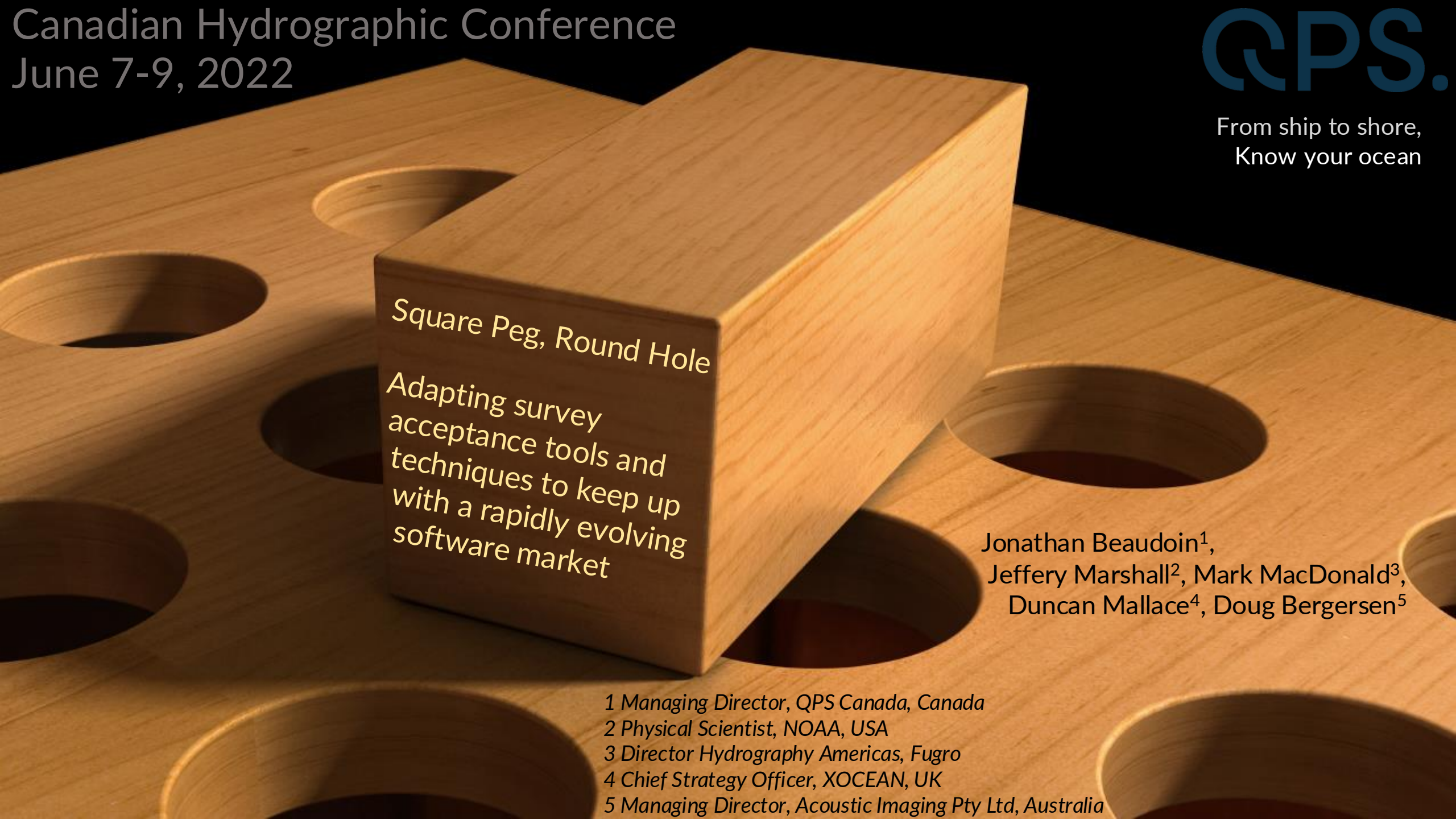
Canadian Hydrographic Conference
June 7-9, 2022

QPS.

From ship to shore,
Know your ocean



Square Peg, Round Hole

Adapting survey acceptance tools and techniques to keep up with a rapidly evolving software market

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3 Director Hydrography Americas, Fugro
4 Chief Strategy Officer, XOCEAN, UK
5 Managing Director, Acoustic Imaging Pty Ltd, Australia

March of Progress

Lead line
Sextant
IHO
Echosounder
Sidescan
Computers
Software
GNSS
Multibeam
Internet
Electronic charts
Contract Surveying
Time

Product Development Cycle

Ideation
Research & Development
Prototyping
Sourcing & Costing
Production Scale-Up
Commercialization

Qastor.

Others follow and improve, refine, differentiate, specialize

Qimera.

