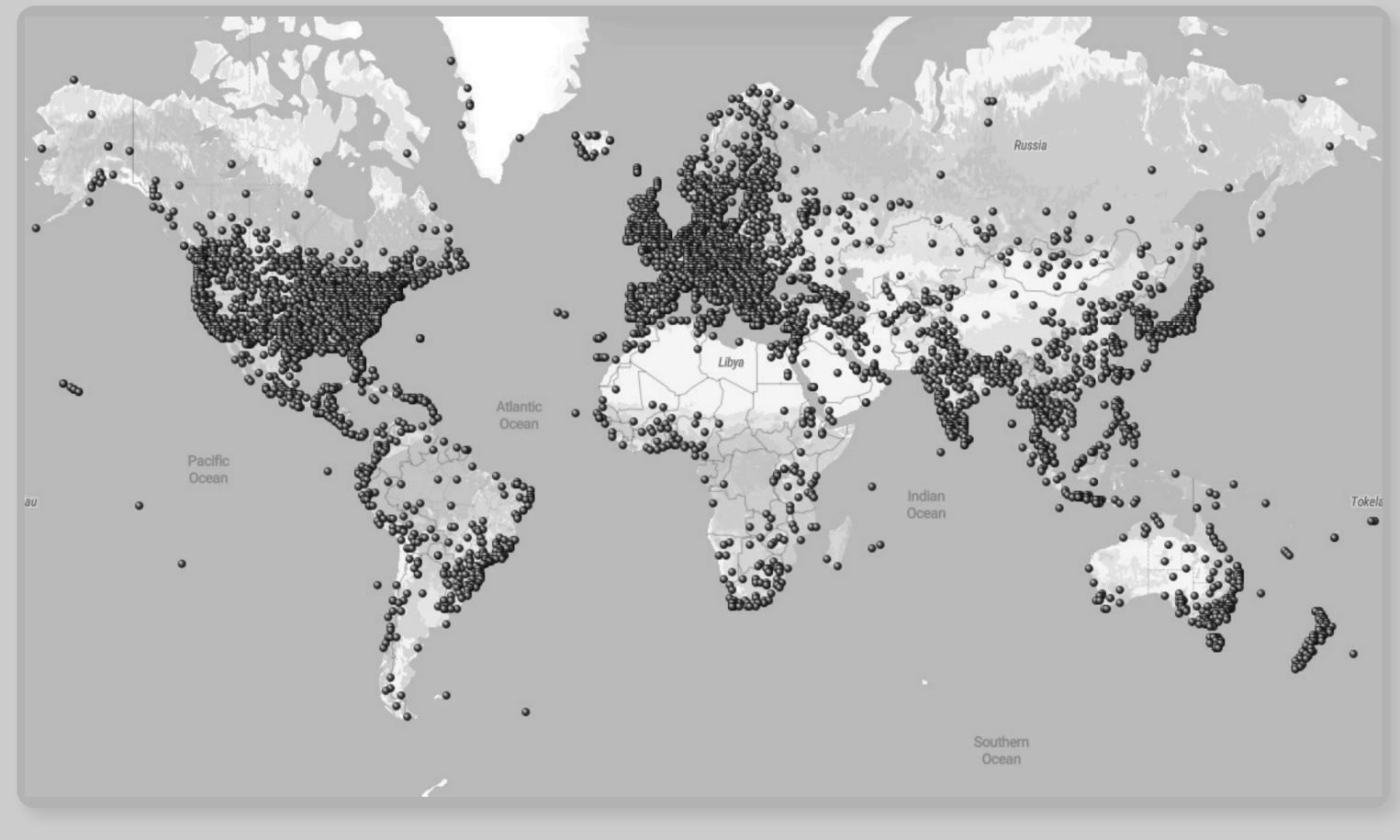
Rebuild your relationship with the artwork: appreciate, create, collect and promote.





Museums all over the world:

No way to visit every museum you like in person



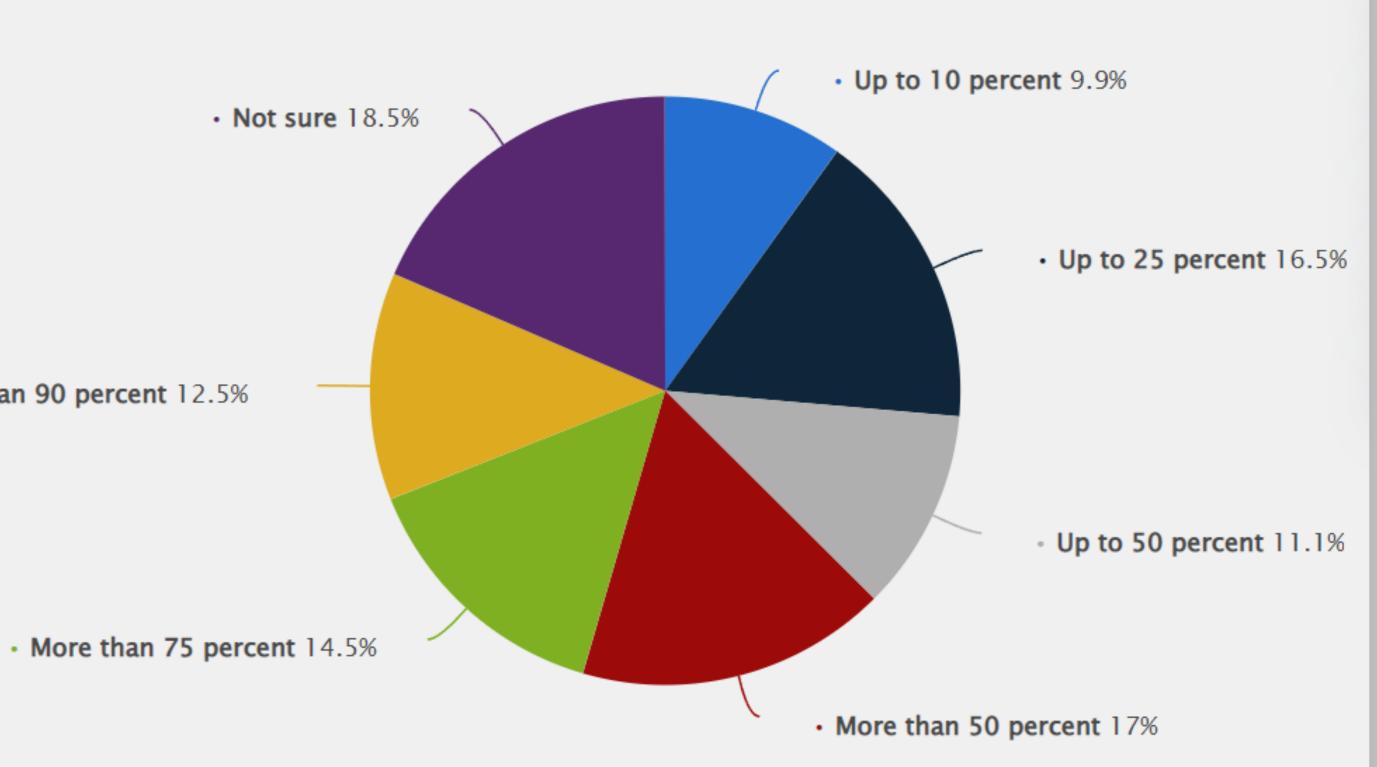
Map of museums all over the world



Museums are losing profit during COVID-19 pandemic

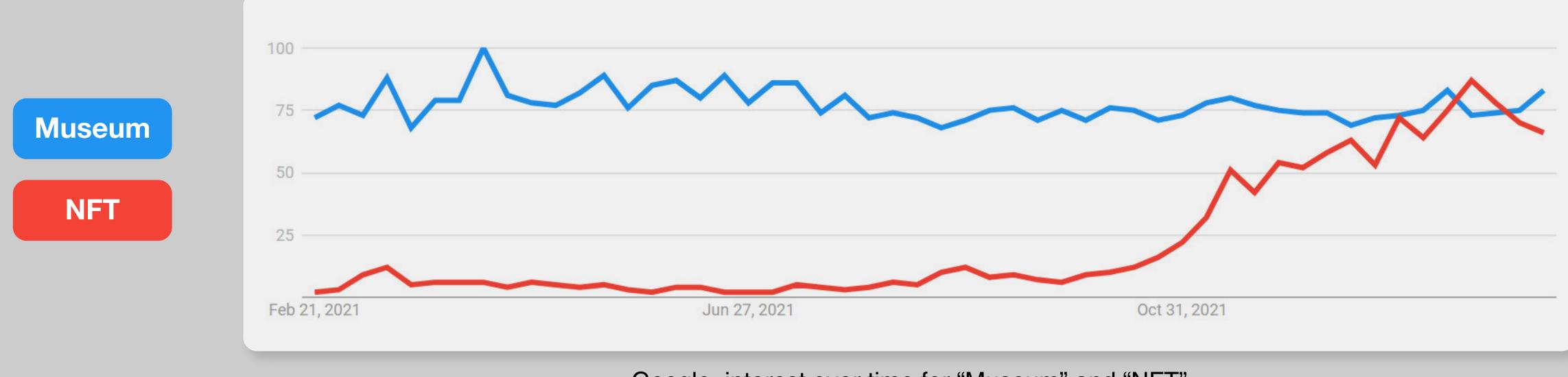
More than 90 percent 12.5%

Share of annual revenue lost by museums worldwide during the coronavirus (COVID-19) pandemic in 2020







