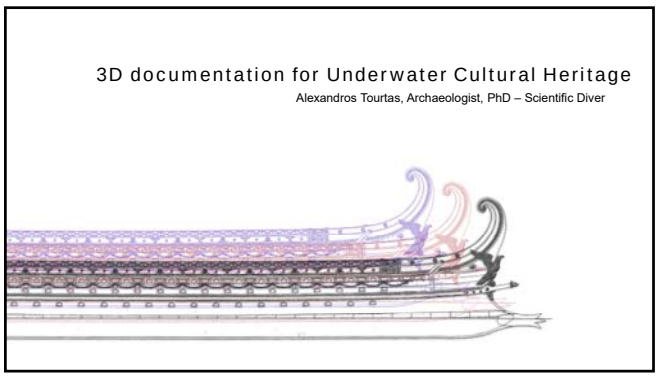
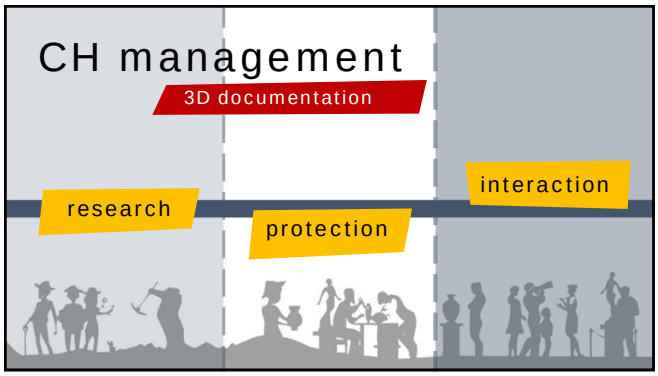

3D documentation for Underwater Cultural Heritage
Alexandros Tourtas, Archaeologist, PhD – Scientific Diver

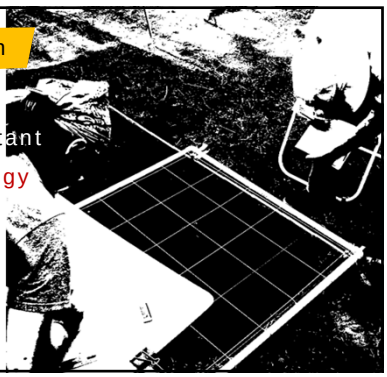
Why do we need this?
...for CH management
...for archaeology
...for Underwater CH


CH management
3D documentation
research
protection
interaction

research

Why is this important

...for archaeology



https://dennisblanton.weebly.com/teaching--field-school.html

Why is this important?

...for underwater archaeology

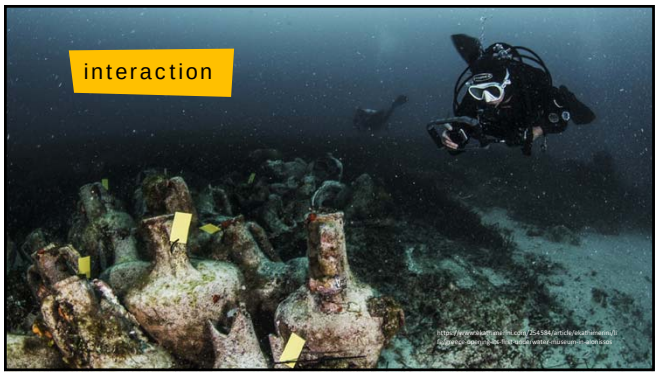
http://digital-archaeology.eu/

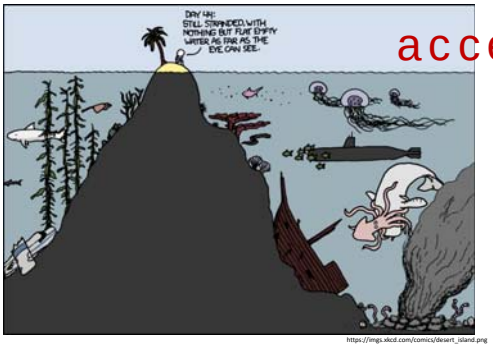
protection

http://thespeakernewsjournal.com/technology/3d-printing-daesh-will-recreate-isis-destroyed-2/

UCH
protection
(Picture: Atlantic Productions)

UCH
protection


interaction



access
for all

https://imgs.xkcd.com/comics/desert_island.png

virtual environments

VR

cultural
informatics

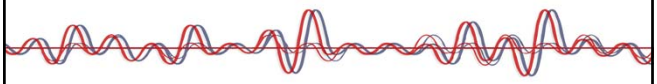
PHOTO : ISTOCK
https://ici.radio-canada.ca/nouvelle/1598844/centre-phi-vr-to-go-casque-virtuel-immersion-location

