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## **The Commission of Maritime Crimes with Unmanned Systems: An Interpretive Challenge for UNCLOS**

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### *Abstract*

Over the past decade, two developments relevant for international maritime security law have taken place: first, the security landscape at sea has changed considerably with transnational crimes now ranking high on the list of maritime security threats; second, the ‘robotics revolution’ has reached the sea with the advent of unmanned vehicles. Combined, these developments have led to increased reliance by non-State actors on unmanned systems to commit criminal offences at sea. This entails a shift from proximate to remote human involvement in the commission of maritime crimes – a shift that shakes the foundation of UNCLOS’ provisions on crimes at sea, which rest on the assumption of proximity. This triggers the question whether UNCLOS is capable of accommodating the turn to this transformative technology. It is against this backdrop that the Chapter at hand carves out the various mechanisms intended to keep UNCLOS abreast of change. It concludes that the prevailing strategy – its evolutionary interpretation – is by itself a suitable method to keep the Convention in tune with the time, but not apposite for provisions of UNCLOS governing the suppression of maritime crime. It is submitted that these provisions, which came about from a marriage between the law of the sea and (transnational) criminal law, must rather be subject to a ‘rule of law’-based interpretation. This, however, considerably curtails the available interpretive space and the possibility of accommodating the ‘robotics revolution’ at sea within Part VII of UNCLOS.

*Keywords:* unmanned ships, autonomous ships, remote-controlled ships, unmanned vessels, United Nations Convention on the Law of the Sea, UNCLOS, piracy, interpretation, living instrument, ‘Constitution of the Oceans’

### **I. Introduction**

Over the past decade, two developments relevant for international maritime security law have taken place: first, the security landscape at sea has changed considerably with transnational crimes now ranking high on the list of maritime security threats; second, the ‘robotics

revolution' has reached the sea with the advent of unmanned (aerial, surface and underwater) vehicles. Combined, these developments have led to increased reliance by non-State actors on unmanned systems to commit criminal offences at sea. This entails a shift from proximate to remote human involvement in the commission of maritime crimes – a shift that shakes the foundation of UNCLOS' provisions on crimes at sea, which rest on the assumption of proximity.<sup>1</sup> This triggers the question whether UNCLOS – often characterized as a 'living instrument' or a 'Constitution of the Oceans' capable of growing or as a frame to be progressively filled – is capable of accommodating the turn to this transformative technology. Or, alternatively, whether the use of unmanned systems to commit maritime crimes is too disruptive a change and thus requires new rules. To use the words of the editors of the present book, the question is 'whether new paradigms require new conventions – and whether the time has come to commence the process of thinking about a new conceptual and conventional architecture that reflects what is really going on today, and what we predict will be going on tomorrow'<sup>2</sup> at sea.

The article at hand endeavours to answer this question and proceeds as follows: it first takes stock of the extent to which unmanned systems are used in the maritime environment (Section II) and demonstrates that offenders have already started to rely on unmanned systems, which gives them a cutting edge (Section III). It goes on to describe the shift from proximate to remote human involvement in the commission of maritime crimes and how the idea of remoteness conflicts with the underlying assumption of proximity on which UNCLOS' maritime crime provisions are built (Section IV). Against this backdrop, the various mechanisms intended to keep UNCLOS abreast of change are carved out (Section V); it is then explained why the prevailing strategy – its evolutionary interpretation – is by itself a suitable method to keep UNCLOS in tune with the time, but not apposite for provisions of UNCLOS governing the suppression of maritime crime (Section VI). It is submitted that these provisions, which came about from a marriage between the law of the sea and (transnational) criminal law, must rather be subject to a 'rule of law'-based interpretation. This, however, considerably curtails the available interpretive space and the possibility of accommodating the 'robotics revolution' at sea within Part VII of UNCLOS (Section VII).

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<sup>1</sup> United Nations Convention on the Law of the Sea (adopted 10 December 1982, entered into force 16 November 1994) 1833 UNTS 3 (UNCLOS).

<sup>2</sup> Malcom Evans and Sofia Galani, 'Maritime Security and the Law of the Sea: Help or Hindrance' (Workshop Concept Note, University of Bristol Law School, 3 July 2017) <[www.bristol.ac.uk/law/events/2017/maritime-security-2017.html](http://www.bristol.ac.uk/law/events/2017/maritime-security-2017.html)> accessed 25 January 2019.

## II. The ‘robotics revolution’ has reached the sea

The ‘robotics revolution’<sup>3</sup> has reached the sea. In August 2018, news circulated that for the first time an unmanned sailboat successfully crossed the Atlantic Ocean.<sup>4</sup> That same summer, an autonomous ferry started transporting passengers across a canal in the Norwegian city of Trondheim, which demonstrated the ability of unmanned maritime systems to operate safely in confined and congested waters.<sup>5</sup> Around the same time, a contract for the building of the *Yara Birkland*, an autonomous container ship with a cargo capacity of 120 TEU,<sup>6</sup> was concluded.<sup>7</sup> Admittedly, many present-day examples of unmanned systems at sea seem bulky or at least prototype-like, and we are arguably still at the ‘horseless carriage’ stage of this new technology. Yet, in the world of civilian shipping, autonomous technology is likely to develop rapidly and soon become ubiquitous. This prediction receives strong support from the fact that the International Maritime Organization (IMO) recently initiated a regulatory scoping exercise for the use of Maritime Autonomous Surface Ships (MASS).<sup>8</sup> The IMO does not engage lightly in exercises that may ultimately result in amendment of existing conventions or the adoption of new treaties, rather only after a ‘compelling need’ for doing so has been established.<sup>9</sup>

Unmanned systems have not only entered the civilian shipping sector, but also the military and policing domains. For coast guards, unmanned systems are, *inter alia*, enablers by which to patrol vaster maritime areas at lower cost and more discretely.<sup>10</sup> Danish and Norwegian authorities, for example, rely on the so-called *sniffer*, a device attached to an unmanned aerial

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<sup>3</sup> In general, see Peter W Singer, ‘The Robotics Revolution’ (*Brookings Institution*, 11 December 2012) <[www.brookings.edu/opinions/the-robotics-revolution](http://www.brookings.edu/opinions/the-robotics-revolution)> accessed 25 January 2019.

<sup>4</sup> The Microtransat Challenge, ‘SB Met Becomes First Boat to Complete the Microtransat Challenge’ (26 August 2018) <[www.microtransat.org/news/sbmet\\_press\\_release.php](http://www.microtransat.org/news/sbmet_press_release.php)> accessed 25 January 2019: the challenge is a transatlantic race for autonomous boats aimed at stimulating their development through friendly competition; in the last eight years, 23 other attempts to cross the Atlantic have failed.

<sup>5</sup> Sarah Knapton, ‘Norway Invents Driverless Ferry to End Need for Footbridges ... But Fears It Could Be Hacked’ *The Telegraph* (London, 29 June 2018) <[www.telegraph.co.uk/science/2018/06/29/norway-invents-driverless-ferry-end-need-footbridgesbut-fears/](http://www.telegraph.co.uk/science/2018/06/29/norway-invents-driverless-ferry-end-need-footbridgesbut-fears/)> accessed 25 January 2019.

<sup>6</sup> The acronym stands for ‘Twenty Foot Equivalent Unit’, which is the standard container dimension. A twenty-foot unit container is about six meters long; to ‘express the capacity of a container ship in a uniform manner, the number of containers that the ship can load is converted into a number of containers of the smallest size, i.e. those that are twenty feet in length’: Logistics Glossary, ‘TEU’ <[www.logisticsglossary.com/term/teu/](http://www.logisticsglossary.com/term/teu/)> accessed 25 January 2019.

<sup>7</sup> YARA International ASA, ‘YARA Selects Norwegian Shipbuilder VARD for Zero-Emission Vessel Yara Birkeland’ (Corporate Release, 15 August 2018) <[www.yara.com/corporate-releases/yara-selects-norwegian-shipbuilder-ward-for-zero-emission-vessel-yara-birkeland](http://www.yara.com/corporate-releases/yara-selects-norwegian-shipbuilder-ward-for-zero-emission-vessel-yara-birkeland)> accessed 25 January 2019.

<sup>8</sup> Currently, such scoping exercises are conducted by the Maritime Safety Committee (see IMO, ‘Report of the Maritime Safety Committee on its 98<sup>th</sup> Session’ (28 June 2017) IMO Doc MSC 98/23, para 20) and the Legal Committee (see IMO ‘Report of the Legal Committee on the Work of its 105<sup>th</sup> Session’ (1 May 2018) IMO Doc LEG 105/14, para 11.7-11.11); each Committee considers the conventions falling within its purview.

<sup>9</sup> Dorta Lost-Sieminska, ‘The International Maritime Organisation’ in Michael J Bowman and Dino Kritsiotis (eds), *Conceptual and Contextual Perspectives on the Modern Law of Treaties* (CUP 2018) 912.

<sup>10</sup> The Economist, ‘If Drones Ruled the Waves: Avast, me hearties’ *The Economist – The World If* (7 July 2018) <[www.economist.com/the-world-if/2018/07/07/avast-me-hearties](http://www.economist.com/the-world-if/2018/07/07/avast-me-hearties)> accessed 25 January 2019.

vehicle that is able to track down ships using prohibited high-sulphur fuel.<sup>11</sup> In the Pitcairn Island Marine Protected Area (MPA), the *Wave Glider* – an unmanned maritime system powered by wave and solar energy – has been deployed to counter illegal fishing.<sup>12</sup>

Next to coast guards and port State authorities, navies have started to embrace the use of unmanned systems across the entire spectrum of their operations. This development is reflected in both strategic documents and changes in the institutional architecture of navies. By way of example, the *Strategic Roadmap for Unmanned Systems* was adopted by the US Department of the Navy in spring 2018 and shall serve ‘as a guide for enabling the integration of Unmanned Systems into every aspect of Naval operations’.<sup>13</sup> Contemporaneously, the US Navy’s acquisition chief disbanded the unmanned systems office – not because these systems were deemed unimportant, but because they are considered to be of such importance that they need to be integrated with all of the teams rather than handled separately.<sup>14</sup> A further indicator pointing to the increased reliance on and integration of unmanned systems into naval forces is the growth of the respective budgets.<sup>15</sup> Lastly, the conduct of major military exercises involving unmanned systems – such as the 2016 *Unmanned Warrior* exercise held by the UK Royal Navy and involving 50 different systems operating autonomously or by remote-control<sup>16</sup> – underline the growing importance of this new technology in naval operations. In the realm of maritime security, unmanned maritime systems are certainly no longer *quantité négligeable* – not only on the part of the ‘enforcers’, but also on the part of ‘criminals’.

