

Maritime Big Data Analytics: yes, but what for?

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CMRE Maritime Big Data Workshop

La Spezia – May 9-10, 2018

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The Maritime Big Data is specific

This MBD is not yet that BIG !

- Maritime Data are just recently dematerialized, paper and fax were predominant for cargo documentation, passengers list, ISPS compliance etc.
- The Data dissemination remains “point to point”, many separate data silos

The MD is not Open Source Data

- Many data are “commercially sensitive”
- A significant fraction includes Personal Data to be protected accordingly
- Information sharing is generally “conditional” except under special circumstances
- Access conditions are often related to “purpose”, which is not easy to assess
- Maritime Administrations are jealous of their prerogatives

Still, a Maritime Big Data is building

The “Dare to Share” has not yet replaced the “need to know”

- Information sharing is still “nice to get, reluctant to give”!
- The obstacles are no more technical, proper gateways are developed
- The obstacles are no more legal either, rules and restrictions are clarified

The convinced gets louder and more active

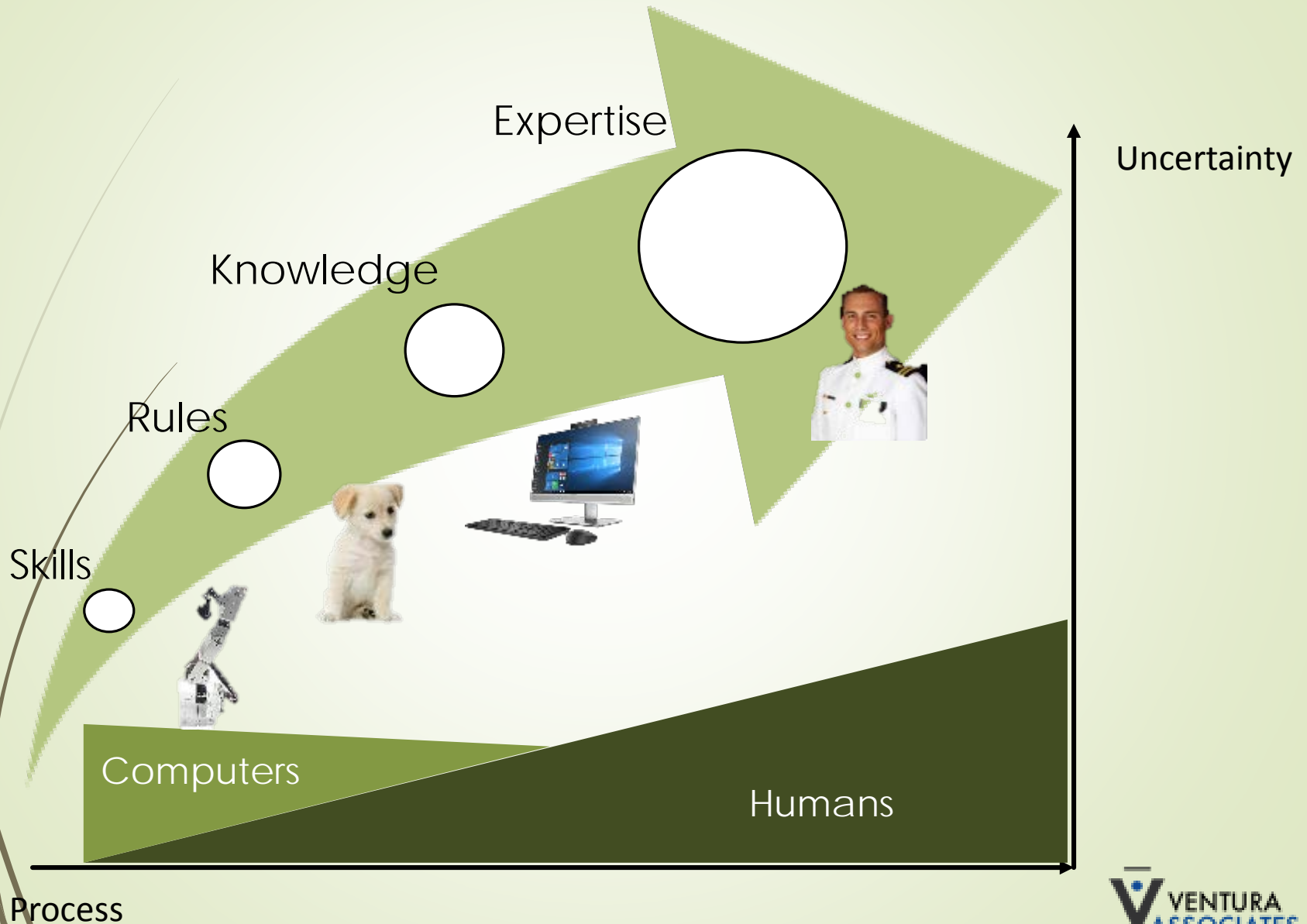
- Many “pre-operational projects” incentivized by EU
- EU DTIB actively involved in implementing interoperable MSA