AR

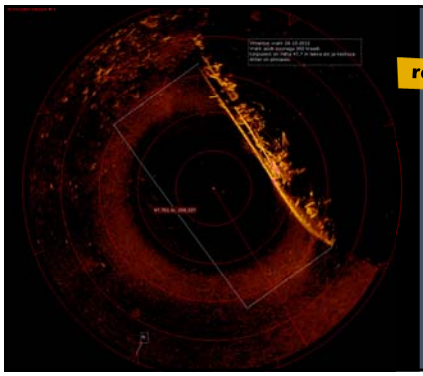
Photo by Brett Seymour (© Ephorate of Underwater Antiquities, Hellenic Ministry of Culture)

How do we do it?

...with the help of sound



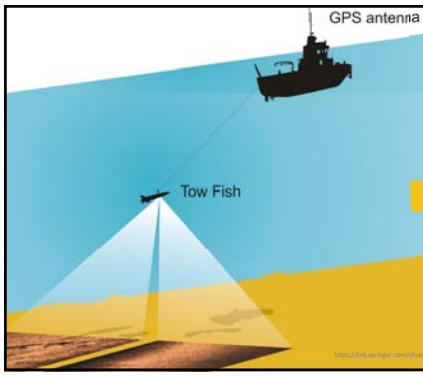
... and image



remote sensing

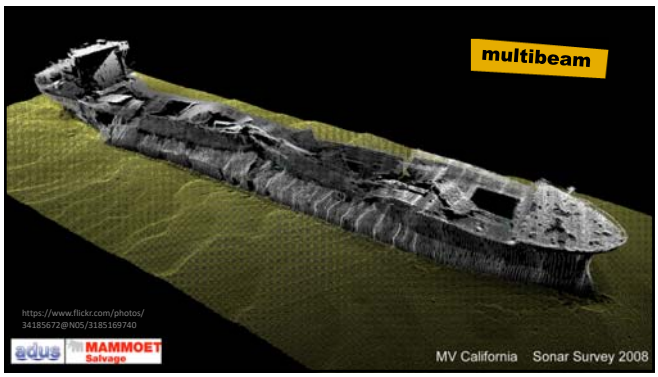
Sonar image

https://en.wikipedia.org/wiki/Sonar#/media/File:Minitraaleri_%22Vrsaitri%22_vraki.jpg



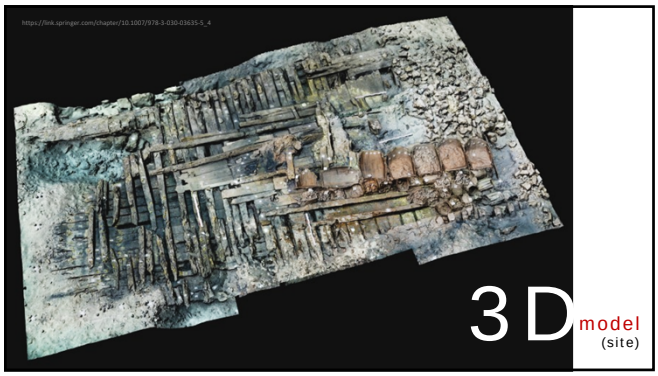
remote sensing

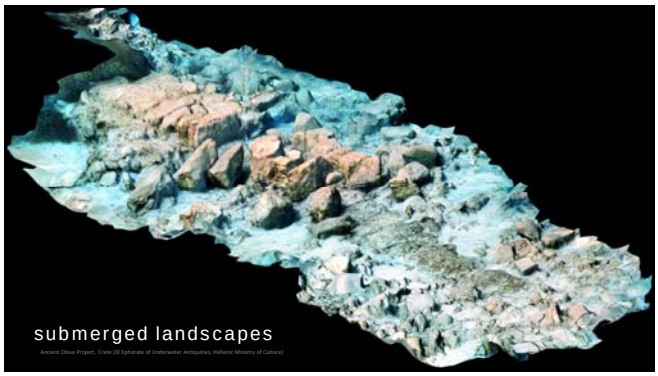
https://link.springer.com/chapter/10.1007/978-3-319-25121-9_1