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<sup>11</sup> Niels Bjørn Mortensen, ‘Emissions Monitoring: Maintaining a Level Playing Field Post-2020’ (*Marine Propulsion & Auxiliary Machinery*, 17 September 2018) <[www.mpropulsion.com/news/view,emissions-monitoring-maintaining-a-level-playing-field-post2020\\_54253.htm](http://www.mpropulsion.com/news/view,emissions-monitoring-maintaining-a-level-playing-field-post2020_54253.htm)> accessed 25 January 2019; the European Maritime Safety Agency has also started relying on this technology: EMSA, ‘Remotely Piloted Aircraft Systems (RPAS)’ <[www.emsa.europa.eu/operations/rpas.html](http://www.emsa.europa.eu/operations/rpas.html)> accessed 25 January 2019.

<sup>12</sup> Liquid Robotics, ‘How Unmanned Surface Vehicles Can Shine Light on Dark Targets & Cue Assets for Inspection and Interdiction’ 3-6 <<https://cdn2.hubspot.net/hubfs/287872/website-downloads/LR-Shine-Light-On-Dark-Targets.pdf>> accessed 25 January 2019. As per s 24(1)(a) *juncto* (3)(d) Pitcairn Islands Marine Protected Area Ordinance of 2016, CAP.48, 2017 Rev Ed, ch 48 (PN), the presumption applies that any fishing vessel found or observed in the MPA ‘shall be deemed to be engaged in fishing’ and ‘unmanned aerial, surface or underwater vehicle’ is listed among the means by which such vessel may be tracked down and observed.

<sup>13</sup> US Department of the Navy, ‘Strategic Roadmap for Unmanned Systems (Short Version)’ (29 May 2018) <<https://news.usni.org/2018/05/29/summary-department-navy-strategic-unmanned-systems-roadmap>> accessed 25 January 2019.

<sup>14</sup> Megan Eckstein, ‘Navy Wants Unmanned Systems to be Ubiquitous in Future Warfare’ *USNI News* (29 May 2018) <<https://news.usni.org/2018/05/29/navy-wants-unmanned-systems-ubiquitous-future-warfare>> accessed 25 January 2019.

<sup>15</sup> David Klein, ‘Unmanned Systems and Robotics in the FY2019 Defense Budget’ (*The Association for Unmanned Vehicle Systems International*, 14 August 2018) <[www.auvsi.org/%E2%80%8Bunmanned-systems-and-robotics-fy2019-defense-budget](http://www.auvsi.org/%E2%80%8Bunmanned-systems-and-robotics-fy2019-defense-budget)> accessed 25 January 2019.

<sup>16</sup> UK Royal Navy, ‘Unmanned Warrior’ <[www.royalnavy.mod.uk/unmannedwarrior](http://www.royalnavy.mod.uk/unmannedwarrior)> accessed 25 January 2019.

### III. Unmanned systems to commit crimes at sea

It is commonplace to argue that ‘criminals’ are quicker to embrace and rely on new technology than ‘enforcers’,<sup>17</sup> and that the latter group lags behind in developing tools and strategies to react to the malicious use of disruptive technology.<sup>18</sup> Indeed, unmanned systems have opened new avenues for those intent on compromising maritime security. Perpetrators have already relied on unmanned systems in distinct ways to commit crimes at sea – and the potential of this new technology for achieving nefarious ends is far from being fully exploited.

Unmanned systems are, first of all, capable of carrying explosive payloads. Reports on the use of unmanned boats to damage or partly destroy ships, port infrastructure and offshore installations, and to inflict harm to persons in the vicinity of or on board the targeted objects, have multiplied. For example, Houthi rebels used remote-controlled boats to carry out attacks against various targets, notably the Saudi frigate *Al Madinah*, a Saudi-flagged oil tanker, and an oil depot and distribution station near the Yemeni border.<sup>19</sup> On land, the so-called Islamic State used off-the-shelf drones, which were jury-rigged with improvised explosive devices, to launch (deadly) attacks against persons in Iraq and Syria.<sup>20</sup> The use of unmanned aerial vehicles mounted with explosives launched from the shore or ships to cause havoc at sea is considered a realistic scenario,<sup>21</sup> although the technology is not yet deemed advanced enough to both transport *and* broadly disperse chemical, biological or radiological material.<sup>22</sup> Smuggling is a further type of illicit activity at sea where remote-controlled or autonomous systems could be a game-changer.<sup>23</sup> For drug-trafficking organizations, for example, unmanned vessels offer a series of advantages compared to manned ‘narcosubs’: in addition to a high level of stealth, the

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<sup>17</sup> Anthony Hallett and Victoria Weedn, ‘Unmanned Systems Technology Use by Law Enforcement’ in Evgeny Katz and Jan Halánek (eds), *Forensic Science: A Multidisciplinary Approach* (Wiley-VCH 2016) 409.

<sup>18</sup> Michael S Schmidt and Eric Schmitt, ‘Pentagon Confronts a New Threat From ISIS: Exploding Drones’ *The New York Times* (New York, 11 October 2016) <[www.nytimes.com/2016/10/12/world/middleeast/iraq-drones-isis.html](http://www.nytimes.com/2016/10/12/world/middleeast/iraq-drones-isis.html)> accessed 25 January 2019 (on the Pentagon being slow in anticipating and developing tools to react to the use of drones by the so-called Islamic State).

<sup>19</sup> Rosie Perper, ‘Drone Boats Filled with Explosives Are the New Weapon in Global Terrorism’ *Business Insider* (4 October 2018) <[www.businessinsider.com/drone-boats-filled-with-explosives-houthis-saudi-arabia-2018-10?r=US&IR=T](http://www.businessinsider.com/drone-boats-filled-with-explosives-houthis-saudi-arabia-2018-10?r=US&IR=T)> accessed 25 January 2019.

<sup>20</sup> Don Rassler, ‘The Islamic State and Drones: Supply, Scale, and Future Threats’ (Combating Terrorism Center at West Point, United States Military Academy, July 2018) *passim* <<https://ctc.usma.edu/islamic-state-drones-supply-scale-future-threats/>> accessed 25 January 2019.

<sup>21</sup> P W Singer, ‘Wired for War? Robots and Military Doctrine’ (2009) 52 *Joint Force Quarterly* 104, 106; navies train against such attacks: TASS, ‘Russian Caspian Fleet Crews Hold Anti-Drone Military Drills’ *TASS Russian News Agency* (Moscow, 14 March 2018) <<http://tass.com/defense/993901>> accessed 25 January 2019.

<sup>22</sup> Wolfgang Rudischhauser, ‘Autonomous or Semi-Autonomous Weapons Systems: A Potential New Threat of Terrorism?’ (2017) Federal Academy for Security Policy (Germany) Security Policy Working Papers No. 23/2017, 1 and 3 <[www.baks.bund.de/en/working-papers](http://www.baks.bund.de/en/working-papers)> accessed 25 January 2019.

<sup>23</sup> Craig H Allen, ‘The Seabots are Coming Here: Should they be Treated as “Vessels”?’ (2012) 65 *The Journal of Navigation* 749, 750; for drug smuggling: Foreign Brief, ‘Narco-Subs, Cartels and Law Enforcement’ (*Foreign Brief - Geopolitical Risk Analysis*, 9 May 2016) <[www.foreignbrief.com/security-terrorism/narco-subs](http://www.foreignbrief.com/security-terrorism/narco-subs)> accessed 25 January 2019.

fact that no crew is on board is not only cost-saving,<sup>24</sup> but considerably reduces the risk of arrested suspects disclosing information in return for a plea deal.<sup>25</sup>

Indeed, for offenders, the abundant possibilities of unmanned systems drastically tip the risk ratio of criminal endeavours in their favour. The use of remote-controlled or autonomous technology provides ample distance from the actual scene-of-crime.<sup>26</sup> Such distance minimizes the perpetrator's risk of being killed, injured or arrested; and, more generally, it complicates the attribution of criminal conduct.<sup>27</sup> Besides, relying on unmanned systems enhances the perpetrator's efficiency as they can be used to sequence attacks over time and can be operated in swarms to overwhelm the defence of the targeted ship or infrastructure.<sup>28</sup> In fact, the use of a single *underwater* unmanned system may offer enormous advantage to offenders since most of today's defensive measures are geared towards thwarting surface rather than subsurface threats. Even the US Coast Guard is said to have 'almost no capability to detect and disrupt an underwater attack', and the antisubmarine warfare capabilities of the US Department of Defense are not 'configured to confront UUVs [Unmanned Underwater Vehicles] already available and in development'.<sup>29</sup>

The use of unmanned technology to engage in illegal activity at sea is expected to grow. In terms of access, scientists asserted as early as 2009 that criminal organizations and terrorist groups are capable of developing sophisticated unmanned maritime systems by using commercial, off-the-shelf components.<sup>30</sup> The advent of 3D printers is said to further facilitate the production of customized unmanned systems.<sup>31</sup> In the past, criminals also relied on ready-to-use technology,<sup>32</sup> the online acquisition<sup>33</sup> of which does not require any more than 'the ability to press the "Go" button and to make a cash transfer'.<sup>34</sup> The improved usability is another driving force behind the increased use of unmanned systems for malicious purposes. Similar to the development of computers – which evolved from big, bulky military devices to tablets with

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<sup>24</sup> Miriam Wells, 'Life On Board a Narcosubmarine' *InSight Crime* (13 September 2013) <[www.insightcrime.org/news/analysis/life-on-board-a-narcosubmarine/](http://www.insightcrime.org/news/analysis/life-on-board-a-narcosubmarine/)> accessed 25 January 2019.