The “information tide” is not yet perceived as a challenge

- The EDTIB is short of “big data” capabilities
- Incremental situation from the introduction of AIS, focus on ship data, the unknown remains unknown (how deep is the maritime crime iceberg?)
- HUMINT predominance in anti-drug war
- Total lack of culture re “meta-data” in the maritime domain

The limitation of new technologies

Relative strength of computers Vs Human information processing



The MBD challenge

The Maritime Data is 95% declarative

- Inconsistency checks highlight errors more often than fraud
- Each User Community is generally happy with what they get
- However a large portion of the “Dark Economy” has maritime segments

The controls are costly

- Airborne presence cost around 7k€/hr
- Satellites must trade coverage against resolution
- Traffic segments using small boats remain literally invisible

The criminal patterns are rapidly evolving

- “Decentralized” and opportunistic organizations
- One day clean, one day dark, unspecialized

And the sea is wide and borderless!

The MBD promises

Enable multiple viewpoints on the data

- Time to look not only on vessels, but also on content and people on-board
- Every data can enable a user-specific angle of view
- As an example, a cargo list can reveal different things than taxable assets

Access the primary source of each data you need

- Stop trading copies of copies of the same ship position!
- Access original data and compile them your way
- Get the opportunity to access meta-data

Develop your own aggregation of data

- “Profiling” is key in the BD world
- Inspire from the BD toolbox, but it will have to be specifically developed
- If the maritime commercial world is asked to proactively contribute to data access, find incentives! (e.g. control exemptions, fast track...)

The MBD conditions

Think “Meta-data” as much as Data access

- Tag the data: source (e.g. the receiving AIS station), signal features (e.g. VHF Doppler for S-AIS), processing (e.g. as received/verified)
- Watermark the data: e.g. non-re-dissemination, restrictions of usage...

Act as a Data Service Provider, not just as data owner

- Keep the whole data content even if you don't use it yourself
- Insure consistent data quality control
- Insure consistent data availability
- Don't try to anticipate how other will use it

Develop trust

- Contribute pro-actively to studies and experimentations

The MBD User Services

Users are the people having to act

- Under a defined mandate
- With the assets and budgets they have
- Within a legal framework