Released June 6, 2015

14 major feature releases

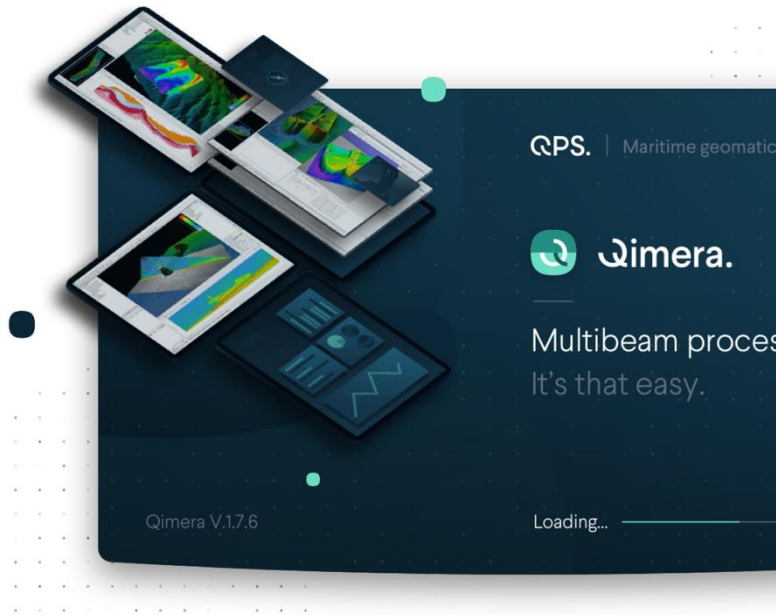
Innovations

- Dynamic Workflow
- Processing State Management
- Ease-of-Use
- Point Cloud Filtering Tools

Get it done more quickly & easily and with less training overhead

- Automated Refraction Correction
- Semi-Automated Height Correction

Get more done than you ever could before.



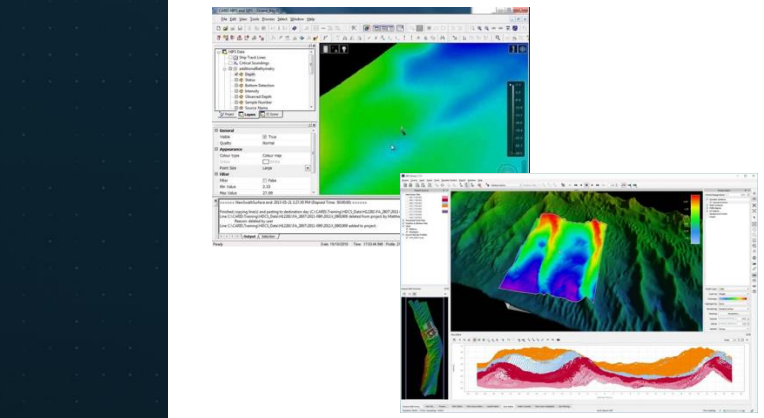
Innovation in Contract Surveying

Contractors can innovate in different ways: deliver faster or better or at lower cost. How?

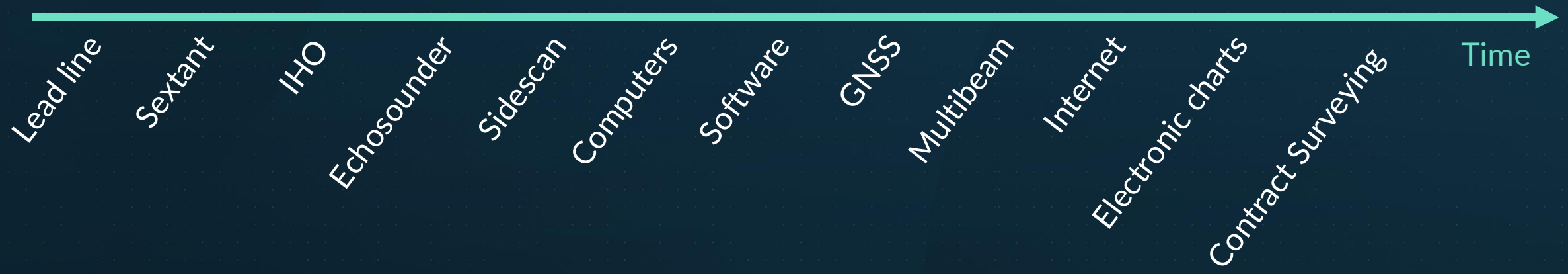
- Platform
- Hardware
- Software
- Know-how, People, Procedures, Quality Control, Customer Service

End customer benefits from innovations

- Faster – Better turn around time to the mariner
- Better – Higher quality delivery means less QA for recipient
- Lower Cost – Save money? Increase number of contracts?



Why this topic?



We must adapt to change

Change has cost and risk

How are Contractors & HOs adapting to changes in software?