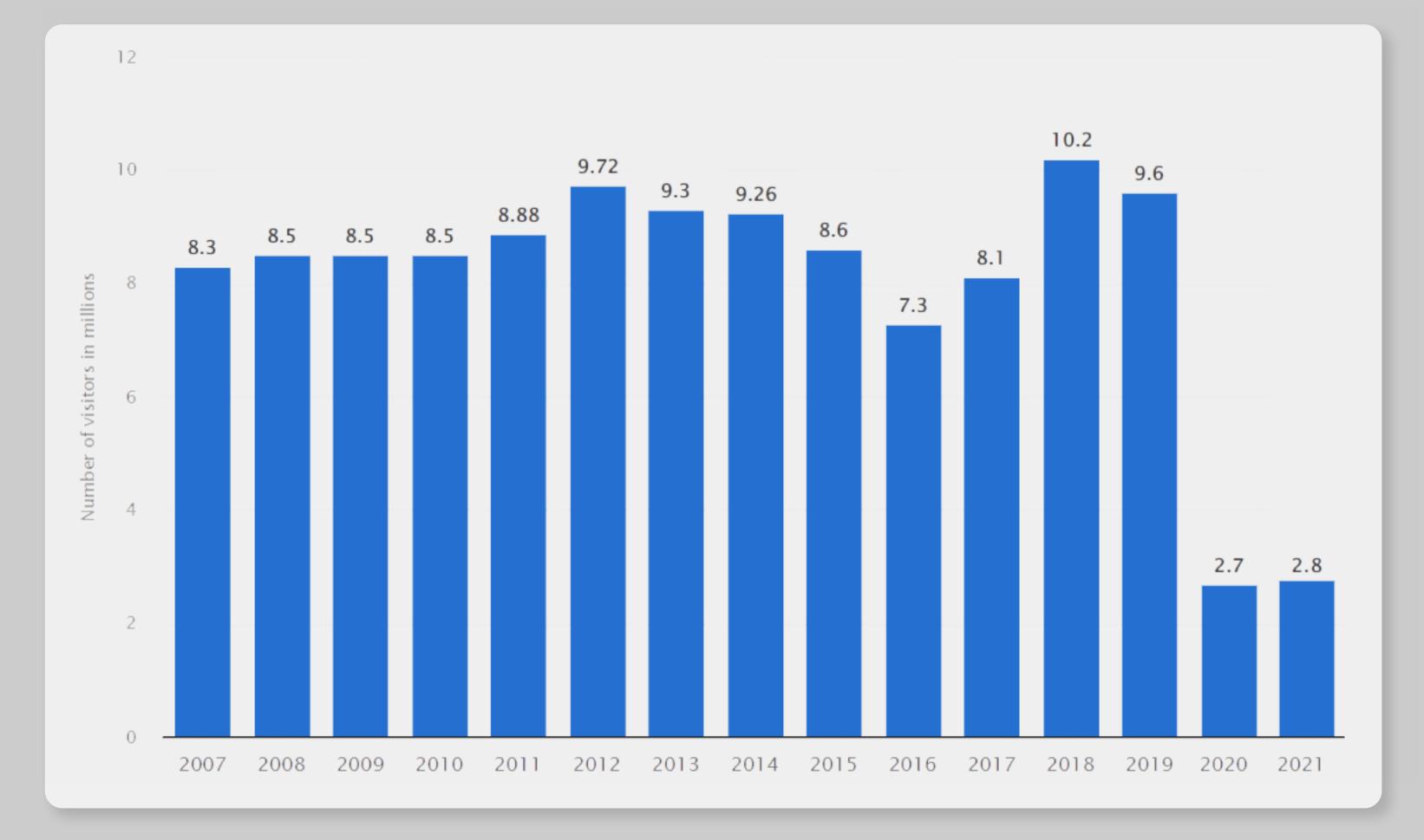


Interest in museums hasn't increased for a long time Interest in NFT is increasing day by day because of COVID-19

Google interest over time for "Museum" and "NFT"







Number of visitors to the Louvre in Paris from 2007 to 2021

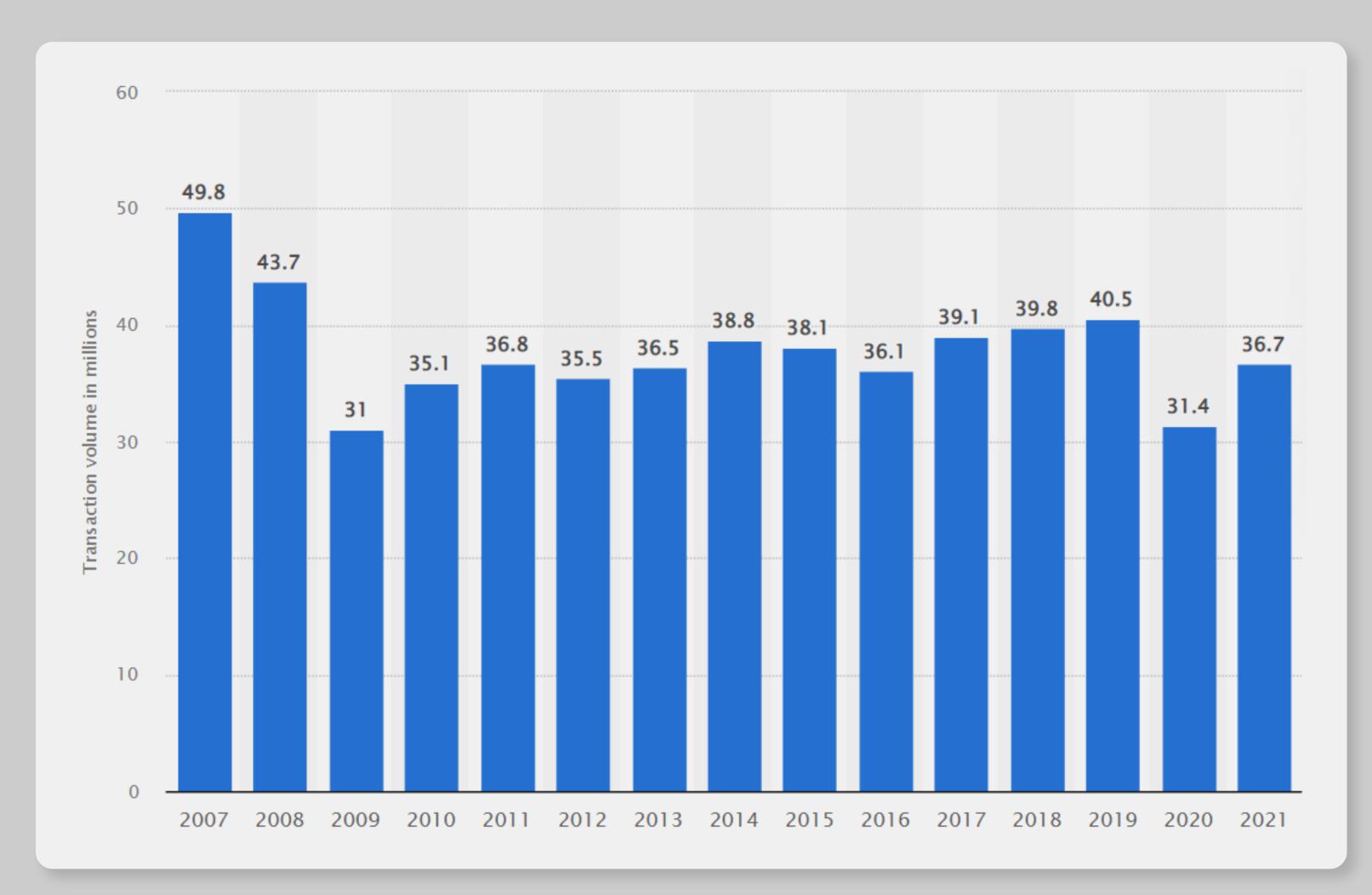
Global scares like COVID-19 make museum visitor numbers decrease







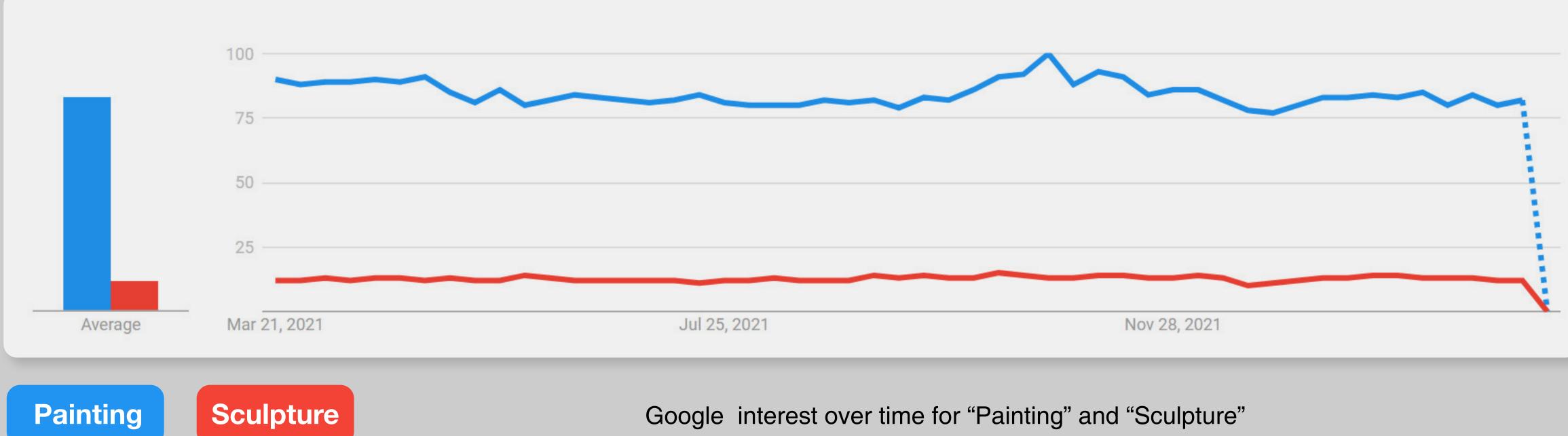
Global art market : stable but lacking growth



Global art market volume of transactions from 2007 to 2021







Museums are almost the only way for the public to appreciate sculpture

A significant drop in museum visitors could lead to a loss of interest in sculpture

There isn't a good way to appreciate sculpture on the internet comparing to painting







"Artworks" from a nft project is displayed on the wall of a museum

NFT market needs more real artists to improve the aesthetic level of collectors or buyers

- "Over 80% of projects used Opensea's free mint tool were plagiarized works, fake collections, and spam."
- When it comes to a new way to interact with art, artists should try to improve it, rather than simply reject





Mission Statement

2

3

More people know about art, collecting art and creating art

Provide a platform for young sculptors, art enthusiast and collectors to communicate

Make artists no longer be ashamed of promoting of their artworks commercially

Make collecting art an affordable hobby for everyone rather than an investment

Give positive feedback to artists during the creating process by involving collectors in



Mission Statement

Making artwork "sustainable" and scalable

Not only a sculpture, but also a community of enthusiasts built around an artwork

2 Break the boundary of sculpture and collectibles

3 Original physical art, fractional digital version and customized derivative collection

4 Build on energy-efficient and eco-friendly greener layer 2 blockchain



Mission Statement

2

3

4

Find a balance between professionalism and understandable

Simple and straightforward onchain art authenticity identification using Non-Fungible Token technology

Referencing 3D/VFX industry heavily used node system building a user-friendly operating system

Accessible and interactable digital sculpture that everyone can operate without 3d knowledge

Commonly used words instead of terminology for browser based node system



What is Open Museum?

