Frank Dethridge Memorial Address

From automation to autonomy: Can the law keep up?

Paul David QC

Alfred Tennyson

For I dip't into the future, far as human eye could see,

Saw the vision of the world, and all the wonder that would be;

Saw the heavens fill with commerce, argosies of magic sails,

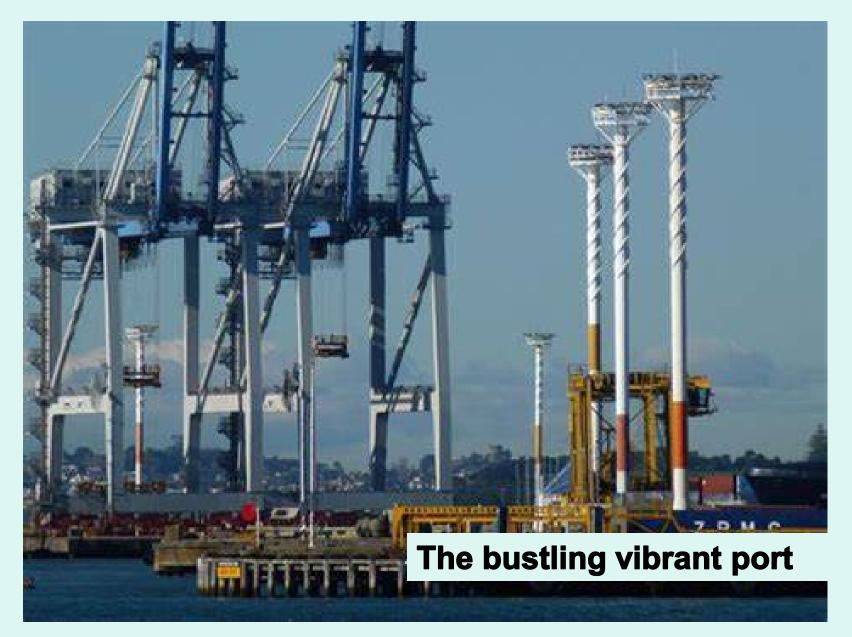
Pilots of the purple twilight dropping down with costly bales;



My Bike



Port of Auckland



Harbour traffic



E-scooters



The changes on my ride got me thinking

Questions arising

- Cargo ships without master, pilot or crew?
- Ferries with passengers but no master or crew?
- Automated cargo operations in port digitally linked to autonomous ships?
- What will the effects and issues around this be?

To help protect your privacy, PowerPoint has blooked automatic download of this picture.

Autonomous ships

Yara Birkland



FinFerries 2018 80 passengers

How does technology work

- Data collection by sensors
- Real-time status of ship relayed to computers on board or to shore computers
- Analysis and responses given to carry out operation of ship
- All linked to advances in robotics, sensors and artificial intelligence/learning computors

Degrees of autonomy

- IMO-4 conditions from remote controlled and partially manned to fully autonomous with no crew.
- Important point-remote control or fully autonomous when no master or crew
- On-going scoping exercise
- Fundamentally changed the "ship"
- Offers opportunity and disruption

Happening

- IMO and CMI and various other countries' regulators believe change is not so far away
- First perhaps- specialist vessels work boats, tugs, then ferries, small coastal trading ships
- Coastal waters progressing to ocean bound?
- Timing?

Regulation

- Maritime law principles broad system of longstanding legal principles relating to maritime venture
- Regulation for safe operation and navigation, design and construction, manning, prevention of pollution
- National law implements conventions and regulates nationally

Can autonomous ships fit in?

- Definitions of "ship"
- Generally broad and inclusive in international and national regulation
- Likely to cover unmanned ships
- But substance of key international instruments/ domestic safety regulation impossible/hard to apply

Substance doesn't work

- Radical change in operation
- Regulation on certification, operation, watch- keeping, collision avoidance and manning unworkable or not clearly effective

Need new rules?

- May well be a "ship" for registration/ jurisdiction
- But substance of most of regulatory law hard/difficult to operate – COLREGS, STCW, SOLAS
- Need specific rules for approval and operation – equivalent performance to manned but new

New liability scenario

- Liability for loss and damage in accident
- Possible shift in liability focus from ship owner to manufacturer/ designer/ certifier
- Issues for national courts
- Insurance issues, also cyber risk, new pirates?

What are we doing?

- CMI work IMO scoping exercise
- But at national level?
- Examine opportunity presented by technology
- Consider national regulatory framework
- Amendments to regulate autonomous ships for operation in NZ

Last word – home for tea

- Time to do the work is now
- Develop local expertise local standards
- Potential real benefit for NZ
- Need for clarity



Final Thoughts

- Part of wide ranging change
- Timing uncertain
- Work to be done to keep up