Questionnaire

1. What barriers had to be overcome on the delivery side? How were they solved?
2. What barriers had to be overcome on the recipient side? How were they solved?
3. What changes do you think must occur to improve the overall process?
4. Can you think of anything else that might be relevant to the topic?


data
software
processing
quality
format
qimera
uncertainty
formats
workflow
contractors
density
requirements
survey
delivery
hydrographic
project
solution
specifications
surveys
standard
personnel
can
will
training
field
soundings
caris
checks
additional
packages
deliverables
commercial
also
ukho
noaa
files
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licensing
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accept
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current
mapping
competitive
options
expertise
situation
tailored
amount
transferring
provided
acceptable
comfortable
documents
examples
hypack
r2sonic
inside
without
case
independent

Workflows?

Process with Caris, submit HIPS project

Process with Qimera, export GSF to HIPS
Submit HIPS project

Vendor Project Files

Process in Qimera, submit GSF/BAG/S57
Submit Qimera project

Hybrid

Process in misc packages,

Submit .las (bathymetric lidar)

Submit ASCII XYZ

Submit FAU

Open File Formats

MMA OFFSHORE → AUSTRALIAN HYDROGRAPHIC OFFICE

XOCEAN → UK Hydrographic Office

FUGRO → UK Hydrographic Office

Rijkswaterstaat
Ministerie van Infrastructuur en Waterstaat

XOCEAN → Finnish Transport Infrastructure Agency

Delivery Viewpoints

What barriers had to be overcome on the delivery side? How were they solved?

MMA OFFSHORE

AUSTRALIAN HYDROGRAPHIC OFFICE

- Gains from Qinsy/Qimera workflow realized in O&G/OWF, want same gains with AHO work
- Change/expectation mgmt., both sides
- Delivery side: plan, validate and train alternate workflows

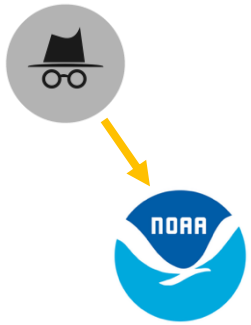
XOCEAN

UK Hydrographic Office

- Delivering project limits you to version used by HO
- Watercolumn formats for all sensors from all acquisition systems not always support in HO preferred software
- HO work becoming uneconomic with project delivery in HO preferred software & version
  - Additional costs, additional software, training
  - Margins eaten up

Delivery Viewpoints

What barriers had to be overcome on the delivery side? How were they solved?



- Wanting to pioneer and innovate but need to bring their client along
  - Need to have trust
  - Communicate a lot
  - Manage change together on supplier and client side
- Need to involve software vendor to build three way understanding
- Differences in how things like sounding density are reported can cause additional work on the supplier side to prove that specs are met

- Contractors had to adopt ISO 9001
- Larger companies did this, smaller ones did/could not
- Had to develop protocols/procedures for QA and reporting thereof

Delivery Viewpoints

What barriers had to be overcome on the delivery side? How were they solved?

FUGRO

UK Hydrographic Office

Delivering interchange file formats instead of projects allowed for freedom in the workflow on the provider side

Could shorten workflows, save time

Didn't spend time on converting to different packages

Can now innovate elsewhere on other topics

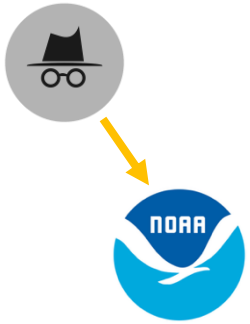
XOCEAN

Finnish Transport Infrastructure Agency

Interchange formats accepted, no other comments on challenges

Reception Viewpoints

What barriers had to be overcome on the recipient side? How were they solved?



- Accepting Qimera projects means licenses, training and deep know-how are needed. Stretches training budgets.
- QA processes are geared towards HIPS
  - Sometimes unclear if a requirement is met or not
  - Developed companion QA review document
- Having to adapt to differences in how uncertainty is reported in CUBE deliverables in BAG format
- Need to have support throughout organization, trickle to those doing the work. Needs training, documentation.

Reception Viewpoints

What barriers had to be overcome on the recipient side? How were they solved?

FUGRO

UK Hydrographic Office

- Accepting exchange file formats instead of projects
  - Reduced problems associated with differences in load/unload
  - Had better control over vertical referencing

Rijkswaterstaat

- Contractors deliver evidence on QA
  - Cooperate with contractor
  - Find reporting formats that fit the spirit
- Had to convince team members throughout organization
- Work on trust basis with contractors when issues arise
  - Look at QA protocols together
  - Find solutions to prevent further problems

Improvements?

What changes do you think must occur to improve the overall process?

UKHO, XOCEAN, NOAA - Software vendors stay up to date on exchange file format versions, handle in similar manner. Exchange files should be very safe, e.g. archival purposes.