Zhenhua Yu

VCDE 2022 Summer





For Artists

Show your creativity, communicate directly with your audience and talk with other artists

For Museums

Bring artworks that have lain dormant for decades or centuries back to life and discover its potential

For Sculpture enthusiasts

Unique appreciation experience with interactive browser based digital sculptures without losing a single detail

For Collectors/Investors

Collect affordable digital sculptures and support creative artists without worrying about certification



Appreciate Create Collect

Promote





Appreciate

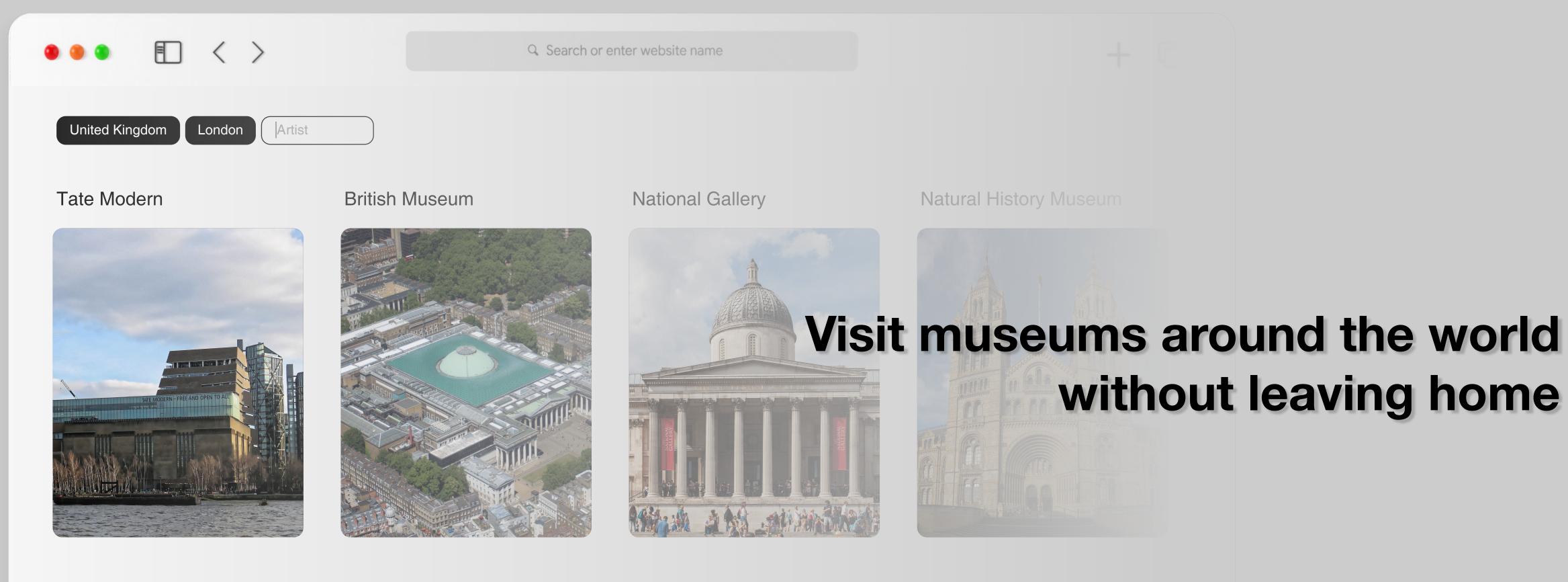
Why using Open Museum to appreciate artwork?

- COVID-19 already last a very long time, using Open Museum for safety reasons
- Viewing a sculpture in three dimensions is a completely different experience from viewing it through pictures
- Talk with artists and other art lovers directly in realtime, learn the story behind the artwork
- Not only appreciate the artwork, but also have a full-ranged interaction with it

• Sculptures are located in museums around the world, it takes money and time to enjoy your favorite sculptures in person



Appreciate - explore



Victoria and Albert Museum



London Science Museum







Appreciate - artwork

Appreciate sculpture on the website the way you see it in the museum

 \square \langle \rangle

Q Search or enter website name

ጠ



The Piety

Vatican City

St. Peter's Basilica Michelangelo

The structure is pyramidal, and the vertex coincides with Mary's head. The statue widens progressively down the drapery of Mary's dress, to the base, the rock of Golgotha. The figures are quite out of proportion, owing to the difficulty of depicting a fully-grown man cradled full-length in a woman's lap. Much of Mary's body is concealed by her monumental drapery, and the relationship of the figures appears quite natural. Michelangelo's interpretation of the Pietà was far different from those previously created by other artists, as he sculpted a young and beautiful Mary rather than an older woman around 45 years of age.

The marks of the Crucifixion are limited to very small nail marks and an indication of the wound in Jesus' side.

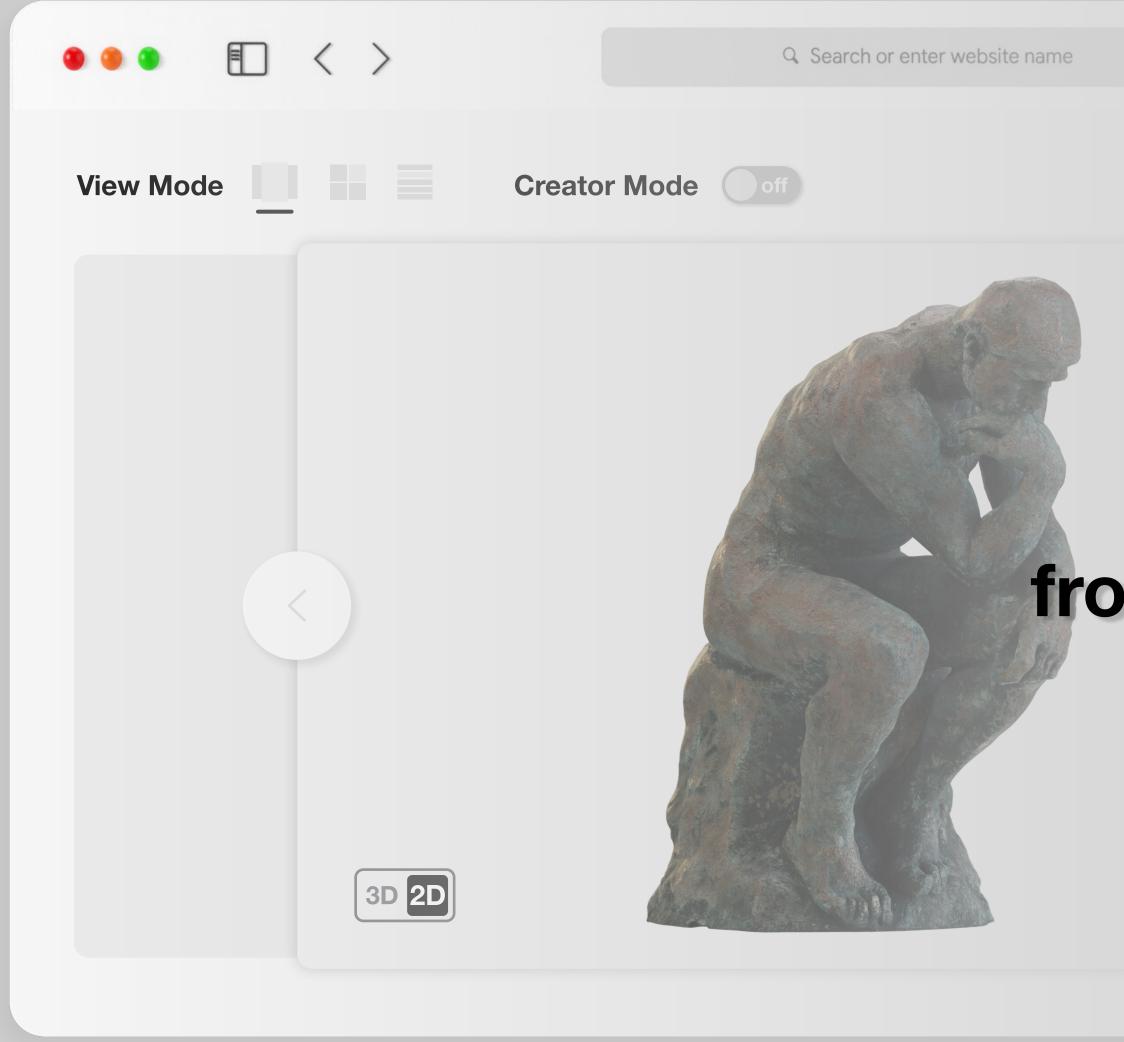
Christ's face does not reveal signs of the Passion. Michelangelo did not want his version of the Pietà to represent death, but rather to show the "religious vision of abandonment and a serene face of the Son," hus the representation of the communion between man and God by the sanctification through Christ.

read more





Appreciate - my gallery



Browse your favorite artworks from different museums on one page





Appreciate Create Collect Promote



Create

Why we need to create and recreat?