<sup>25</sup> Craig Allen and Casey Allen, '20'000 Drones Under the Sea' *Proceedings Magazine* (US Naval Institute, July 2018) <[www.usni.org/magazines/proceedings/2018-07](http://www.usni.org/magazines/proceedings/2018-07)> accessed 25 January 2019.

<sup>26</sup> Mark R Patterson and Susan J Patterson, 'Unmanned Systems: An Emerging Threat to Waterside Security' (paper presented at the International WaterSide Security Conference, Institute of Electrical and Electronics Engineers, 3–5 November 2010) 3 <<https://ieeexplore.ieee.org/document/5730271>> accessed 25 January 2019.

<sup>27</sup> Rudischhauser (n 22) 3.

<sup>28</sup> James Kraska, 'Effective Implementation of the 2005 Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation' (2017) 70 *Naval War College Review* 1, 13.

<sup>29</sup> Allen and Allen (n 25).

<sup>30</sup> Patterson and Patterson (n 26) 1.

<sup>31</sup> David Lumb, 'US Military Tests System for On-Demand 3D-Printed Drones' (*Gadgetry*, 18 December 2017) <[www.engadget.com/search/?search-terms=military+tests+3d](http://www.engadget.com/search/?search-terms=military+tests+3d)> accessed 25 January 2019.

<sup>32</sup> This holds true, eg, for the use of drones by the so-called Islamic State: Eric Schmitt, 'Papers Offer a Peek at ISIS' Drones, Lethal and Largely Off-the-Shelf' *The New York Times* (New York, 31 January 2017) <[www.nytimes.com/2017/01/31/world/middleeast/isis-drone-documents.html](http://www.nytimes.com/2017/01/31/world/middleeast/isis-drone-documents.html)> accessed 25 January 2019.

<sup>33</sup> Especially on the 'dark net': Rudischhauser (n 22) 2.

<sup>34</sup> Christof Heyns, 'Human Rights and the Use of Autonomous Weapons Systems (AWS) During Domestic Law Enforcement' (2016) 38 *Human Rights Quarterly* 350, 360.

apps designed for young children<sup>35</sup> – unmanned systems have steadily progressed in terms of being user-friendly and utilizable without specialized skills.<sup>36</sup> This has resulted in a broader range of potential users<sup>37</sup> and led the profit-seeking industry to step in. In the sequel, the prices of unmanned technology dropped significantly, making it an affordable means of crime.<sup>38</sup> Finally, the range of tasks that unmanned systems are able to (reliably and effectively) perform is growing at a relentless pace,<sup>39</sup> making them a versatile tool to commit criminal offences.

Against this backdrop, there is a real chance that, in the future, criminals will rely in one way or another on unmanned technology to commit crimes at sea. Yet, as the saying goes: ‘It’s tough to make predictions, especially about the future.’<sup>40</sup> In the 1920s – when aviation was just about to take off – the future of piracy was seen as attacks committed by aircraft.<sup>41</sup> This scenario, however, never materialized.<sup>42</sup> By the same token, when the piracy rules were first codified, no one reckoned that piracy committed by ships would undergo a true revival in the first decade of the twenty-first century. During the drafting of the 1958 Geneva Convention on the High Seas, some delegations even proposed the deletion *in toto* of the provisions on piracy because the phenomenon ‘no longer constituted a general problem’.<sup>43</sup> Although predicting the future is impossible, let us cautiously assume that criminals will increasingly rely on unmanned systems to commit crimes at sea and query whether the maritime security rules contained in UNCLOS can accommodate the developing turn to this new technology.

#### IV. A shift from proximate to remote human involvement

In its 2008 Report on Oceans and the Law of the Sea, the UN Secretary General identified seven specific threats to maritime security, including piracy and maritime terrorism as well as

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<sup>35</sup> Singer, ‘The Robotics Revolution’ (n 3).

<sup>36</sup> Corporate Risk Services, ‘Drones: Threat from Above’ (Intelligence Bulletin, 2017) 1 <[www.g4s.ca/-/media/g4s/canada/files/whitepapers/usa/drones\\_threat\\_from\\_above.ashx](http://www.g4s.ca/-/media/g4s/canada/files/whitepapers/usa/drones_threat_from_above.ashx)> accessed 25 January 2019 (‘Technology improvements ... now allow for drones to be flown by anyone with little or no experience in aerial flying.’); Rudischhauser (n 22) 2 (‘even our kids can fly them’).

<sup>37</sup> Regarding unmanned aerial systems specifically: Corporate Risk Services (n 36) 4.

<sup>38</sup> Carlo Muñoz, ‘Adversaries Challenge America’s Drone Dominance’ *The Washington Times* (Washington, 2 October 2017) <[www.washingtontimes.com/news/2017/oct/2/us-military-drone-dominance-challenged-by-enemies/](http://www.washingtontimes.com/news/2017/oct/2/us-military-drone-dominance-challenged-by-enemies/)> accessed 25 January 2019; Corporate Risk Services (n 36) 1; Rudischhauser (n 22) 3.

<sup>39</sup> US Department of Defense, ‘Unmanned Systems Integrated Roadmap 2017-2042’ (30 August 2018) 20 <<https://news.usni.org/2018/08/30/pentagon-unmanned-systems-integrated-roadmap-2017-2042>> 25 January 2019 (also naming factors reducing the pace of development, notably legal and policy constraints and trust issues).

<sup>40</sup> Quote from the baseball-playing philosopher Yogi Berra: The Economist, ‘The Perils of Prediction’ *The Economist – Books and Arts* (31 May 2007) <[www.economist.com/letters-to-the-editor-the-inbox/2007/07/15/the-perils-of-prediction-june-2nd](http://www.economist.com/letters-to-the-editor-the-inbox/2007/07/15/the-perils-of-prediction-june-2nd)> accessed 25 January 2019.

<sup>41</sup> Harvard Draft Convention and Commentary, reprinted in ASIL, ‘Codification of International Law: Part IV – Piracy’ (1932) 26 *American Journal of International Law Supplement* 739, 768 and 809.

<sup>42</sup> Tim René Salomon, *Die internationale Strafverfolgungsstrategie gegenüber somalischen Piraten* (Springer 2017) 149.

<sup>43</sup> United Nations Conference on the Law of the Sea, ‘Official Records of the UN Conference on the Law of the Sea, Volume IV (Second Committee (High Seas: General Regime))’ (2009) UN Doc A/CONF.13/C.2/ST.26-30 (24 February-27 April 1958) 78.

illicit trafficking in arms, weapons of mass destruction and drugs.<sup>44</sup> These maritime crimes are, *inter alia*, governed by a series of (suppression) treaties, which define the respective prohibited conduct and allocate jurisdiction to enforce and adjudicate among different categories of States.<sup>45</sup> Despite the differing approaches these treaties pursue to suppress criminality at sea,<sup>46</sup> they seem to share a commonality: they are premised on the (implicit) underlying assumption that a human being is physically present on board the craft used to engage in the respective prohibited conduct (that is, to fulfil the *actus reus* of the respective offence). The scenario where an unmanned system is used to carry out prohibited acts at sea (for example, to deliver and discharge explosives damaging a ship or to transport drugs) was not on the drafters' radar.

The use of unmanned systems for the commission of maritime crimes does not imply that there is no human involvement at all, yet the nature changes: the offender's involvement is remote rather than proximate in terms of both geography and time. To understand, a brief discussion of potential definitions of the term 'unmanned system', which is neither a legal nor a generally accepted term,<sup>47</sup> is in order. The term can be defined as an 'air, land, surface, subsurface, or space platform that does not have the human operator physically onboard the platform'.<sup>48</sup> As regards *maritime* systems specifically, the definition of the Comité Maritime International equally places emphasis on the absence of persons on board the craft and defines 'unmanned ship' as 'a ship that has no crew members on board', which, depending on the (alterable) level of automation, 'may be operated either remotely ... or in a fully automated mode without human intervention'.<sup>49</sup> This latter definition insinuates the command-and-control relationship between the human being and the system – that is, the 'extent to which humans are involved in the execution of the task carried out by the machine'.<sup>50</sup> While remote-controlled systems are subject to permanent and full control by a human, so-called 'autonomous' systems are generally classified in three groups: first, semi-autonomous (or human *in* the loop), which 'require human input at some stage of the task execution'; second, 'human-supervised autonomous' (or human *on* the loop), which 'operate independently but are under the oversight of a human who can intervene if something goes wrong'; third, 'fully autonomous' (or human *out* of the loop) that 'operate completely on their own and where humans are not in a position

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<sup>44</sup> UNGA, 'Oceans and the Law of the Sea: Report of the Secretary-General' (2008) UN Doc A/63/63, paras 54-113.

<sup>45</sup> For more detail, see Nathalie Klein, *Maritime Security and the Law of the Sea* (OUP 2011) 302-319.

<sup>46</sup> Eg regarding the extent to which they deviate from the principle of exclusive flag State jurisdiction.

<sup>47</sup> Wolf Heintschell von Heinegg, 'The Exasperating Debate on the Legality of Unmanned Systems: Time for a Realistic Approach' in Christian Callies (ed), *Herausforderungen an Staat und Verfassung* (Nomos 2015) 146.

<sup>48</sup> US Department of Defense Directive Number 3000.09: Autonomy in Weapons Systems (21 November 2012, Incorporating Change 1, 8 May 2017) <[www.esd.whs.mil/portals/54/documents/dd/issuances/dodd/300009p.pdf](http://www.esd.whs.mil/portals/54/documents/dd/issuances/dodd/300009p.pdf)> accessed 25 January 2019.

<sup>49</sup> IMO, 'Regulatory Scoping Exercise for the Use of Maritime Autonomous Surface Ships (MASS): Submission by Comité Maritime International Working Group on Unmanned Ships (CMI IWG US)' (13 February 2018) IMO Doc MSC/99, s 2.

