Claims and Realities of Digitization

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A Hot Topic in Current Maritime Trade Press
Defining Digitization vs. Digitalization

<table>
<thead>
<tr>
<th>Digitization</th>
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<td>▪ Converting analogue into digital data for further processing by electronic means. Examples are</td>
<td>▪ Applications of digital technologies by organizations, industries or societies like</td>
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<td>▪ Cargo control systems</td>
<td>▪ Big Data</td>
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<td>▪ Paperless trade environments</td>
<td>(Waller and Fawcett, 2013)</td>
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<td>▪ eCustoms systems</td>
<td>▪ Datafication</td>
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<td>▪ ePayment systems</td>
<td>(Lycett, 2013)</td>
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<td>▪ eB/L, eAWB, eCMR, ...</td>
<td>▪ Internet of Things</td>
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<td>▪ This is an underlying condition for digitalization.</td>
<td>(Vermesan et al, 2013)</td>
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<td>▪ Uberization</td>
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<td>(Davis, 2015)</td>
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<td>▪ Digital transformation</td>
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<td>(Korpela et al., 2014)</td>
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<td>▪ Automation of operations or administrative processes and connecting different service, development of new business models and the more disruptive transformation within supply chain</td>
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Taking Stock: Cargo Handling and Information Processing Revolution

- 1950s: Break-Bulk Cargo and Palletization
- 1960s: Ro/Ro Technology and Containerization
- 1970s: Increased Mechanization, IATA-Unitization Programme in Air Cargo Transport
- 1980s: EDI, Cargo Control Systems
- 1990s: Increased Computerization, Internet, eCustoms Systems
- 2000s: Information Processing Revolution, Internet Applications

Source: Ojala (1993) with some additions
Evolution of Legal Foundations towards Paperless Trade Environment

- **1950s**: Break-Bulk Cargo and Palletization
- **1960s**: Ro/Ro Technology and Containerization
- **1970s**: Increased Mechanization, IATA-Unitization Programme in Air Cargo Transport
- **1980s**: EDI, Cargo Control Systems, Increased Computerization
- **1990s**: Internet Applications, eCustoms
- **2000s**: eCustoms, Internet Applications

**Key Milestones**:
- **1965ff**: IMO-FAL, Almost unified standards for EDI (UNTDED 1986, UNEDIFACT)
- **1990ff**: Explicit recognition by ICC in Incoterms
- **2001**: Increasing recognition in international standard banking practice (UCP, eUCP)

Source: Ojala (1993) with some additions

Standard layout for documents (IMO-FAL 1965ff, UNLK 1973ff)
Present Problems in Digitization of Documentary Paperwork

- Present legal foundations of paperless trade environment are not enough!
- International transport law mainly based on multinational conventions focusing on one mode of transport and applied for transports between those countries that ratified or adopted it on its national level.

- Digitization of documentary paper work
  - **Necessity of issuance a certain document**
    e.g. receipt, evidence of contract, document of title etc.
  - **Certain formal requirements** of such a document
    e.g. strictly written form demanded or openness to some electronic equivalents
  - **Certain signature requirements**
    to demonstrate authenticity of a document, issue of negotiability

- **Persistence of old habits** (esp. shippers and banks)
- **Slowliness in legal instrument modernization** (esp. in maritime domain)
### Evolution of Legal Instruments

<table>
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<tr>
<th>Legal Source</th>
<th>Need to Issue Documents</th>
<th>Formal Requirements</th>
<th>Signature Requirements</th>
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<tbody>
<tr>
<td>HR of 1924</td>
<td>Art.10: BL necessary (exception is Art.6)</td>
<td>Art. 3(3),(7): BL is issued upon request</td>
<td>No explicit requirements mentioned</td>
</tr>
<tr>
<td>WC of 1929</td>
<td>Art. 6,9: AWB necessary, otherwise full liability</td>
<td>Art. 5,6: written form necessary being an accompanying document</td>
<td>Art. 5(4): printed or stamped also possible</td>
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<tr>
<td>HP of 1955</td>
<td>Art. 6,9: AWB necessary, otherwise full liability</td>
<td>Art. 5,6: written form necessary being an accompanying document</td>
<td>Art. 5(4): printed or stamped also possible</td>
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<tr>
<td>CMR of 1956</td>
<td>Art. 4: CN not necessary, but Art. 8,9,12,13,24,34!</td>
<td>Art. 5,6: written form necessary being an accompanying document</td>
<td>Art. 5(1): printed or stamped also possible</td>
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<tr>
<td>VR of 1968</td>
<td>Art.10: BL necessary (exception is Art.6)</td>
<td>Art. 3(3),(7): BL is issued upon request</td>
<td>No explicit requirements mentioned</td>
</tr>
<tr>
<td>MP4 of 1975</td>
<td>Art.5,9,11: AWB not necessary, but serves as a receipt</td>
<td>Art. 5(2): AWB in written form but any other form is possible</td>
<td>Art. 6(9): printed or stamped also possible</td>
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<tr>
<td>HamR of 1978</td>
<td>Art. 1(7),18: BL is evidence of contract, anything else possible</td>
<td>Art. 1(8),14(1): upon request, telex, telegram treated as equal</td>
<td>Art. 14(3): printed or stamped possible and electronic form</td>
</tr>
<tr>
<td>CIM of 1999</td>
<td>Art. 6(2): CN not necessary, except in case of Art. 6(7)!</td>
<td>Art. 6(9): electronic form possible as explicitly mentioned</td>
<td>Art. 6(3): same as CIM of 1980 or in any other appropriate manner</td>
</tr>
<tr>
<td>MC of 1999</td>
<td>Art. 4, 9: WB not necessary, but notice of receipt</td>
<td>Art. 4(1): AWB or any other form of record allowed</td>
<td>Art. 7(3): printed or stamped also possible</td>
</tr>
<tr>
<td>eCMR of 2008</td>
<td>Art. 1: eCN is issued by electronic communication</td>
<td>Art. 2(2): eCN is regarded to be equivalent</td>
<td>Art.3: electronic signature or other authentication method</td>
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The Quest for Making eB/Ls Viable

Just Give up Negotiability

- Non-negotiable straight BL or a seaway-bill (SWB)
- First time already done by ACL in 1971 introducing a Data Freight Receipt (DFR)
- UCP500 Art.24 / UCP600 Art.21 support SWB usage for DC/LC purposes

Try to Replicate Negotiability

- SeaDocs System (1986)
  Chase-Manhatten Bank as private title registry holder and PIN-Number

- CMI-Rules (1990)
  Issuing Carrier as private title registry holder and unique private key (PK)

- BOLERO (1994ff)
  Bolero Bill of Lading (BBL) constructed as a „legal bubble“:
  Legal framework based on private contract law, closed operating system with independent central title registry
Four Scenarios of Digitization

- **Getting all legal instruments e-enabled**
  (and evidential minefield in the meantime)

- **Blockchain Technology**
  – a decentralized approach of title registry
  A real disruptive technology
  However….Scalability?

- **Making a legal bubble around all actors to solve the legal problem**
  e.g. BOLERO

- **Integrator (carrier or shipper)**
  – a centralized approach of title registry
  e.g. Maersk&IBM, Alibaba, Amazon

**Think Big**

**Proprietary solution**

- Top Down, mainly legal driven
- Bottom Up, organisational and/or technology driven
Thank you for your attention!

More about? See:

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