- Find the beauty of creating, express your unique understanding of the artwork
- Make more version of an artwork, help the artwork you like get more attention
- Great artworks are not only visual enjoyment but also excellent inspiration for creation
- Interacting with the art can help you feel the artist's emotion and energy



Create

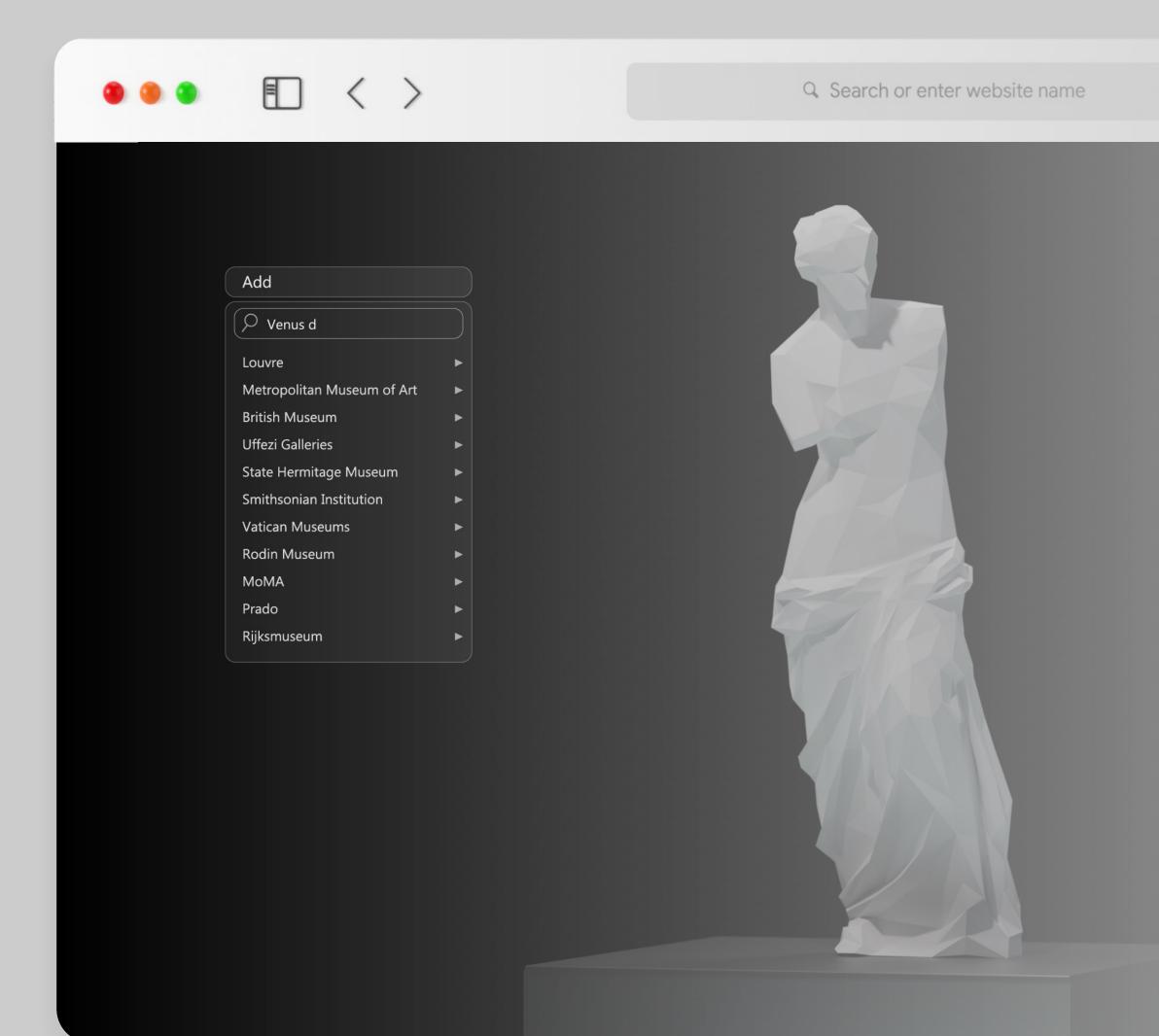
What are you creating?

- Deeper thinking you made based on the original artwork
- Connection with the original artwork's appreciators which makes it easier for you to build initial fan base
- An opportunity to test acceptance of your artistic style and gradually form a mature one

The collision between your idea and the origianal artwork may gives you new inspiration and evolution of your artistic style



Create -base sculpture



Choose a sculpture as the basic for your creation



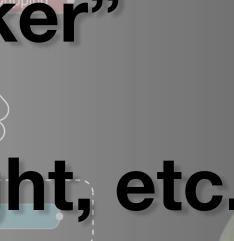




Customize your own "The Thinker" Customizable material, time, light, etc.



+ 0





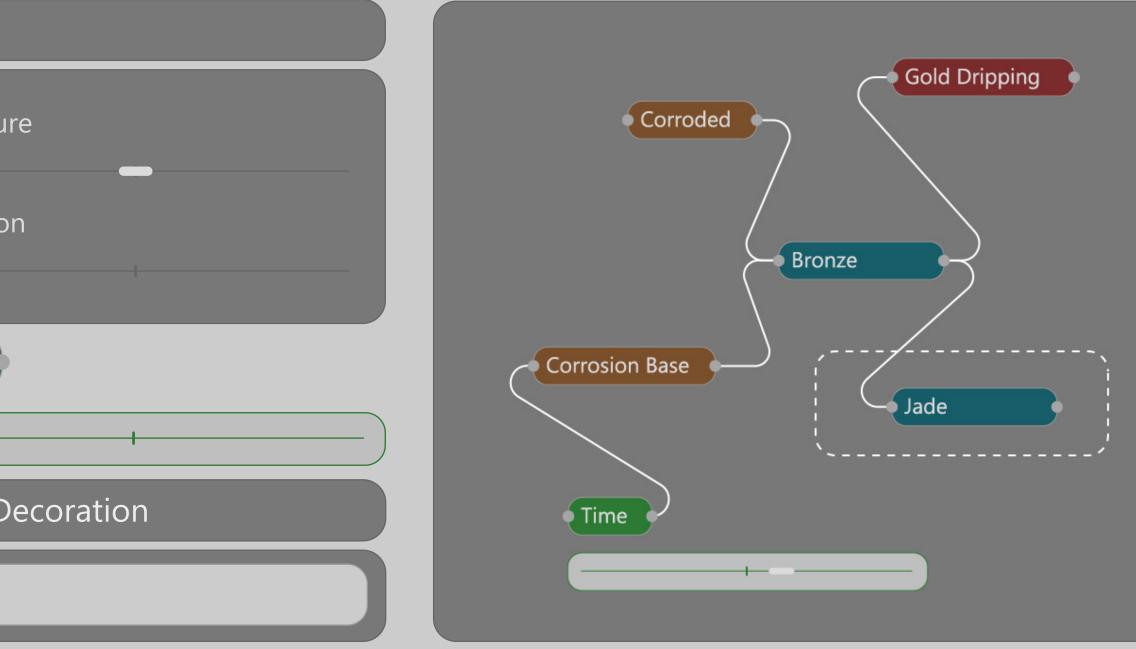




Create -node system

Add		Base Material		Light
9				Exposu
Louvre	•			LAPOSU
Metropolitan Museum of Art	►	Trending Rece	ently Favorite	
British Museum	►	N de vla la		Rotatio
Uffezi Galleries	►	Marble	China	
State Hermitage Museum	►	Bronze	Porcelain	
Smithsonian Institution	►	Jade	Gold	Time
Vatican Museums	►	Jaur		
Rodin Museum	►	Ceramic	Copper	
MoMA	►	Chrome	Gem	Add D
Prado	►			
Rijksmuseum	►	Corundum	Amethyst	

Use the easy-to-understand node system which is already widely used in 3d/VFX industry