<sup>50</sup> Vincent Boulanin and Maaïke Verbruggen, 'Mapping the Development of Autonomy in Weapon Systems' (*Stockholm International Peace Research Institute*, November 2017) 5 <[www.sipri.org/publications/2017/other-publications/mapping-development-autonomy-weapon-systems](http://www.sipri.org/publications/2017/other-publications/mapping-development-autonomy-weapon-systems)> accessed 25 January 2019.

to intervene', for example, in selecting targets and delivering force.<sup>51</sup> In the context of international rules governing maritime crime, the 'unmanned' feature generally seems to be more important than the exact command-and-control relationship between the offender and the system.<sup>52</sup>

As mentioned, the use of *unmanned* systems to commit crimes at sea entails a shift from proximity to remoteness as regards the offender's involvement. If perpetrators rely on remote-controlled systems, they are involved in real-time but act geographically at distance from where the harmful act unfolds – be it from dry land, the territorial sea, the exclusive economic zone or the high seas. If offenders commit the offence with a system featuring a certain level of autonomy, their involvement is remote in terms of both geography and time: the person launches the system and intervenes from a place distant from where the harmful act occurs. Further, between the moment when a system with high endurance and reach is launched and the moment it causes harm at sea, a considerable amount of time may elapse.

This shift towards the remote commission of maritime offences contrasts with the assumption of proximity underlying the provisions dealing with maritime crime in Part VII of UNCLOS. Taking the example of piracy – the most densely regulated crime of UNCLOS – the idea of proximity transpires from all the relevant provisions. The offence definition, for example, suggests the presence of persons on board the offending craft when stating that the piratical act must be 'committed ... by the crew or passengers of a private ship' against another ship on the high seas.<sup>53</sup> The most compelling enforcement measure – the arrest of piracy suspects – is only available against 'persons ... on board' the seized pirate ship and is, furthermore, geographically limited to 'the high seas'.<sup>54</sup> As regards adjudicative jurisdiction, the phrase that '[t]he courts of the State which carried out the seizure may decide upon the penalties to be imposed'<sup>55</sup> also rests on the assumption that the offender is on board the seized craft. The list of examples can be continued – yet, before delving into a detailed analysis of whether the provisions of piracy can accommodate the turn to unmanned systems, some reflection on UNCLOS' capability to adapt to change is necessary. We must notably decide on the stance to take on the interpretation of provisions dealing with maritime crime – concretely, whether the widely advocated evolutionary method is apposite for interpreting this specific type of UNCLOS provision.

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<sup>51</sup> *ibid* 8.

<sup>52</sup> The latter is not irrelevant though; it could, eg, play a role for the 'dominant control'-criterion of definition of a pirate ship (UNCLOS art 103).

<sup>53</sup> UNCLOS art 101(a).

<sup>54</sup> UNCLOS art 105, first sentence.

<sup>55</sup> UNCLOS art 105, second sentence.

## V. Main interpretive strategy to keep UNCLOS abreast of change

UNCLOS contains a variety of explicit and implicit mechanisms to keep itself abreast of change.<sup>56</sup> First of all, it can be formally amended based on either a simplified or more formal procedure.<sup>57</sup> But so far, notably due to the high entry into force hurdle,<sup>58</sup> no amendments have been adopted and chances are slim that this will happen in the near future.<sup>59</sup> Given that the amendment procedure is an ‘unattractive option’<sup>60</sup> and tacit modification through subsequent practice<sup>61</sup> – absent any meaningful practice on unmanned systems in relation to Part VII of UNCLOS – is not yet ripe for consideration at this stage, we focus on interpretation as a means to preserve the treaty from overly rapid erosion. It has become custom to argue that UNCLOS must be interpreted in an evolutionary way. This broad interpretive stance is generally justified by reference to the special nature of UNCLOS, and commentators point to at least four different features of the Convention that make it particularly suitable for evolutionary interpretation.

To begin, UNCLOS is widely hailed as the ‘Constitution of the Oceans’.<sup>62</sup> This famous reference – generally ascribed to Tommy Koh, the President of the Third United Nations Conference on the Law of the Sea,<sup>63</sup> but actually used earlier<sup>64</sup> – has been repeated so many times<sup>65</sup> that ‘it has become integral to our understanding’ of UNCLOS.<sup>66</sup> Thereby, the somewhat cliché-ridden expression ‘Constitution of the Oceans’ is not simply used as a

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<sup>56</sup> Irina Buga, ‘Between Stability and Change in the Law of the Sea Convention: Subsequent Practice, Treaty Modification, and Regime Interaction’ in Donald R Rothwell and others (eds), *The Oxford Handbook of the Law of the Sea* (OUP 2015) 46.

<sup>57</sup> UNCLOS arts 313 and 312.

<sup>58</sup> UNCLOS art 316.

<sup>59</sup> Robin R Churchill, ‘The 1982 United Nations Convention on the Law of the Sea’ in Donald R Rothwell and others (eds), *The Oxford Handbook of the Law of the Sea* (OUP 2015) 42-43.

<sup>60</sup> Alan Boyle, ‘Further Development of the Law of the Sea Convention: Mechanisms for Change’ (2005) 54 *The International and Comparative Law Quarterly* 563, 564.

<sup>61</sup> Buga (n 56) 47-48 (on the various ways subsequent practice is legally relevant to UNCLOS, notably in constituting the parties’ agreement to tacitly modify the treaty) and 57-59 (on UNCLOS art 105 providing a ‘potential instance of tacit modification’).

<sup>62</sup> Alex G Oude Elferink, ‘Introduction’ in Alex G Oude Elferink (ed), *Stability and Change in the Law of the Sea: The Role of the LOS Convention* (Martinus Nijhoff Publishers 2005) 2.

<sup>63</sup> United Nations, *The Law of the Sea: Official Text of the United Nations Convention on the Law of the Sea* (United Nations New York 1983) xxxiii.

<sup>64</sup> See, eg, Elisabeth M Borgese, ‘A Constitution for the Oceans’ in Elisabeth M Borgese and David Krieger (eds), *The Tides of Change: Peace, Pollution, and Potential for the Oceans* (Mason/Charter 1975).

<sup>65</sup> See, eg, Churchill, ‘The 1982 United Nations Convention on the Law of the Sea’ (n 59) 44-45; Jill Barret, ‘The UN Convention on the Law of the Sea: A “Living” Treaty?’ in Jill Barrett and Richard Barnes (eds), *Law of the Sea: UNCLOS as a Living Treaty* (BIICL 2016) 15. Not rarely, a parallel is drawn between the UN Charter (the Constitution for the international community of States) and UNCLOS: see, eg, Boyle (n 60) 566; Ronald Macdonald, ‘The Charter of the United Nations in Constitutional Perspective’ (1999) 20 *Australian Year Book of International Law* 205, 220.

<sup>66</sup> Shirley V Scott, ‘The LOS Convention as a Constitutional Regime for the Oceans’ in Alex G Oude Elferink (ed), *Stability and Change in the Law of the Sea: The Role of the LOS Convention* (Martinus Nijhoff Publishers 2005) 12.

rhetorical device to underline the stature and breadth of the treaty, but as a way to implicitly or explicitly formulate a claim – notably as regards the interpretation of UNCLOS.<sup>67</sup> Following the general discourse on the interpretation of ‘constitutional treaties’ – that their ‘intrinsically evolutionary nature’ requires that they grow over time so as not to lose their contemporary relevance<sup>68</sup> – an evolutionary approach is suggested for UNCLOS: ‘Like any Constitution ... if it cannot or does not evolve it is unlikely to last.’<sup>69</sup> In sum, to broach the constitutional nature of UNCLOS is one argument to justify the adoption of an expansive approach towards its interpretation.<sup>70</sup>

Another justification for its evolutionary interpretation is closely related to the constitutional argument. Constitutions generally contain fundamental norms providing ‘a legal frame and guiding principles’ for the life of a community,<sup>71</sup> rather than fine-grained, statutory-like rules. UNCLOS is at times described as exhibiting this ‘framework nature’, meaning that – similar to a constitution – it sets out a legal frame subject to a ‘process of continuing refinements’;<sup>72</sup> that is, one ‘within which detailed norms to regulate the various uses of the sea may be developed and applied’.<sup>73</sup> Similarly, it has been argued that UNCLOS ‘articulate[s] a system of ocean governance’ but ‘does not specify in detail’ the subject matter it is dealing with<sup>74</sup> and ‘does not contain comprehensive and detailed rules regulating specific uses of the sea’.<sup>75</sup> At times, even the terms ‘framework convention’<sup>76</sup> and ‘framework agreement’<sup>77</sup> appear in descriptions of UNCLOS’ legal nature. Yet these terms are not used in their usual, technical sense to denote

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<sup>67</sup> For claims beyond (an evolutionary) interpretation, see, eg, Alex G Oude Elferink, ‘Introduction’ in Alex G Oude Elferink (ed), *Stability and Change in the Law of the Sea: The Role of the LOS Convention* (Martinus Nijhoff Publishers 2005) 2 (the constitutional character may imply different rules for its amendment); Churchill, ‘The 1982 United Nations Convention on the Law of the Sea’ (n 59) 45 (from the constitutional nature follows that the presumption that any activity at sea is regulated by UNCLOS and that other treaties governing activities at sea are compatible with UNCLOS, that the effects of UNCLOS on States not party to it ‘may extend beyond the traditional position in international law’, and that its amendment by informal means must not be too easily assumed).

<sup>68</sup> Robert Jennings and Arthur Watts, *Oppenheim’s International Law*, vol I (9th edn, Longman 1992) 1268 (on ‘constitutional treaties’ in general). See Bardo Fassbender, ‘The United Nations Charter as Constitution of the International Community’ (1998) 36 *Columbia Journal of Transnational Law* 529, 595-598 on the UN Charter specifically.

<sup>69</sup> Boyle (n 60) 566.

<sup>70</sup> Similar to the European Court of Human Rights declaring the European Convention on Human Rights a ‘constitutional instrument of European public order’ to justify an expansive approach towards its interpretation: see, eg, *Loizidou v Turkey* (1995) 20 EHRR 99, para 75.

<sup>71</sup> Fassbender (n 68) 536.

<sup>72</sup> Macdonald (n 65) 220.

<sup>73</sup> Churchill, ‘The 1982 United Nations Convention on the Law of the Sea’ (n 59) 30; on the framework nature see also 44-45.

<sup>74</sup> Oran R Young, ‘Commentary on Shirley V. Scott “The LOS Convention as a Constitutional Regime for the Oceans”’ in Alex G Oude Elferink (ed), *Stability and Change in the Law of the Sea: The Role of the LOS Convention* (Martinus Nijhoff Publishers 2005) 1242.