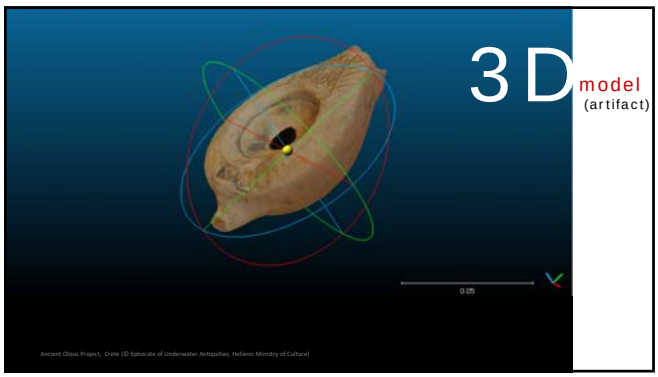


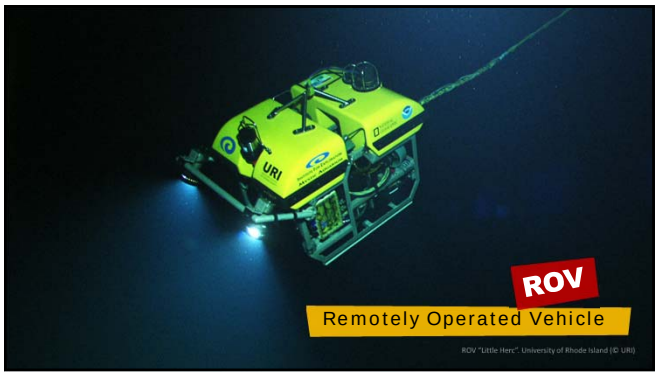
photogrammetry
underwater

2D
ortho
photo
(mosaic)
https://link.springer.com/chapter/10.1007/978-3-030-03635-5_4

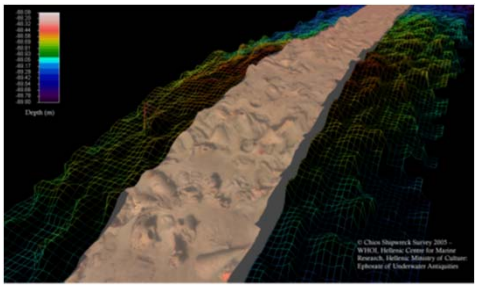

https://link.springer.com/chapter/10.1007/978-3-030-03635-5_4
3D
model
(site)


submerged landscapes
Ancient Olous Project, Crete (ID Ephorate of Underwater Antiquities, Hellenic Ministry of Culture)

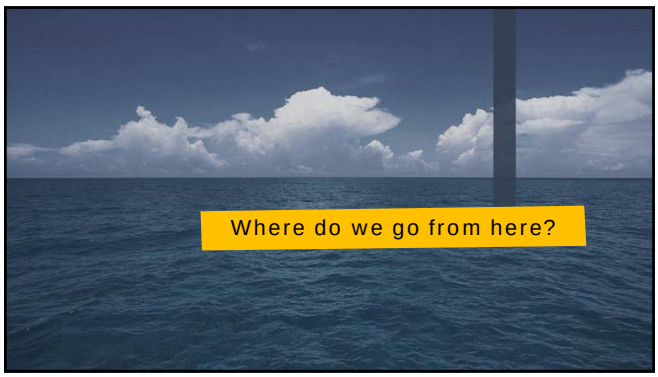

3 D
model
(artifact)
0.05
Ancient Olous Project, Crete (© Ephorate of Underwater Antiquities, Hellenic Ministry of Culture)

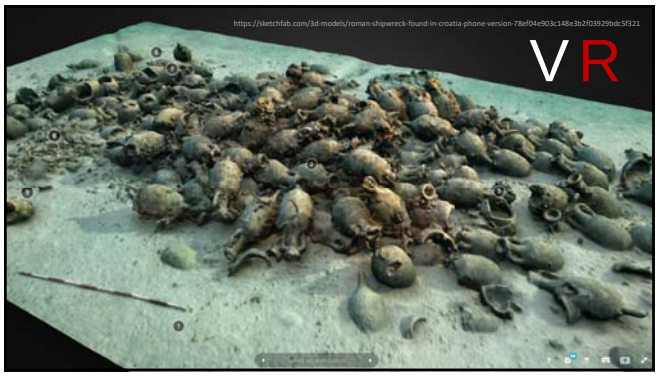

URI
ROV
Remotely Operated Vehicle
ROV "Little Herc", University of Rhode Island (© URI)

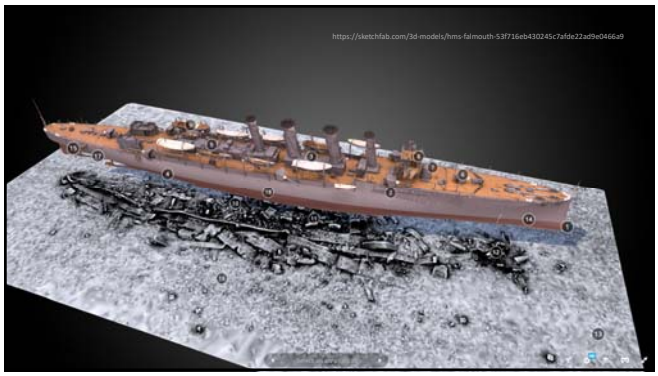
19:52:40
ROV
https://oceanexplorer.noaa.gov/okeanos/explorations/ex1907/background/data/media/science-team-hires.jpg



AUV
generated 3D model
http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.367.5810&rep=rep1&type=pdf


Where do we go from here?