Appreciate Create - Collect

Promote





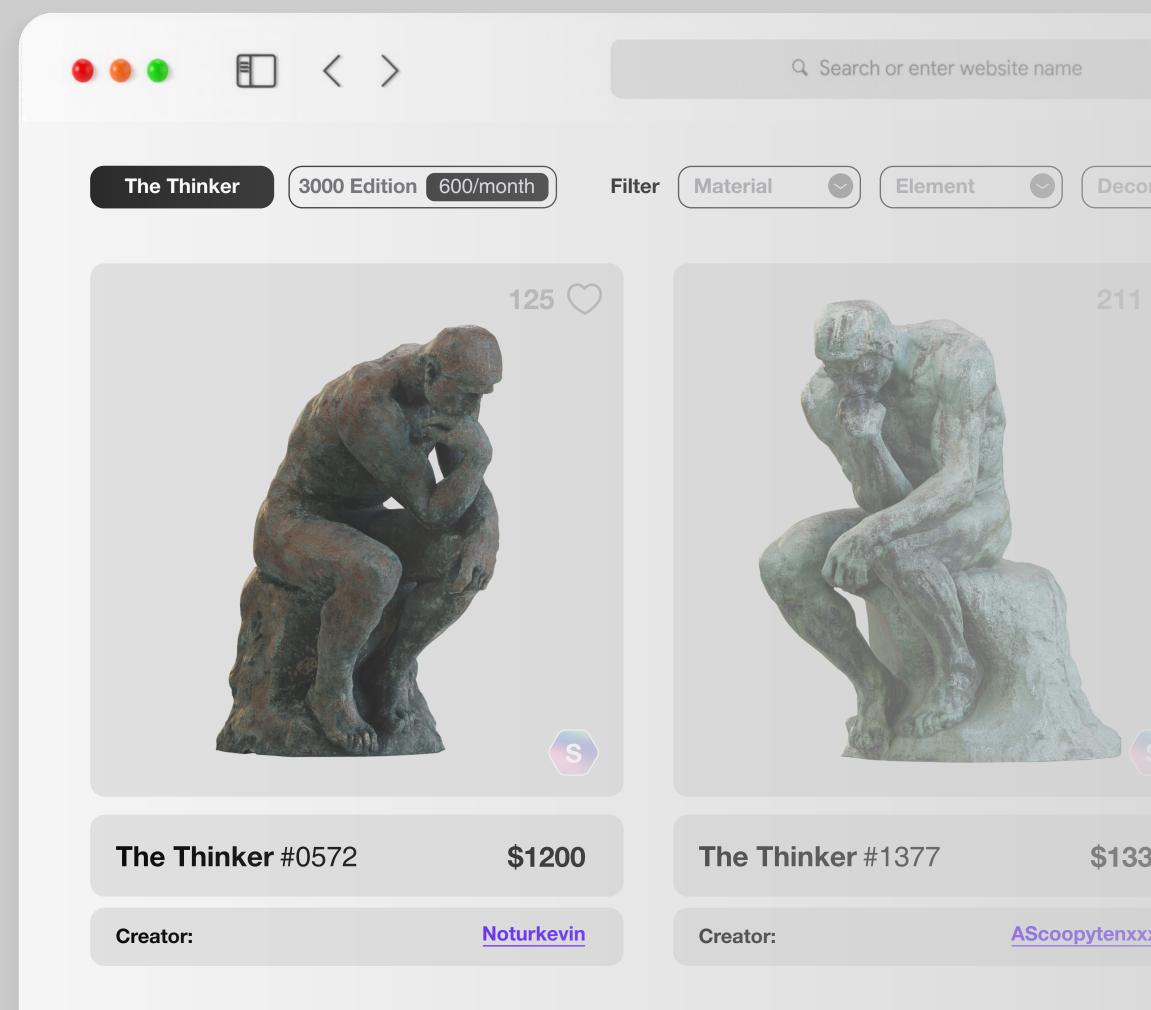
Collect

Why NFT? What are we collecting?

- Collectors without comprehensive knowledge about arts don't have ability to authenticate artwork
- NFT transactions are convenient without the complicated auction process and high auction house fees
- Opportunity to join exclusive community as well as provides financial support for artists and museums
- Turning your art appreciation ability into substantial return on investment



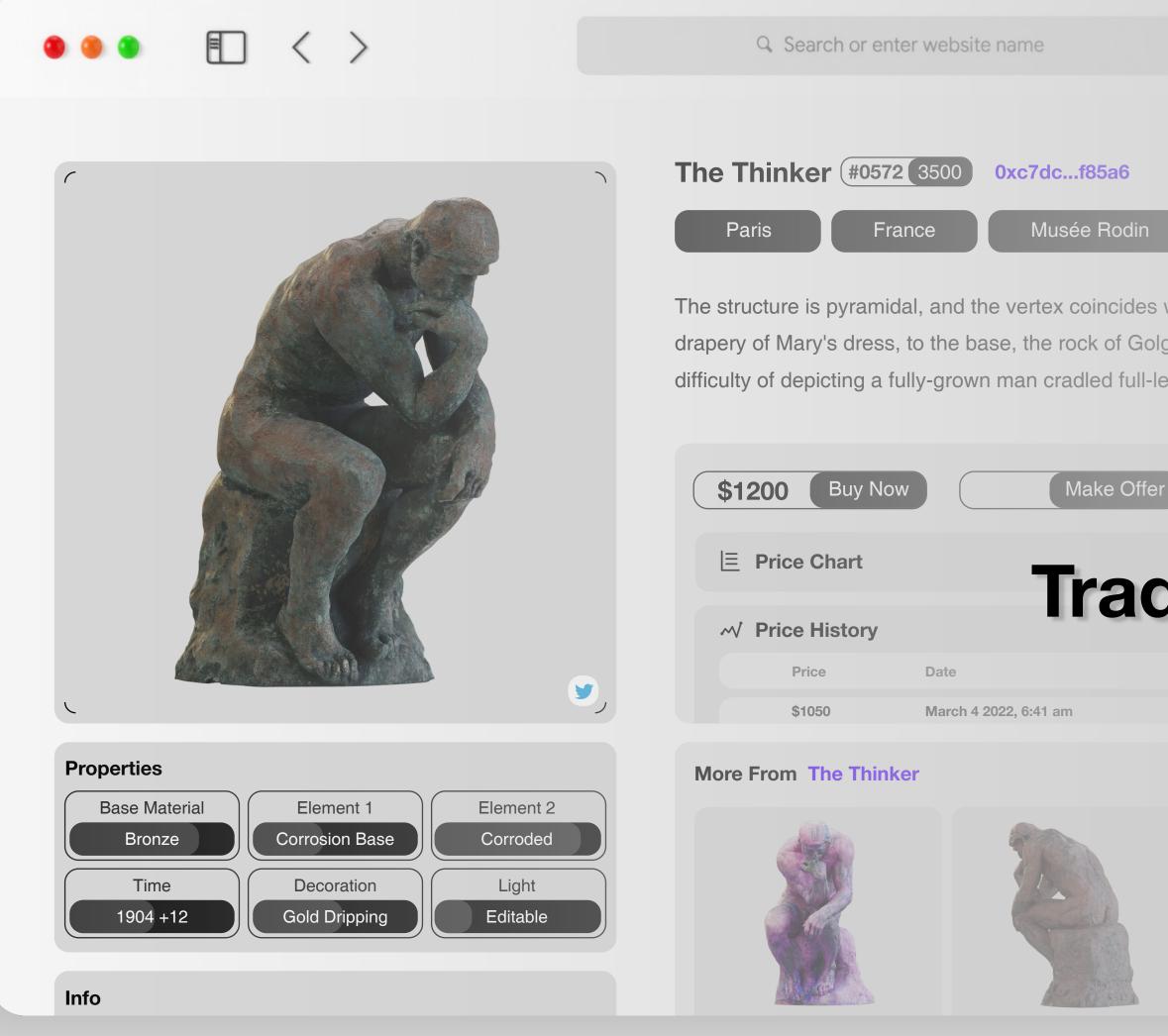
Collect - market



oration	Time	Light					
С	ollect	artw	orks	fron	n reci	reator	S
	G	iet ir	nspire	ed b	y reci	reator	S
32	The Thinker #35	522					
XV	Creator:						



Collect - item



85a6		
e Rodin Auguste Rodin	Noturkevin	
pincides with Mary's head. The stat	tue widens pro	
k of Golgotha. The figures are quit	e out of propo	
led full-length in a woman's lap.	ead more	

Trade your collection/creation as NFT

	-		
	Buyer		
	Serieeeous	kuite02496	
)			



27

Create Collect Promote

Appreciate



Promote

How open museum promotion helps artists?

- Artists are also collectors which builds an community that artists mutually promote each other

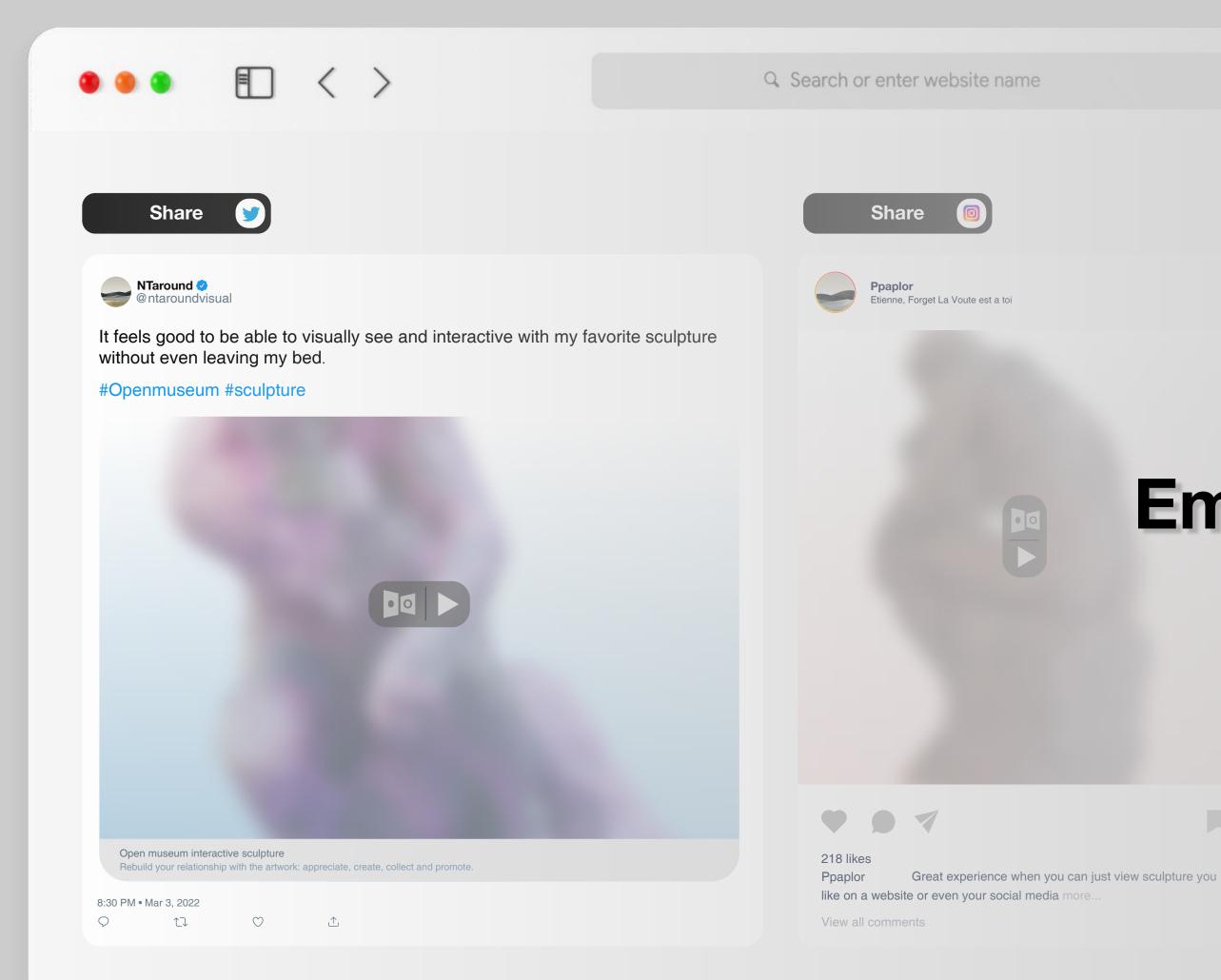
Growing reputation makes the price of your artworks rise which is the most direct reward to the collectors who support you