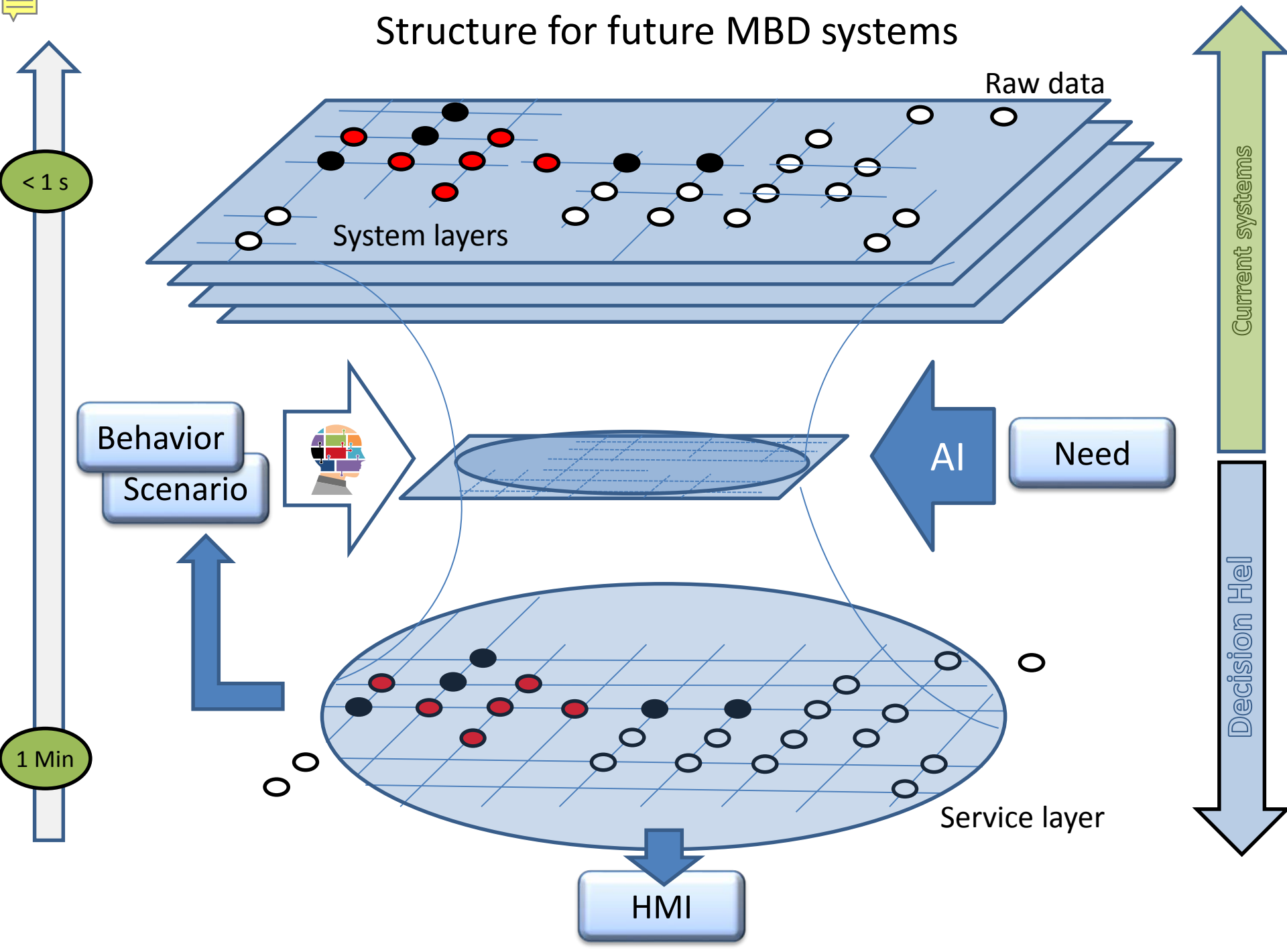
Focus on producing “Actionable Information”

- In line with the above
- In time to act effectively
- Certain enough to be worth acting

Certainty is the biggest challenge of BD Analytics

- “Weak signal analysis” is rarely producing certain information
- Cf antiterrorism: a long list of “possibly radicalized” produced by big data analytics is hardly actionable

Structure for future MBD systems



Develop CONOPS first, not last!

Storytelling allow Users and Developers to understand each other

- Co-develop evolutive scenarios/behaviors challenging the current data usage
- « Thinking out-of-the-Box » requires a specific **environment** and **skills mix**
 - To overcome the conservatism of operational thinking
 - To avoid over-selling the benefits of new technologies

Experimenting is essential

- « Table-top » exercises don't require complex technologies
- Good preparation of the “what if” options arborescence is key
- Start from actual User threats/challenges to let them express how they currently proceed, before introducing futuristic capabilities
- Find a few “operational sponsors” ready to stay alongside and continue experimenting your developments

Addressing the “unknown unknown” remains a challenge!



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Some credentials

They trust us...