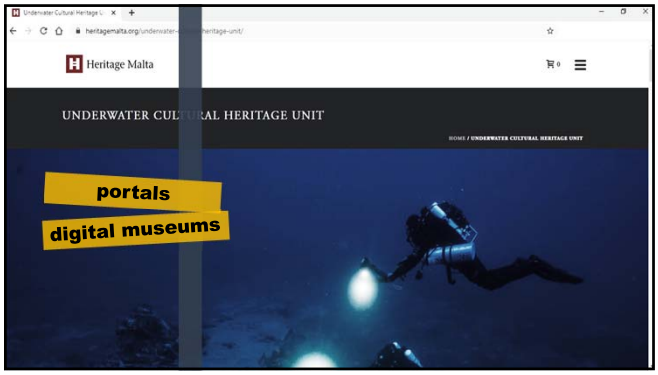

https://sketchfab.com/3d-models/roman-shipwreck-found-in-croatia-phone-version-78ef04e903c148e3b2f03929bdc5f321
VR

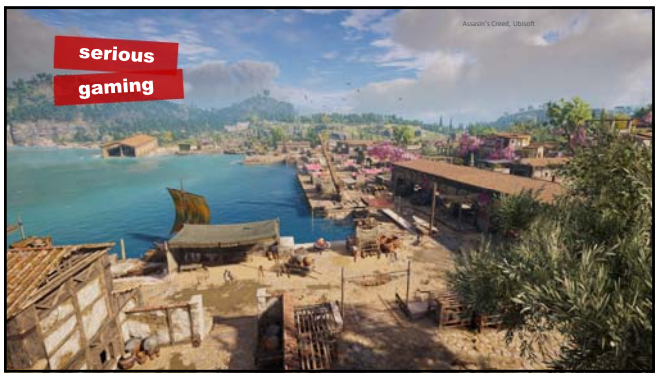

https://sketchfab.com/3d-models/hms-falmouth-53f716eb430245c7afde22ad9e0466a9

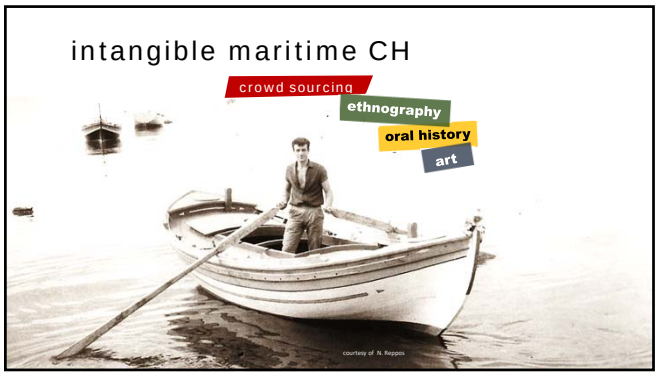
digital

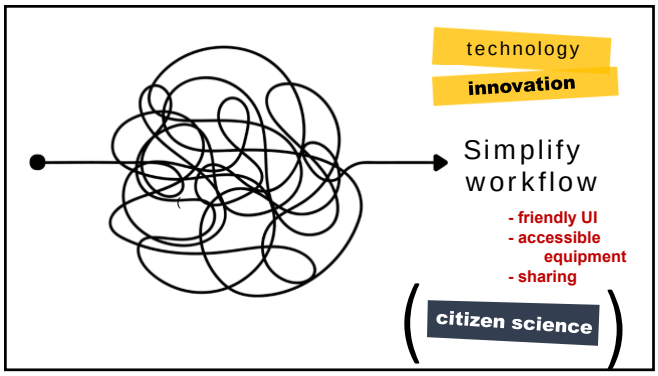
repositories

institutional
national
international




Assassin's Creed, Ubisoft
serious
gaming


intangible maritime CH
crowd sourcing
ethnography
oral history
art
courtesy of N. Reppas


technology
innovation
Simplify
workflow
- friendly UI
- accessible
equipment
- sharing
citizen science

Remember...
to keep it real !
P. Brousalis(1960)

thanx !