• Embed interactive framework allowing users to experience your 3D sculptures without leaving the social platform

• Community-centered promotion finds new promoters and builds your own network while getting exposure for your art



Promote - media





Embedded interactive 3d viewport



653 likes

Ppaplor Great experience when you can just view sculpture you Catto94 Great experience when you can just view sculpture you like on a website or even your social media mo





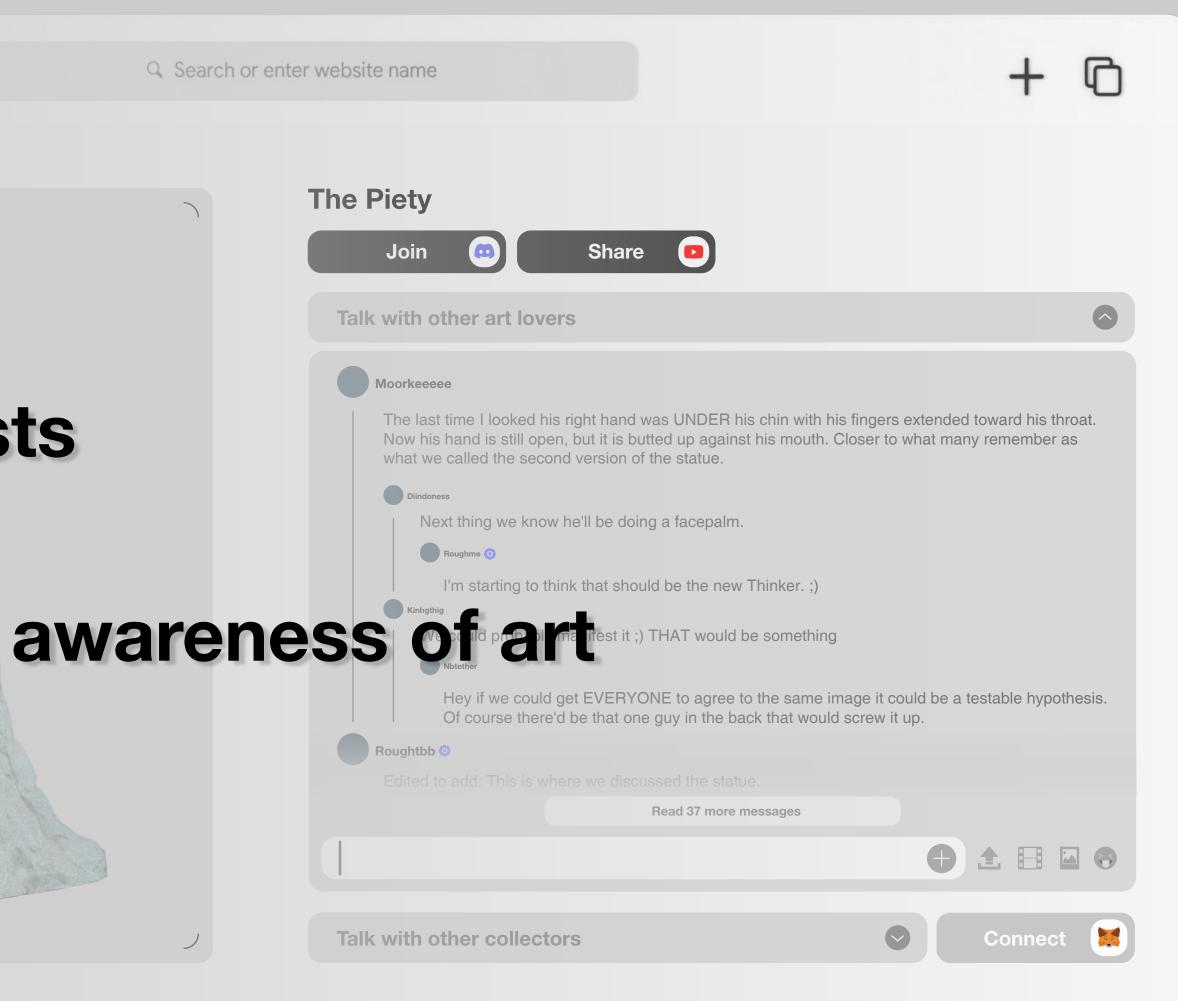




Promote -communication

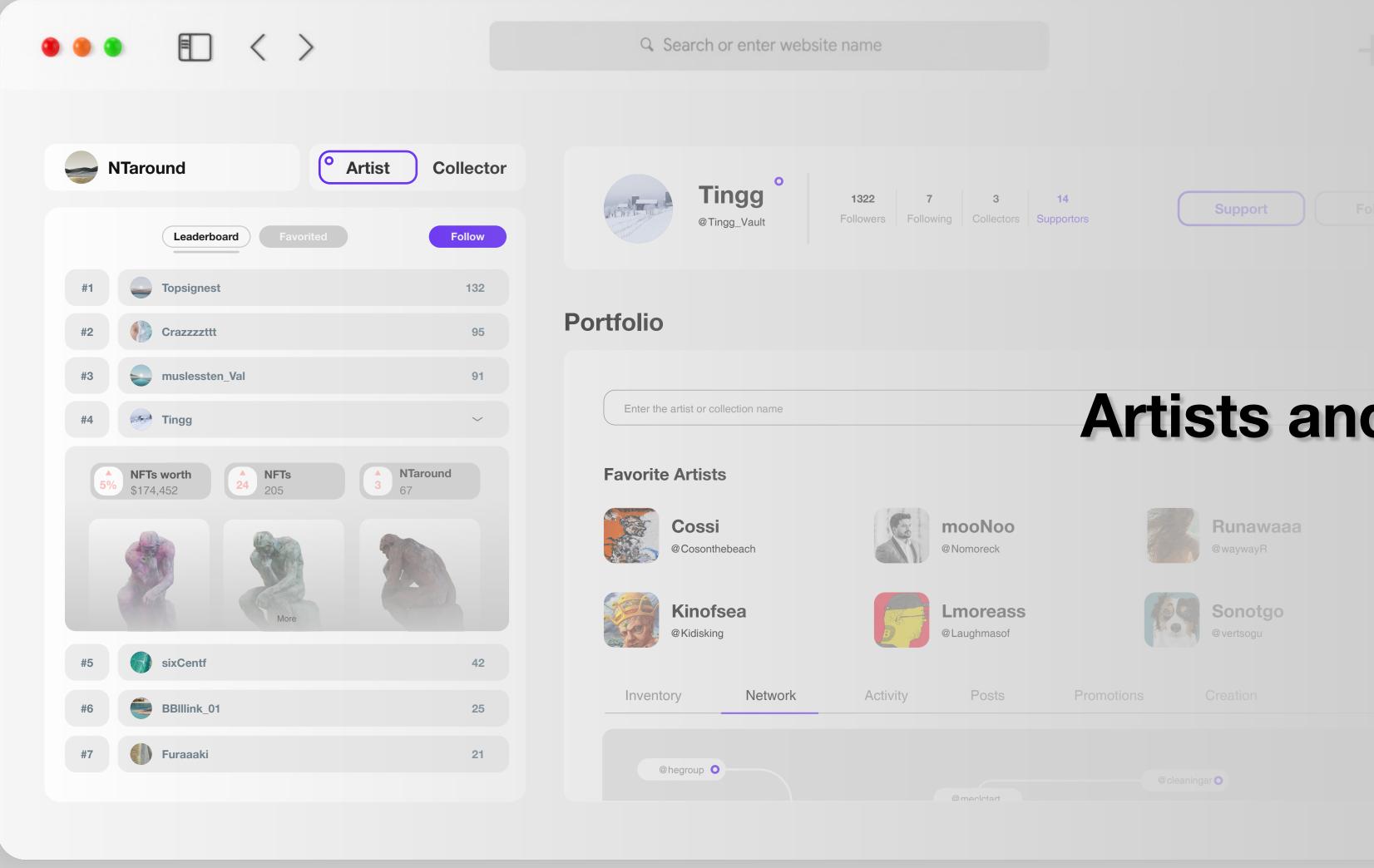
Meet people with similar interests

Improve the visibility and social awareness of art





Promote -network



Artists and collectors network

	5







Conclusion

- experience by using Open Museum's real-time interactive digital sculptures.
- artist or piece of artwork can increase visibility and profitability at the same time.
- easier to become a collector, and the Open Museum's node system has simplified the creation presents an opportunity to reach out to a larger audience.
- easy-to-understand way through art.