MMA Offshore - Help from vendors to make transition internally, develop/verify workflows and support in early stages of projects

RWS, MMA Offshore - More automation on QA tools, more variety and availability of these kinds of tools in various software packages

RWS, NOAA - Making sure everyone is aware and in compliance with common standards like S-44

NOAA

More options and commonality in reporting of quality indicators like density, uncertainty

Invest in training of own personnel in other tools

Agencies need to deeply understand their own specifications and why they are in place and not be focused on the specifics of how they're verified

Software vendors need to deeply understand exactly what they're reporting and why

Conclusions?

Sweet Spot? Meta-data rich exchange formats that are well supported across vendors

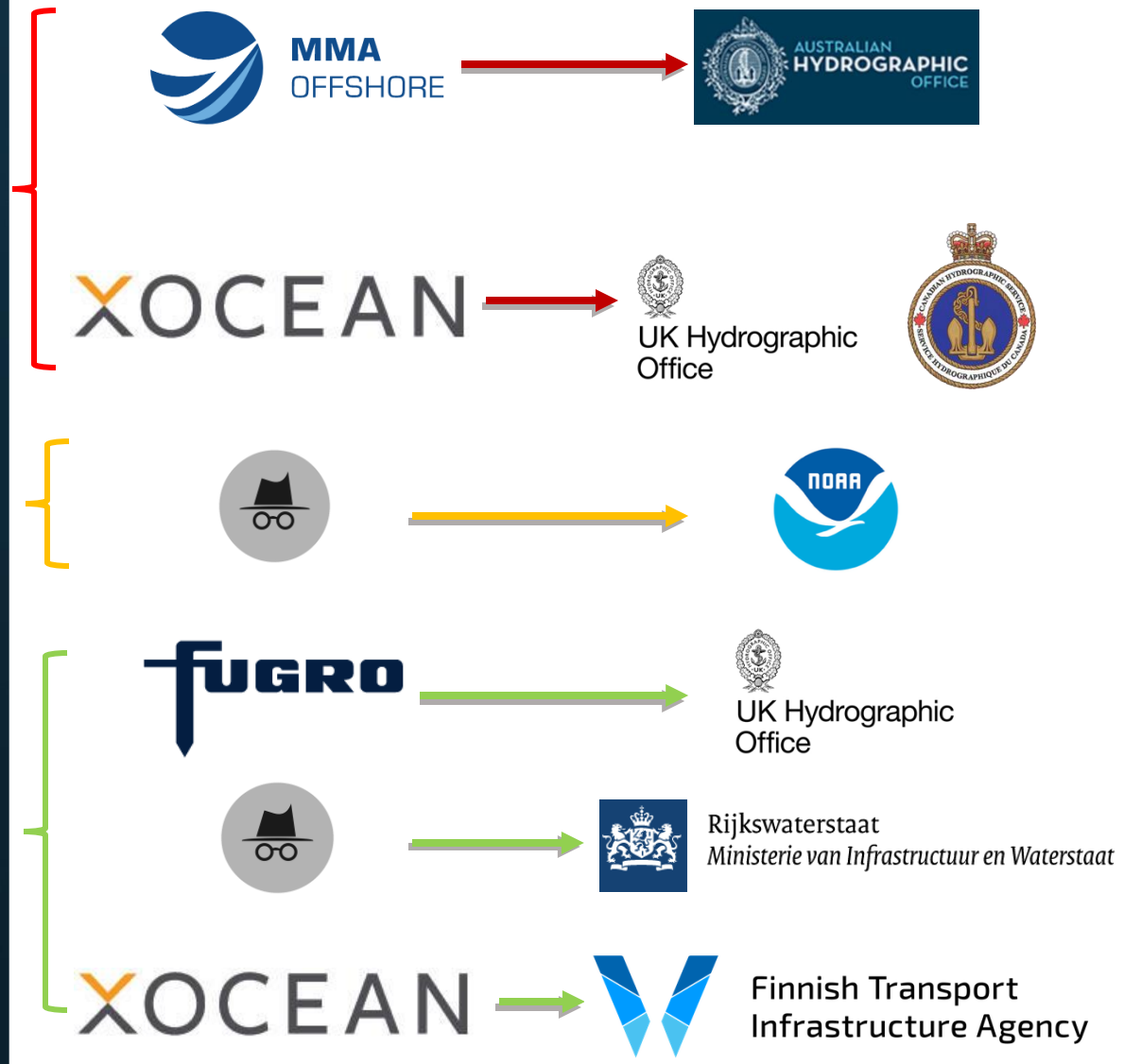
- HO can maintain their tools/procedures
- Contractors have innovation maneuverability

Software vendors proactive on exchange formats

- Versions
- Not just bare minimum options

Software vendors COOPERATE

- Exchange format change management
- Roadmapping with maintainers
- Common ground on options
- Common ground on UEX



Questions?