<sup>75</sup> Churchill, ‘The 1982 United Nations Convention on the Law of the Sea’ (n 59) 29-30.

<sup>76</sup> Macdonald (n 65) 220.

<sup>77</sup> Michael Wood, ‘Reflections on the United Nations Convention on the Law of the Sea: A Living Instrument’ in Jill Barrett and Richard Barnes (eds), *Law of the Sea: UNCLOS as a Living Treaty* (BIICL 2016) lxxviii (‘Part XII is often referred to as a framework agreement for the protection of the marine environment.’).

treaties foreseeing particularly low hurdles to amendment or a (simplified) procedure for the adoption of further protocols or annexes in order to keep them afloat in a changing world.<sup>78</sup> Rather, in the present context, these terms are used to describe the ‘texture’ of specific norms or even whole parts of UNCLOS; that is, to make a statement on their ‘normative completeness’.<sup>79</sup> Concretely, these commentators suggest that the norms of UNCLOS are relatively general and openly formulated (which is in line with the ‘constitutional nature’ UNCLOS is said to possess) and do not feature a high degree of density and specificity (as statutory norms generally do). This ‘slack texture’ makes UNCLOS a ‘flexible instrument’<sup>80</sup> and, as the argument goes, renders it particularly fit for an evolutionary interpretation.

Third, in order to emphasise UNCLOS’ capacity to adapt to change and its potential to retain contemporary relevance, it is qualified as a ‘living instrument’.<sup>81</sup> Judge Lucky from the International Tribunal for the Law of the Sea has described the consequences for interpretation that flow from this characterization of UNCLOS as follows:

The 1982 Convention and the Statute of the Tribunal are ‘living instruments’. This means that they ‘grow’ and adapt to changing circumstances. An act/statute is always ‘speaking’. The law of the sea is not static. It is dynamic and, therefore, through interpretation and construction of the relevant articles a court or tribunal can adhere and give positive effect to this dynamism.<sup>82</sup>

This quote reveals that, in the context of UNCLOS, the ‘living instrument’ metaphor is deployed for a similar purpose as in other fields of law (notably in international human rights law<sup>83</sup>) and as regards other treaties of a constitutional nature (primarily, the UN Charter): to suggest that a specific treaty must, like a living organism, grow over time and adapt to changing circumstances; that is, to justify its expansive construction, one that ‘arguably deviates from the understanding that the drafters of the treaty had’.<sup>84</sup> In this vein, the editors of this book highlight the benefit of the ‘living treaty’ approach in the context of maritime security specifically, stressing that it facilitates the interpretation of UNCLOS ‘in a way that allows for current security challenges and threats to fit within the meaning of its various provisions.’<sup>85</sup>

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<sup>78</sup> That UNCLOS is not a ‘framework treaty’ in the technical sense of, eg, environmental treaties: Boyle (n 60) 564; rather, its amendment is very difficult, see text relating to fn 58 and 59.

<sup>79</sup> Catherine Brölmann, ‘Typologies and the ‘Essential Juridical Character’ of Treaties’ in Michael J Bowman and Dino Kritsiotis (eds), *Conceptual and Contextual Perspectives on the Modern Law of Treaties* (CUP 2018) 89.

<sup>80</sup> Wood (n 77) lxxviii.

<sup>81</sup> Boyle (n 60) 584; Wood (n 77) lxxvii and lxxviii; Richard Barnes, ‘The Continuing Vitality of UNCLOS’ in Jill Barrett and Richard Barnes (eds), *Law of the Sea: UNCLOS as a Living Treaty* (BIICL 2016) 467.

<sup>82</sup> *Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission* (Advisory Opinion, 2 April 2015) ITLOS Reports 2015, para 69.

<sup>83</sup> Boyle (n 60) 584, stating that UNCLOS is ‘no less a dynamic or living instrument ... than human rights’.

<sup>84</sup> On the use of the ‘living instrument’ metaphor in general: Daniel Moeckli and Nigel D White, ‘Treaties as “Living Instruments”’ in Michael J Bowman and Dino Kritsiotis, *Conceptual and Contextual Perspectives on the Modern Law of Treaties* (CUP 2018) 154-155.

<sup>85</sup> Evans and Galani (n 2).

A fourth, yet rarely made, argument for justifying an evolutionary interpretation of UNCLOS pertains to its subject matter. It has been argued that international rules regulating ‘a particular area of human activity at a given moment based on the scientific and technological knowledge available at that time’ – such as UNCLOS – require ‘frequent adaptation’.<sup>86</sup> Hence, they must be construed in a dynamic rather than static way.

In sum, UNCLOS belongs to the category of treaties for which a regime-specific interpretation has been suggested. Concretely, the characterization of UNCLOS as a ‘constitutional’, ‘framework’ or ‘living’ treaty on the one hand, and the subject matter-based argument on the other, are deployed to justify its evolutionary interpretation. This mode of interpretation must be distinguished from two others: first, as per Article 31(1) VCLT,<sup>87</sup> the ‘object and purpose’ is used ‘to elucidate a textual approach for discerning the “ordinary meaning” to be given to a treaty’s terms’; second, the ‘teleological approach’, which in its classic sense takes ‘the treaty’s objective as a guiding principle for interpretation of the text’.<sup>88</sup> The ‘evolutionary’ or ‘living instrument’ approach differs from these two other modes in that ‘it takes into account the social context and may even necessitate reformulation of the original object and purpose’.<sup>89</sup> In other words, suggesting an evolutionary interpretation for UNCLOS implies that it belongs to the consortium of treaties that ‘have acquired a life of their own’.<sup>90</sup> Or to use the metaphor of Judge Álvarez of the International Court of Justice, which seems purpose-made for UNCLOS: it is one of these treaties that ‘can be compared to ships which leave the yards in which they have been built, and sail away independently, no longer attached to the dockyard’.<sup>91</sup>

## **VI. Maritime crime provisions not apposite for evolutionary interpretation**

An evolutionary interpretation, the widely championed means to keep UNCLOS abreast of change, is certainly apposite for parts – arguably even large parts – of UNCLOS. However, this expansive interpretive approach is not suitable for all of its 320 provisions because it rests on characterizations of UNCLOS that are too wholesale and do not account for the varied character of the Convention’s provisions both in terms of ‘texture’ and regulated subject matter.

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<sup>86</sup> Pierre-Marie Dupuy, ‘Evolutionary Interpretation of Treaties: Between Memory and Prophecy’ in Enzo Cannizzaro (ed), *The Law of Treaties Beyond the Vienna Convention* (OUP 2011) 137.

<sup>87</sup> Vienna Convention on the Law of Treaties (adopted 23 May 1969, entered into force 27 January 1980) 1155 UNTS 331 (VCLT).

<sup>88</sup> Caterine Brölmann, ‘Specialized Rules of Treaty Interpretation’ in Duncan B Hollis (ed), *The Oxford Guide to Treaties* (OUP 2012) 512.

<sup>89</sup> *ibid* 512.

<sup>90</sup> *Reservations to the Convention on the Prevention and Punishment of the Crime of Genocide* (Advisory Opinion) [1951] ICJ Rep 15, 53 (Dissenting Opinion of Judge Álvarez).

<sup>91</sup> *Reservations to the Convention on the Prevention and Punishment of the Crime of Genocide* (Advisory Opinion) [1951] ICJ Rep 15, 53 (Dissenting Opinion of Judge Álvarez).

Let us first turn to the ‘texture’ of UNCLOS. We have seen that the evolutionary interpretation of UNCLOS is mainly justified by the ‘slack texture’ of the Convention, viz its characterization as a ‘constitutional’ or ‘framework’ treaty with general norms meant to grow and take shape over time. Admittedly, this characterization is pertinent for many of UNCLOS’ provisions – but not to its provisions dealing with maritime crime. Taking the example of piracy, UNCLOS contains eight provisions dealing solely with this criminal phenomenon: they define the offence,<sup>92</sup> describe the ambit and types of enforcement measures as well as the crafts that can be used to police the sea,<sup>93</sup> regulate liability in cases of unjustified interference with freedom of navigation,<sup>94</sup> govern adjudicative jurisdiction,<sup>95</sup> and stipulate a duty to cooperate in the repression of piracy.<sup>96</sup> Together, they read like a ‘mini suppression treaty’ on a transnational maritime crime and feature a rather high degree of specificity, precision and completeness. They bear a greater resemblance to norms contained in a criminal statute or a code of criminal procedure than norms generally comprised in constitutions and framework legal instruments. Some of the piracy provisions are even considered self-executing in certain domestic jurisdictions, which requires, *inter alia*, a sufficient level of precision.<sup>97</sup> For example, various commentators suggest that the definition of piracy in Article 101 UNCLOS amounts to an international crime based on which a suspect may be prosecuted in domestic criminal courts.<sup>98</sup> Furthermore, the norm on the seizure of a pirate ship in Article 105 UNCLOS has been invoked as the legal basis for the arrest of piracy suspects absent a domestic norm.<sup>99</sup>

Overall, the ‘texture’ of the piracy provisions (and other norms governing maritime crime<sup>100</sup>) resembles statutory rather than constitutional provisions; they are specific and precise rather than general, and they are quite comprehensive rather than providing a mere frame to be filled in progressively. In short, the characteristics generally adduced to justify an evolutionary interpretation of UNCLOS are simply not present in the piracy provisions and the arguments for an expansive construction fail. This is not a surprising finding since the available ‘interpretive space’ varies according to the texture of a treaty – the less open-ended and more

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<sup>92</sup> UNCLOS art 101 (defining piracy); art 103 and 104 (defining the pirate ship); art 102 (special case of warships and State vessels engaging in piracy).

<sup>93</sup> UNCLOS art 110 (right of visit); art 105, first sentence (seizure of a pirate ship); art 107 (vessels authorized to seize a pirate ship).

<sup>94</sup> UNCLOS art 106 (liability for seizure without adequate grounds).

<sup>95</sup> UNCLOS art 105, second sentence (adjudicative jurisdiction).

<sup>96</sup> UNCLOS art 100 (cooperation duty).

<sup>97</sup> Karen Kaiser, ‘Treaties, Direct Applicability’, *Max Planck Encyclopedia of Public International Law* (last updated February 2013) para 16 <<http://opil.ouplaw.com/home/EPIL>> accessed 25 January 2019.