Viewing sculpture art in three dimensions is a completely different experience than viewing photographs, but it is more expensive and time consuming. You can, however, have a similar

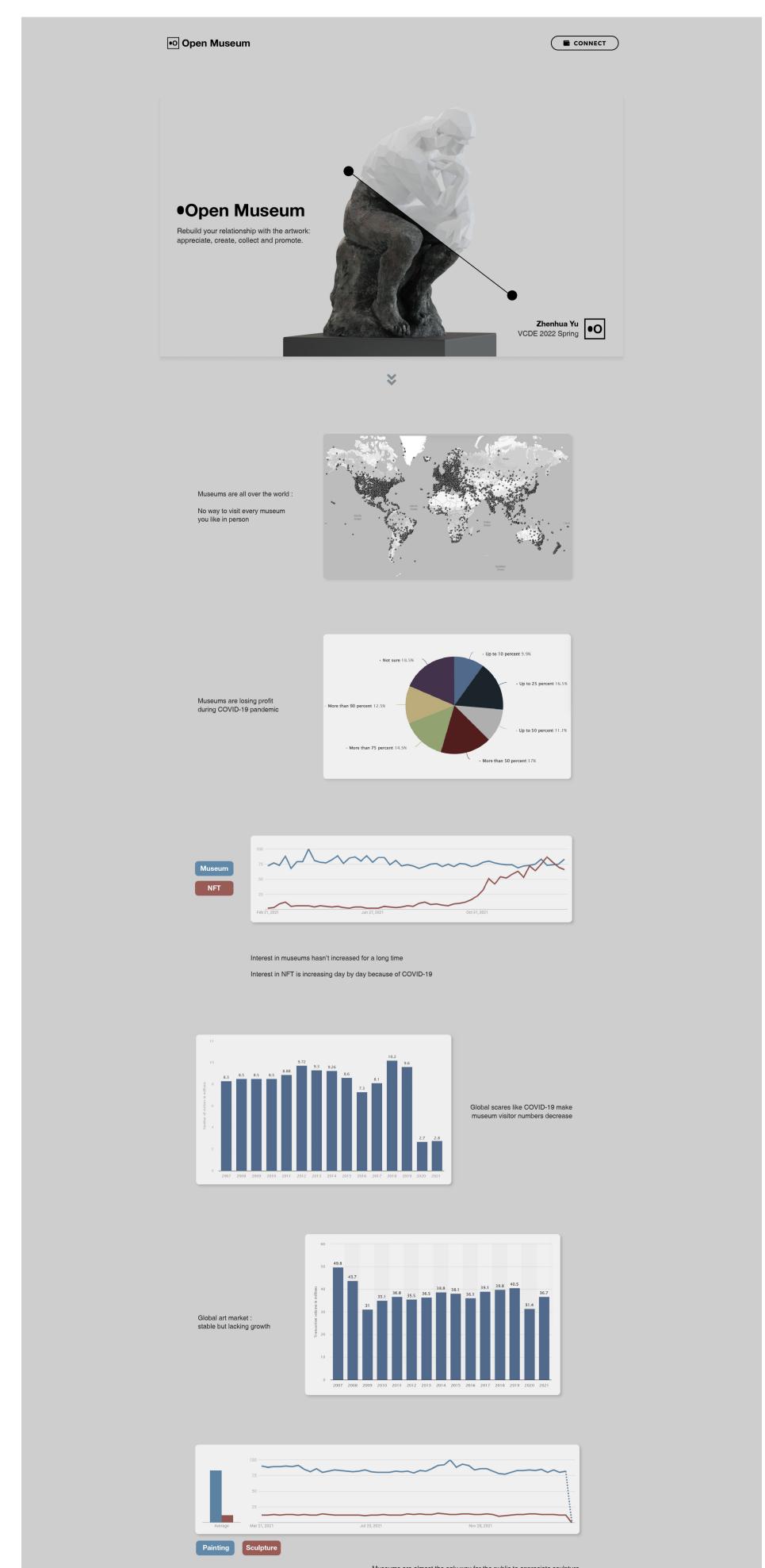
Because of COVID-19, many museums limit the number of visitors, which has a significant impact on the income of museums and artists. Building a brand and community around an

Interest in art and museum topics has been consistent but not growing. NFT has made it sculpture-based recreation process. The seamless integration of appreciation, collection, and

This is an opportunity not only for the art world, but also for blockchain technology. Artists who like to experiment and seek freedom are the best people to present blockchain in an







Museums are almost the only way for the public to appreciate sculpture A significant drop in museum visitors could lead to a loss of interest in sculpture There isn't a good way to appreciate sculpture on the internet comparing to painting



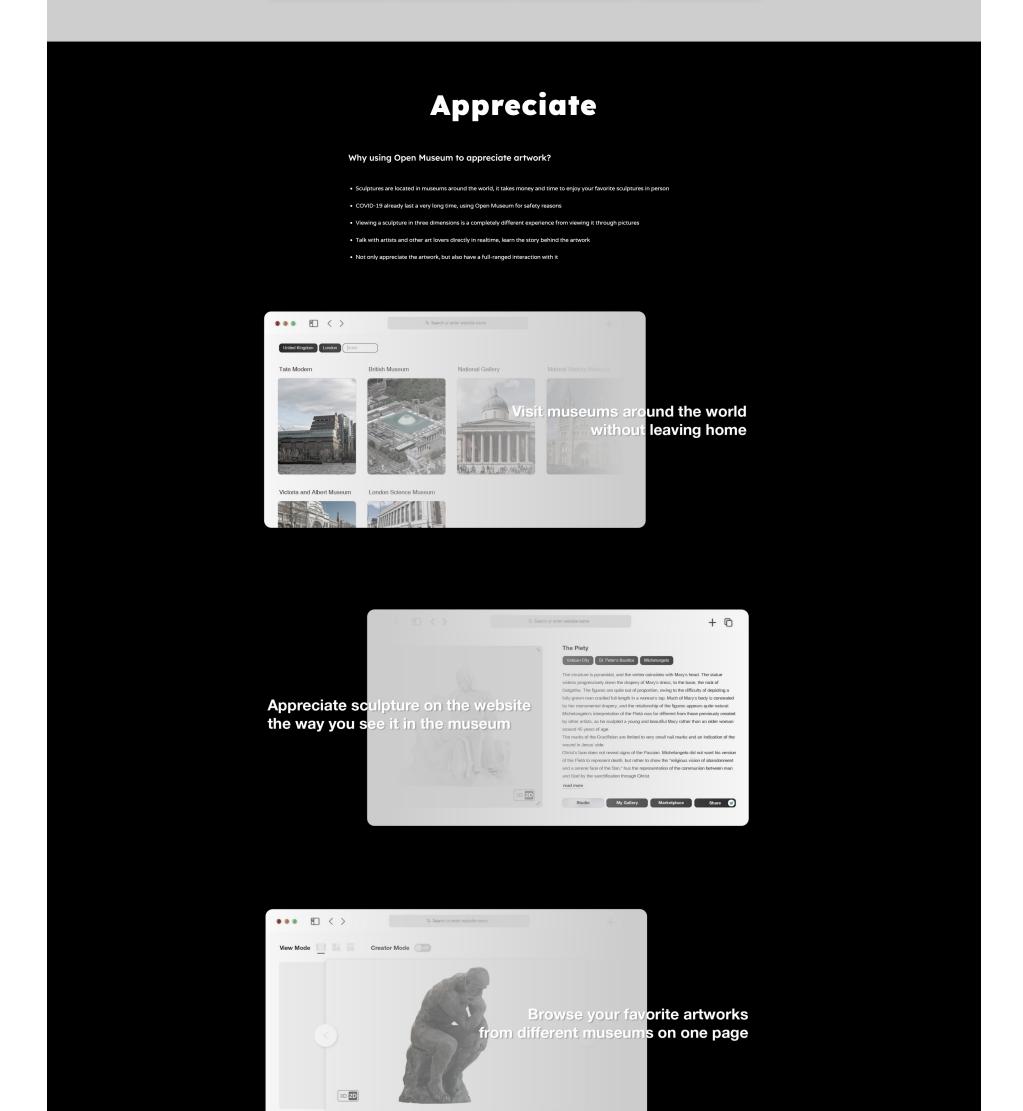
"Over 80% of projects used Opensea's free mint tool were plagiarized works, fake collections, and spam." NFT market needs more real artists to improve the aesthetic level of collectors or buyers

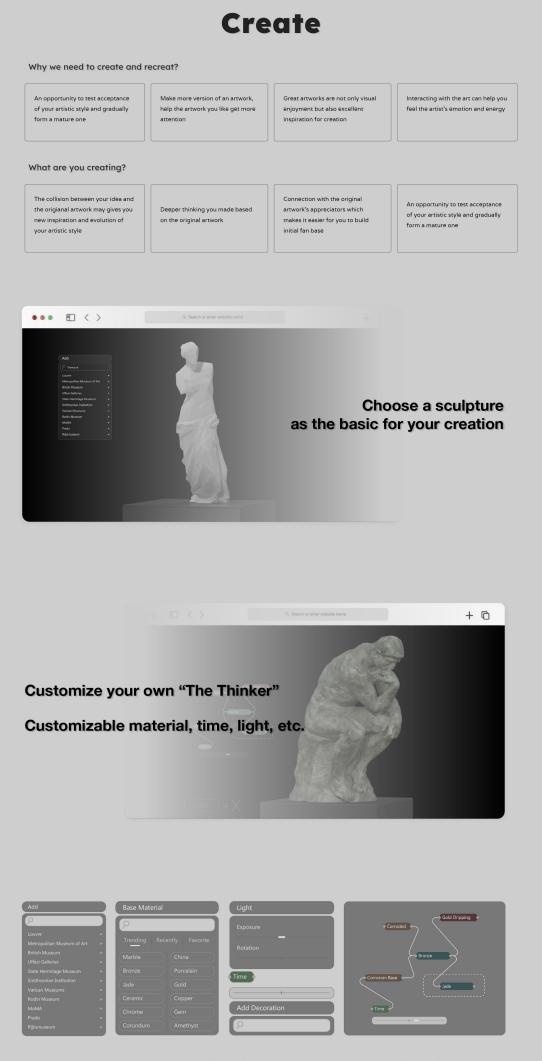
When it comes to a new way to interact with art, artists should try to improve it, rather than simply reject