<sup>98</sup> Douglas Guilfoyle, ‘Book Review: Robin Geiss and Anna Petrig, *Piracy and Armed Robbery at Sea: The Legal Framework for Counter-Piracy Operations in Somalia and the Gulf of Aden*’ (2011) 11 *International Criminal Law Review* 910, 912-913; Rüdiger Wolfrum, ‘Hohe See und Tiefseeboden (Gebiet)’ in Wolfgang Graf Vitzthum (ed), *Handbuch des Seerechts* (CH Beck 2006) 307. The author of present Chapter disagrees with this view; see Anna Petrig, ‘Piracy’ in Donald R Rothwell and others (eds), *The Oxford Handbook of the Law of the Sea* (OUP 2015) 859.

<sup>99</sup> Anna Petrig, *Human Rights and Law Enforcement at Sea: Arrest, Detention and Transfer of Piracy Suspects* (Brill Nijhoff 2014) 221.

<sup>100</sup> Eg UNCLOS art 111 (right of hot pursuit).

detailed a provision, the smaller the interpretive freedom.<sup>101</sup> Applied to the provisions on piracy, there is considerably less ‘interpretive space’ as compared to the open-textured, ‘constitutional’ provisions of UNCLOS. We reach the same conclusion if we follow the analogy with the domestic legal order from where the ‘living instrument’ concept was initially borrowed:<sup>102</sup> most domestic systems ‘proceed on the assumption that for each type of legal instrument – such as constitutions, statutes, contracts, and wills – there is a different set of interpretive rules, standards, and canons’.<sup>103</sup> Given that the living instrument doctrine was developed in the context of (international) constitutional provisions specifically, it may not be readily transferred to (international) statutory provisions, for which the interpretive freedom is generally understood to be more curtailed.

It is not only the varied ‘texture’ of UNCLOS’ provisions that opposes their uniform (evolutionary) interpretation, but also the wide array of subject matter they govern, which leads us to the *content* of UNCLOS. The mandate of the Third United Nations Convention on the Law of the Sea was ‘to adopt a convention dealing with all matters relating to the law of the sea ... bearing in mind that the problems of ocean space are closely interrelated and need to be considered as a whole’.<sup>104</sup> Both the sought-after aims of thematic comprehensiveness and a holistic approach have been successfully implemented by the drafters. UNCLOS indeed ‘regulates, in greater or lesser detail, almost every possible activity on, in, under, and over the sea’<sup>105</sup> and

a Flying Dutchman wandering the sea areas of the world, carrying his copy of the Convention, would always be able to answer in legal terms the questions: who am I? who is that over there? where am I? what may I do now? what must I do now? The Convention would never fail him.<sup>106</sup>

As a result of this comprehensive and holistic approach, UNCLOS features – despite being *the* law of the sea treaty – an intradisciplinary nature. Its norms belong to such diverse fields as

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<sup>101</sup> Michael Waibel, ‘Uniformity versus Specialisation: A Uniform Regime of Treaty Interpretation?’ in Christian J Tams, Antonio Tzanakopoulos and Andreas Zimmermann (eds), *Research Handbook on the Law of Treaties* (Edward Elgar 2014) 385. The claim to pursue a varied approach to interpretation of treaties with provisions of highly varied texture has been formulated in various fields: for international criminal law, see Leila Nadya Sadat and Jarrod M Jolly, ‘Seven Canons of ICC Treaty Interpretation: Making Sense of Article 25’s Rorschach Blot’ (2014) 27 *Leiden Journal of International Law* 755, 759, stating that the Rome Statute contains constitutional but also provisions ‘performing the function of legislation’ (ie of a statutory nature), and ‘depending upon which provision is sought to be interpreted, a “plain meaning”, subjective, or teleological (or effective) approach may be appropriate’; for the UN Charter, see Philip Kunig, ‘United Nations Charter, Interpretation of’, *Max Planck Encyclopedia of Public International Law* (last updated September 2006) paras 3-4 <<http://opil.ouplaw.com/home/EPIL>> accessed 25 January 2019, suggesting to apply different rules of interpretation for its ‘contractual’ and ‘normative’ elements.

<sup>102</sup> Moeckli and White (n 84) 136-137.

<sup>103</sup> Neha Jain, ‘Interpretive Divergences’ (2017) 57 *Virginia Journal of International Law* 45, 46.

<sup>104</sup> UNGA, ‘Reservation Exclusively for Peaceful Purposes of the Sea-Bed and the Ocean Floor, and the Subsoil Thereof, Underlying the High Seas Beyond the Limits of Present National Jurisdiction and Use of Their Resources in the Interests of Mankind, and Convening of the Third United Nations Conference on the Law of the Sea’ (16 November 1973) UN Doc A/Res/3067(XXVIII) para 3.

<sup>105</sup> Churchill, ‘The 1982 United Nations Convention on the Law of the Sea’ (n 59) 24; see also UNCLOS preamble, para 1.

<sup>106</sup> Philip Allott, ‘Power Sharing in the Law of the Sea’ (1983) 77 *American Journal of International Law* 1, 24.

international institutional law, international environmental law and transnational criminal law<sup>107</sup> – tied together by the fact that they are ‘all dealing with the whole nonland area of the world’.<sup>108</sup> Hence, UNCLOS has been rightly qualified as a ‘hybrid’ treaty.<sup>109</sup> Similar to other modern treaties (for example, the Rome Statute<sup>110</sup>), it governs a plurality of relationships<sup>111</sup> and its different parts perform vastly different functions,<sup>112</sup> which range from setting up international institutions<sup>113</sup> to regulating marine scientific research<sup>114</sup> and preserving maritime security. Even within one thematic set of provisions, this intradisciplinary nature transpires. The provisions on maritime crime are paradigmatic in this respect: transnational crimes are addressed in UNCLOS because their commission presupposes successful transportation and ‘shipping represents a centrally important mode of transport in the era of globalization’.<sup>115</sup> Hence, rules governing transnational crimes at sea, such as piracy,<sup>116</sup> are perforce a composite of elements deriving from the law of the sea (for example, the reference to the high seas, a maritime zone, in the definition of piracy) and elements originally stemming from criminal law (for example, the description of the various types of enforcement measures granted vis-à-vis a pirate ship and piracy suspects).

It is submitted that such ‘hybrid’ (or intradisciplinary) treaties require a ‘heterogenous approach’ to interpretation, meaning that ‘even within the context of a single treaty, a multiplicity of interpretive methods is warranted’.<sup>117</sup> To apply one single, say evolutionary, approach to interpretation risks violating the principles, goals and values underlying a particular provision or a set of provisions<sup>118</sup> – for example, the rule of law and, more specifically, the principle of legality as regards transnational crimes.<sup>119</sup> In the context of international criminal law, for instance, an evolutionary interpretation is deemed apposite for the Rome Statute’s

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<sup>107</sup> Barret (n 65) 15 noting that the ‘tentacles [of UNCLOS] extend horizontally into other areas of international law’.

<sup>108</sup> Allott (n 106) 24.

<sup>109</sup> Shabtai Rosenne, *Developments in the Law of Treaties 1945-1986* (CUP 1989) 204.

<sup>110</sup> Rome Statute of the International Criminal Court (adopted 17 July 1998, entered into force 1 July 2002) 2187 UNTS 90 (Rome Statute), which Jain (n 103) 48, describes as ‘a cross between an international contract between states, a constitution that establishes an international community committed to anti-impunity, and a criminal law statute under which individuals may be prosecuted and convicted’.

<sup>111</sup> See Allott (n 106) 8-9 and 28-30 (Annexes A-C), identifying 57 kinds of legal persons, 58 legal sea areas and 59 legal relations governed by UNCLOS.

<sup>112</sup> Jain (n 103) 48.

<sup>113</sup> Rosenne (n 109) 204; Tullio Treves, ‘The Law of the Sea “System” of Institutions’ (1998) 2 Max Planck Yearbook of United Nations Law 325, 330-331: UNCLOS sets up three institutions, which are the International Sea-Bed Authority, the International Tribunal for the Law of the Sea, and the Commission on the Limits of the Continental Shelf.

<sup>114</sup> UNCLOS arts 238 *et seq.*

<sup>115</sup> Alexander Proelss and Tobias Hofmann, ‘Law of the Sea and Transnational Organised Crime’ in Pierre Hauck and Sven Peterke (eds), *International Law and Transnational Organised Crime* (OUP 2016) 423; see also 446 (‘The international law of the sea and transnational organised crime are closely related to each other owing to the great importance of shipping and navigation as means of international transport.’).

<sup>116</sup> On piracy being a transnational rather than an international crime: Neil Boister, *Transnational Criminal Law* (2nd ed, OUP 2018) 47.

<sup>117</sup> Jain (n 103) 79-80.

<sup>118</sup> *ibid* 48.

<sup>119</sup> Boister (n 116) 39-40.

human rights- and transitional justice-oriented clauses<sup>120</sup> as well as its institutional provisions regulating the functioning of the International Criminal Court.<sup>121</sup> By contrast, a different interpretive approach is deemed necessary for stipulations ‘performing the function of legislation’, in particular the definitions of the core crimes, ‘which incorporate a criminal code within the text of the treaty itself’.<sup>122</sup> For these provisions, the living treaty approach is considered inappropriate,<sup>123</sup> and it has been suggested to draw upon statutory construction in domestic criminal law and to apply a ‘moderate textual methodology’.<sup>124</sup> Despite the panoply of methods proposed for statutory interpretation, the interpretation of criminal statutes specifically is subject to a widely recognized constraint: *nullum crimen sine lege*.<sup>125</sup> As we will see in short, the constraints flowing from the principle of legality – and the rule of law more generally – must also be observed when interpreting the ‘criminal law’ provisions of UNCLOS, notably its rules on piracy.

To conclude, the hybridity (or intradisciplinarity) of UNCLOS in terms of subject matter and the varied ‘texture’ of its provisions do not allow for it to be subjected *in toto* to an evolutionary interpretation. Most notably, its provisions dealing with maritime crime are not suitable for such expansive interpretation – even though this would greatly facilitate the accommodation of unmanned systems (and the shift from proximate to remote involvement in the commission of maritime crimes that their use entails) under the current legal framework. Rather, their ‘texture’ and intradisciplinary criminal law trait curtail the interpretive space quite considerably.

## VII. A ‘rule of law’-based interpretation for maritime crime provisions

In light of the two developments described at the beginning of this article – transnational crimes having ascended to a high rank in maritime security and the ‘robotics revolution’ having reached the sea – there is a pressing need to elaborate a specific interpretive methodology for UNCLOS’ maritime crime provisions and for the emerging field of international maritime

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<sup>120</sup> Jain (n 103) 51.

<sup>121</sup> See VCLT art 5.

<sup>122</sup> Sadat and Jolly (n 101) 759; see also Leena Grover, ‘A Call to Arms: Fundamental Dilemmas Confronting the Interpretation of Crimes in the Rome Statute of the International Criminal Court’ (2010) 21 *The European Journal of International Law* 543, 545 (‘the Rome Statute articulates an interpretive imperative specific to the crimes’).

<sup>123</sup> Leena Grover, *Interpreting Crimes in the Rome Statute of the International Criminal Court* (CUP 2014) 385.

<sup>124</sup> Jain (n 103) 51.

<sup>125</sup> *ibid* 83. For an application of the principle of legality at the international level, see Rome Statute art 22(2).

security law<sup>126</sup> more generally.<sup>127</sup> But to do so is beyond the scope of present article, which pursues a more modest goal. Accordingly, at the example of the definition of piracy, it will be demonstrated that even the application of the classic (quite elastic) ‘crucible approach’ enshrined in Article 31 VCLT – where the text, object and purpose as well as the context are ‘thrown into the crucible and their interaction would then give the legally relevant interpretation’<sup>128</sup> – yields more legitimate outcomes than reliance on a primarily evolutionary, purposive interpretation. This holds especially true if due weight is given to systemic integration provided for in Article 31(3)(c) VCLT. This mode of interpretation has the potential to leverage the underlying principles, goals and values of those bodies of international law that are weaved into the law of the sea – that is, to account for the intradisciplinary nature of large parts of UNCLOS. For the provisions on piracy specifically, systemic integration allows for their partly (transnational) criminal law nature to be taken into account.

The starting point of every ‘interpretive round-trip’ is the elucidation of the ordinary meaning of the words used in a given provision. According to Article 101(a) UNCLOS, piracy consists of

any illegal acts of violence or detention, or any act of depredation, committed for private ends by the crew or the passengers of a private ship or a private aircraft, and directed ... on the high seas, against another ship or aircraft, or against persons or property on board such ship or aircraft.<sup>129</sup>

This wording triggers a series of interpretational questions as regards the use of unmanned (rather than manned) crafts to engage in violent acts against another ship.

As regards the conduct element of the offence, the turn to unmanned systems does not seem to pose many problems. As per Article 101(a) UNCLOS, piracy can be committed through, alternatively,<sup>130</sup> an act of violence, detention or depredation, which is usually defined as plunder, pillage or robbery.<sup>131</sup> Contemporary piracy is characterized primarily by detention and depredation, while acts of violence are rather committed in order to achieve the ultimate goal

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<sup>126</sup> A settled definition does not exist, but see the definition of James Kraska and Raoul Pedrozo, *International Maritime Security Law* (Martinus Nijhoff 2013) 2, from which the intradisciplinary nature of this body of law transpires: ‘Maritime security law is a hybrid sub-discipline of international law, combining principally elements of the international law of the sea, international criminal law, international human rights law, and the law of naval warfare, which is a subset of international humanitarian law. Maritime security law also involves aspects of national and international administrative regulation of immigration, trade and customs.’

<sup>127</sup> As has been done in the relatively young field of international criminal law; see, eg, Sadat and Jolly (n 101) 763-770 proposing ‘seven canons’ for the interpretation of the ‘criminal code’ within the Rome Statute; Grover, *Interpreting Crimes in the Rome Statute of the International Criminal Court* (n 123) *passim*; Jain (n 103) *passim*.

<sup>128</sup> ILC, ‘Documents of the Second Part of the Seventeenth Session and of the Eighteenth Session Including the Reports of the Commission to the General Assembly’ (1966) UN Doc A/CN.4/SER.A/1966/Add.1, 95, para 4.

<sup>129</sup> Absent contemporary relevance, UNCLOS art 101(a)(ii) is not considered any further here; due to space constraints, UNCLOS art 101(b) and (c) are not analysed either.

<sup>130</sup> Robin Churchill, ‘The Piracy Provisions of the UN Convention on the Law of the Sea – Fit for Purpose?’ in Panos Koutrakos and Achilles Skordas (eds), *The Law and Practice of Piracy at Sea: European and International Perspectives* (Hart Publishing 2014) 13.

<sup>131</sup> Douglas Guilfoyle, ‘Article 101: Definition of Piracy’ in Alexander Proelss (ed), *United Nations Convention on the Law of the Sea: A Commentary* (Hart 2017) 740.

of hijacking the ship and crew or to commit property offences.<sup>132</sup> By contrast, unmanned systems will most likely be used for attacks, the very purpose of which is the commission of an act of violence, such as firing at a ship or blowing it up. Since a single act of violence<sup>133</sup> causing relatively little harm qualifies as an act of violence in the sense of Article 101(a) UNCLOS, a sole shot fired upon a ship may already fulfil the conduct element.<sup>134</sup> Even at the current development stage of unmanned technology, this seems a rather realistic and likely scenario.<sup>135</sup> Once the swarming capabilities of unmanned systems are further developed,<sup>136</sup> it even seems possible that a plurality of (armed) unmanned crafts could bring a ship under the perpetrator's control. It is undisputable that the gaining of direct, physical control over a ship and persons on board falls within the ambit Article 101(a) UNCLOS, but whether indirect control also qualifies as an act of detention is less straightforward. Overall, the conduct element can be fulfilled by using either manned or unmanned crafts.

By contrast, the shift from proximate to remote involvement in the commission of maritime crimes that the reliance on unmanned systems entails cannot be as readily accommodated by the Article 101(a) UNCLOS description of the offender ('committed ... by the crew or the passengers') and the means to commit the offence ('a private ship'). Despite relying heavily on the notions of 'ship' and 'vessel', UNCLOS does not define these terms – and for good reason. The term 'ship' is not amenable to a single definition, but rather depends on the subject matter and context of the rules in which it appears. Since UNCLOS aspires to regulate 'all issues relating to the law of the sea',<sup>137</sup> a single definition is neither possible nor helpful.<sup>138</sup> As a consequence, the term must be defined for the provisions on piracy specifically, making a distinction between the victim and the offending craft.

As regards the offending craft, the Harvard Draft Convention is of interest. The authors – recognizing the convenience of having 'a single term to indicate all the various means of transportation by sea or air which may be involved in piratical enterprises'<sup>139</sup> – defined the notion in Article 5(1) comprehensively: 'The term "ship" means any water craft or air craft of whatever size.'<sup>140</sup> Their term of choice was 'ship' (despite the fact that it denotes both water and airborne crafts) for it 'is the natural word to select for the purpose, since the pirates of

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<sup>132</sup> For a brief overview on various forms of contemporary see Anna Petrig, 'Piracy' (n 98) 844.

<sup>133</sup> Guilfoyle (n) 740.

<sup>134</sup> Churchill, 'The Piracy Provisions of the UN Convention on the Law of the Sea – Fit for Purpose?' (n 130) 15 ('domestic courts have accepted a relatively low threshold of violence as sufficient for piracy, such as the firing of shots at the victim vessel without causing injury to those on board or damage the vessel'); Salomon (n 42) 132.

<sup>135</sup> See above Section III on attacks carried out by remotely controlled boats against other ships.

<sup>136</sup> US Department of Defense, 'Unmanned Systems Integrated Roadmap 2017-2042' (n 39) 34 identifies swarming capabilities as a key technology in the realm of unmanned systems.

<sup>137</sup> UNCLOS preamble, para 1.

<sup>138</sup> John E Noyes, 'Interpreting the 1982 Law of the Sea Convention and Defining Its Terms' in George K Walker (ed), *Definitions for the Law of the Sea: Terms Not Defined by the 1982 Convention* (Martinus Nijhoff 2012) 55, 56, 61; Herman Meyers, *The Nationality of Ships* (Martinus Nijhoff 1967) 15-16 and 22-23; Laurent Lucchini, 'Le navire et les navires' in Société Française pour le Droit International (ed), *Le navire en droit international* (Pedone 1992) 18-20.

<sup>139</sup> Harvard Draft Convention and Commentary (n 41) 768.

<sup>140</sup> *ibid* 767.

history and fiction commonly used ships and the pirate ship and the pirate are associated in one's mind much as are the Cossack and his horse.'<sup>141</sup> The International Law Commission (ILC) abandoned this approach: their definition of piracy refers to 'ship' and 'aircraft' separately,<sup>142</sup> as do the definitions of the 1958 Convention on the High Seas and UNCLOS.<sup>143</sup> Hence, the term 'ship' as it appears in the provisions on piracy no longer has a special meaning (one that includes aircrafts)<sup>144</sup> but is still understood as a generic concept<sup>145</sup> – the content of which the drafters expected to evolve over time.<sup>146</sup> According to the general intertemporal rule, terms must be given the meaning they had at the time the treaty was adopted, yet an exception exists for generic terms: the parties must be presumed to have intended that these terms be given their meaning in light of the circumstances prevailing at the time of interpretation.<sup>147</sup> This makes the generic term 'ship' fit for change, and it was in fact apt to 'accommodate technological developments, from sail to steam to containerisation' – but it cannot be ignored that it 'has evolved over centuries assuming the presence of an onboard crew'.<sup>148</sup>

To decide whether an unmanned ocean-going device is a 'ship' in the sense of Article 101(a) UNCLOS, the context in which the term appears must be considered. In the words of the International Court of Justice, a 'word obtains its meaning from the context in which it is used. If the context requires a meaning which connotes a wide choice, it must be construed accordingly, just as it must be given a restrictive meaning if the context in which it is used so requires'.<sup>149</sup> As regards crafts used to commit piratical acts, the decisive criterion appears to be whether they are *capable* of interfering with navigation on the high seas. This does not seem to require more than the capacity to navigate the high seas and cause harm of the type described in Article 101(a) UNCLOS<sup>150</sup> – both of which unmanned maritime systems are capable of doing today, let alone in the future.