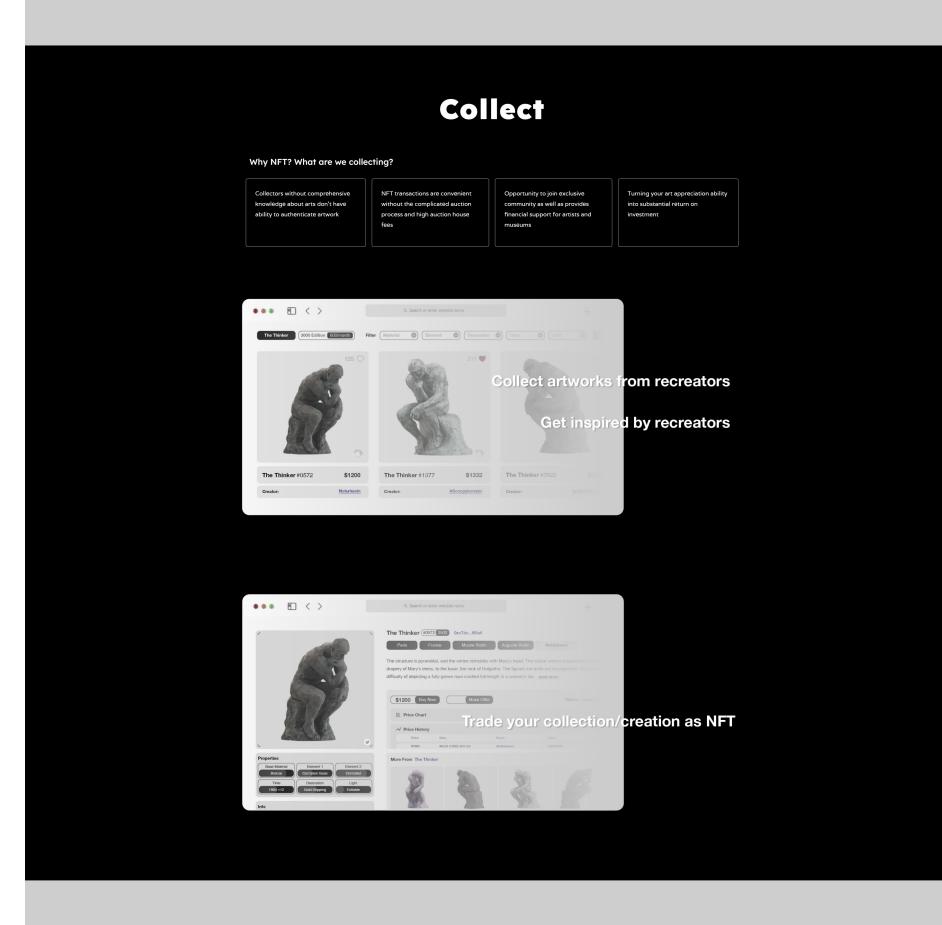
What is Open Museum?

For Artists	For Museums	For Sculpture enthusiasts	For Collectors/Investors
Show your creativity, communicate directly with your	Bring artworks that have lain dormant for decades or	Unique appreciation experience with interactive browser based	Collecte affordable digital sculptures and support creative
audience and talk with other	centuries back to life and	digital sculptures without losing	artists without worrying about
artists	discover its potential	a single detail	certification

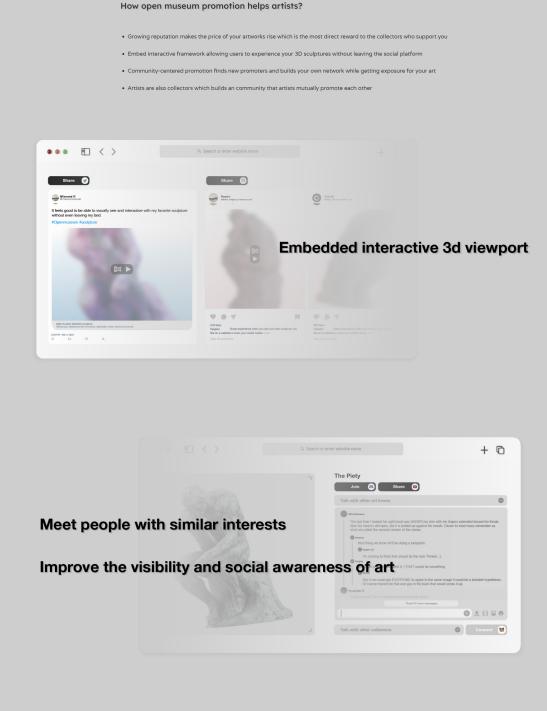


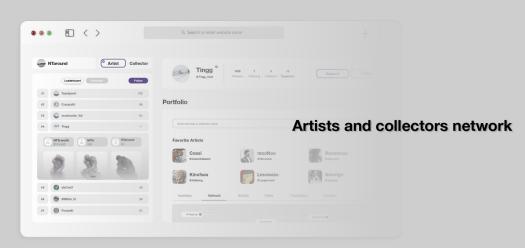


Use the easy-to-understand node system which is already widely used in 3d/VFX industry

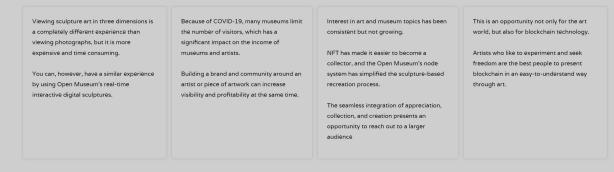


Promote





Conclusion



Reference

- Noce, Vincent. "Louvre's attendance last year dropped to 1986 levels." The Art Newspaper, January 5, 2022. https://www.theartnewspaper.com/2022/01/05/louvres-attendance-last-year-dropped-to-
- levels-last-seen-in-1986. • Statista Research Department. "Share of annual revenue lost by museums worldwide during the coronavirus (COVID-19) pandemic in 2020." Statista, Feb 8, 2022. https://www.statista.com/statistics/1201763/expected-revenue-loss-of-museums-
- https://www.statista.com/statistics/1201763/expected-revenue-loss-ot-museumsworldwide-during-covid-19.

 Statista Research Department. "Number of visitors to the Louvre in Paris from 2007 to 2020."
- Statista, Aug 5, 2021. https://www.statista.com/statistics/247419/yearly-visitors-to-the-louvre-in-paris.
- Statista Research Department. "Global art market volume of transactions from 2007 to 2021."
 Statista, Mar 30, 2022.
 https://www.statista.com/statistics/885518/global-art-market-volume-of-transactions.
- Kaczynski, Steve, and Duke Kominers, Scott. "How NFTs Create Value." Harvard Business
 Review, November 10, 2021. https://hbr.org/2021/11/how-nfts-create-value.
- Ravenscraft, Eric. "NFTs Don't Work the Way You Might Think They Do." Wired, Mar 12, 2022. https://www.wired.com/story/nfts-dont-work-the-way-you-think-they-do.
- Pearson, Jordan. "More Than 80% of NFTs Created for Free on OpenSea Are Fraud or Spam, Company Says." Vice, January 28, 2022.
- opensea-are-fraud-or-spam-company-says.
- OpenSea (@opensea). "However, we've recently seen misuse of this feature increase exponentially. Over 80% of the items created with this tool were plagiarized works, fake collections, and spam." Twitter, January 27, 2022.
- https://twitter.com/opensea/status/1486843204062236676. • Jkan997, "Map of museums all over the world." Wikipedia, April 9, 2019. https://en.wikipedia.org/wiki/Museum#/media/File:World_museums.png.
- Massey, Luke, and the Greater London National Park City Initiative. "Aerial shot of the British Museum, London." Wikipedia, June 30, 2015. https://en.wikipedia.org/wiki/British_Museum#/media/File:British_Museum_(aerial).jpg.
 Delso, Diego. "Galeria Nacional, Londres, Inglaterra." Wikipedia, August 7, 2014.
- https://en.wikipedia.org/wiki/National_Gallery#/media/File:Galer%C3%ADa_ Nacional,_Londres,_Inglaterra,_2014-08-07,_DD_035.JPG.
- Dillff, "The Natural History Museum." Wikipedia, January 1, 2006. https://en.wikipedia.org/wiki/Natural_History_Museum,_London#/media/File:Natural_ History_Museum_London_Jan_2006.jpg.
- Biliff. "The southern entrance of the Victoria and Albert Museum in London, England."
 - Wikipedia, March 24, 2014. https://en.wikipedia.org/wiki/Victoria_and_Albert_Museum#/media/File:Victoria_&_
- Albert_Museum_Entrance,_London,_UK_*_Diliff.jpg.

 Shadowssettle. "The Science Museum, London, as seen from Exhibition Road." Wikipedia,
- August 1, 2020. https://en.wikipedia.org/wiki/Science_Museum,_London#/media/File:Science_ Museum,_Exhibition_Road_(cropped).jpg.
- Scan the World. "Scan the World Pietà (Michelangelo).stl." Wikipedia, February 21, 2018. https://en.wikipedia.org/wiki/Piet%C3%A0_(Michelangelo)#/media/File:Scan_the_ World___Piet%C3%A0_(Michelangelo).stl.
- Scan the World. "Scan the World The Thinker (Auguste Rodin).stl." Wikipedia, August 18, 2014. https://en.wikipedia.org/wiki/The_Thinker#/media/File:Scan_the_World_-_The_ Thinker_(Auguste_Rodin).stl.
- Scan the World. "Scan the World Venus de Milo.stl." Wikipedia, July 1, 2014.
 https://en.wikipedia.org/wiki/Venus_de_Milo#/media/File/Scan_the_World_-_Venus_de_Milo.stl.
- Gorman, Michael. "5 Ways to Expand Your Art Promotion." Art Business News, March 12, 2020. https://artbusiness.com/2020/03/5-ways-to-expand-your-art-promotion.
- Job, Rita. "6 Things You Can Do To Promote Your Art." Agora Gallery, August 25, 2016. https://www.agora-gallery.com/advice/blog/2016/08/25/promote-your-art.