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<sup>141</sup> *ibid* 768.

<sup>142</sup> ILC, 'Articles Concerning the Law of the Sea with Commentaries' in 'Report of the International Law Commission on the Work of its Eighth Session' (1956) UN Doc A/3159, art 39; the materials do not elucidate the Commission's choice.

<sup>143</sup> Convention on the High Seas (adopted 29 April 1958, entered into force 30 September 1962) 450 UNTS 82, art 15.

<sup>144</sup> In the sense of VLCT art 31(4); as per Richard Gardiner, *Treaty Interpretation* (2nd ed, OUP 2015) 334, a notion has a special meaning if the drafters provided it with a meaning 'that differs from the more common meaning', that is, 'from the expected one'.

<sup>145</sup> The ILC heavily relied on the Harvard Draft Convention whose drafters clearly understood 'ship' to be a generic term: see ILC, 'Summary Records of the Seventh Session' (2 May - 8 July 1955) UN Doc A/CN.4/SER.A/1955, 55, para 4, where a delegate proposed to explicitly include attacks by aircraft against vessels and where the Special Rapporteur replied that he omitted this 'in the interest of simplification, though, as the Commission would remember, he had originally followed the Harvard draft in order to take modern technological developments into account'.

<sup>146</sup> Gardiner (n 144) 193.

<sup>147</sup> Oliver Dörr, 'Article 31: General Rules of Interpretation' in Oliver Dörr and Kirsten Schmalenbach (eds), *Vienna Convention on the Law of Treaties: A Commentary* (2nd ed, Springer 2018) 573.

<sup>148</sup> Luci Carey, 'All Hands Off Deck? The Legal Barrier to Autonomous Ships' (2017) NUS Law Working Paper 2017/11, 1-2 <[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3025882](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3025882)> accessed 25 January 2019.

<sup>149</sup> *Constitution of the Maritime Safety Committee of the Inter-Governmental Maritime Consultative Organization* (Advisory Opinion) [1960] ICJ Rep 150, 158.

<sup>150</sup> Robin Geiss and Anna Petrig, *Piracy and Armed Robbery at Sea* (OUP 2011) 62-63; Salomon (n 42) 134.

The definition of piracy further requires that the piratical act be committed ‘by the crew or the passengers’ of a private ship. UNCLOS was adopted in 1982 – hence, at a time when the drafters could have conceived that functions incumbent on the crew could potentially be carried out by a person not physically present on board, notably a shore-based controller. Yet Wood is correct when writing that ‘[a]ge is relative’ and the statement that UNCLOS dates from 1982 ‘is perhaps an oversimplification’ because ‘many of its provisions are much older’.<sup>151</sup> This certainly holds true for the definition of piracy, which was neither substantially changed nor discussed since its inclusion in the 1956 ILC Draft, which, in turn, relies heavily on the 1923 Harvard Draft Convention.<sup>152</sup> Hence, the definition of piracy is in fact fairly old and the notion of ‘crew’ was not revamped at the time of the adoption of UNCLOS in 1982; hence, it does not seem to encompass the idea of persons acting from anywhere other than on board the offending craft. Such interpretation receives support from the fact that the term ‘crew’ is mentioned in the same breath as the word ‘passenger’, which is defined as ‘[a] traveller on a public or private conveyance other than the driver, pilot, or crew.’<sup>153</sup> In order to travel, one must necessarily be on board a craft. A counter-argument for such a narrow construction is that Article 101(a) UNCLOS explicitly refers to ‘persons ... on board’ in the context of the victim ship.<sup>154</sup> This difference between the description of the offending and victim crafts allows for the notion of ‘crew’ to be understood broadly – provided we agree that it is a generic term that can be interpreted in light of present-day conditions. Further, the International Tribunal of the Law of the Sea – although in a different context – opined that a ship is a unit, meaning that ‘the ship, every thing on it, and every person involved or interested in its operations are treated as an entity’.<sup>155</sup> This implies that a person can belong to a vessel without being on board that ship, provided he is ‘involved or interested in its operation’. In other words, the idea that one could be remotely involved in the operation of a ship and still be perceived as part of it, is neither foreign nor new to the law of the sea.

The wording and context of the definition of piracy do not seem to preclude *per se* that a person launching or remotely controlling an unmanned system can be considered ‘crew’ and the system a ‘ship’. A purpose and object-bound interpretation, however, suggests a narrower reading. The identification of a single object and purpose for UNCLOS, characterized by its thematic comprehensiveness, is a challenge. During the negotiations, multiple interests were advanced and expressed in the treaty text; the package deal ultimately concluded was the result of a delicate balancing of interests, which thus precluded one substantive (key) issue from being singled out and understood as representing the entire object and purpose of UNCLOS.<sup>156</sup> Rather than being subject-specific, the object and purpose of UNCLOS is more expansive: it ‘promotes the rule of law at sea by allocating authority to govern and by imposing qualifications on that

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<sup>151</sup> Wood (n 77) lxxix and lxxx.

<sup>152</sup> Geiss and Petrig (n 150) 37-41.

<sup>153</sup> English Oxford Living Dictionaries, ‘passenger’ <<https://en.oxforddictionaries.com/>> accessed 25 January 2019.

<sup>154</sup> Emphasis added.

<sup>155</sup> *The M/V ‘Saiga’* (Judgment, 1 July 1999) ITLOS Reports 1999, para 106.

<sup>156</sup> Irimi Papanicolopulu, *International Law and the Protection of People at Sea* (OUP 2018) 102.

authority in different situations'.<sup>157</sup> In other words, it aims at 'providing a stable jurisdictional framework and the consolidation of the rule of law at sea'.<sup>158</sup> Interestingly enough, Oxman opined that

[t]he law of piracy is perhaps the best known example of the attempt to extend the rule of law to the sea. What is too rarely understood about the law of piracy is that most of its rules are designed to refine and circumscribe the universal enforcement and adjudicative jurisdiction it confers. The objective is to create just enough universal jurisdiction to respond to the practical problem posed by murder and mayhem on the high seas, but not so much as to threaten random violence or unwarranted interference with freedom of navigation and the liberty interests associated with that freedom.<sup>159</sup>

Indeed, the definition of piracy in Article 101 UNCLOS has various limitative (and thus protective) functions: it aims to clearly delimit the conduct for which a person can be prosecuted and punished for the offence of piracy and to precisely define the scope of enforcement and adjudicative jurisdiction. If the definition of piracy is construed too broadly, it cannot fulfil its limitative function and thus fails to live up to the object and purpose, which is to ensure the application of the rule of law at sea – concretely 'to protect liberty interests by defining and deterring excessive zeal' in the suppression of piracy.<sup>160</sup>

We have seen that an object and purpose-based interpretation of UNCLOS is one gateway for the rule of law at sea – systemic integration in the sense of Article 31(3)(c) VCLT is another.<sup>161</sup> As stressed earlier, this mode of interpretation leverages the underlying values of those bodies of law that are weaved into the law of the sea and provide the intradisciplinary fabric from which UNCLOS is crafted. As regards the provisions on piracy, which feature a markedly criminal law trait, the rule of law – and especially the principle of legality flowing from it – is a core principle that ought to guide their interpretation.

One of the core aspects of the rule of law is that the 'power of the State may not be exercised arbitrarily', but rather only through laws that are 'prospective, accessible and clear'.<sup>162</sup> As regards the definition of criminal offences specifically, the principle of legality entails, *inter alia*, the principle of certainty and prohibits the creation of offences by analogy.<sup>163</sup> Domestic courts applying Article 101(a) UNCLOS as the basis for criminal prosecution seem to be bound by the 'full-fledged' principle of legality under domestic law, rather than its 'core' content,

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<sup>157</sup> Bernhard H Oxman, 'Human Rights and the United Nations Convention on the Law of the Sea' (1998) 36 Columbia Journal of International Law 399, 402.

<sup>158</sup> Papanicolopulu (n 156) 102.

<sup>159</sup> Oxman (n 157) 402.

<sup>160</sup> *ibid* 404.

<sup>161</sup> There are various readings of VCLT art 31(3)(c); see Dörr (n 147) 610 *et seq.* The requirement that the external rules be 'applicable in the relations between the parties' is understood broadly in the context at hand since UNCLOS art 293 – the treaty's own systemic integration rule – does not contain this requirement: Anna Petrig and Marta Bo, 'The International Tribunal for the Law of the Sea and Human Rights' in Martin Scheinin (ed), *Human Rights Norms in 'Other' International Courts* (CUP 2019, forthcoming) 1210 and 1234.

<sup>162</sup> Simon Chesterman, 'Rule of Law', *Max Planck Encyclopedia of Public International Law* (last updated July 2007) para 2 <<http://opil.ouplaw.com/home/EPIL>> accessed 25 January 2019.

<sup>163</sup> Claus Kress, 'Nulla Poena Nullum Crimen Sine Lege' *Max Planck Encyclopedia of Public International Law* (last updated July 2007) para 1 <<http://opil.ouplaw.com/home/EPIL>> accessed 25 January 2019.

which undisputedly applies at the international level.<sup>164</sup> This implies that offences must be clearly defined, thereby ‘placing the individual in a position where they know or are reasonably able to discover which acts or omissions will make them criminally liable’.<sup>165</sup> If the definition of piracy is stretched to a point where it can accommodate the commission of piratical acts by unmanned rather than manned crafts, this may violate the principle of ‘fair warning’, which ‘demands that the offender should be warned in advance of the transgressive potential of their conduct’.<sup>166</sup>

In sum, whether the commission of an act of violence by an unmanned system against another ship can be subsumed under the wording of Article 101(a) UNCLOS – that is, ‘committed ... by the crew or the passengers of a private ship or aircraft’ – ultimately depends on the interpretive approach we pursue. Put differently, it is decided by the weight given to the various elements thrown into the crucible and what role is accorded to systemic integration, which is the gateway for the principle of legality.

## VIII. Conclusion

The ‘robotics revolution’ at sea entails a shift from proximate to remote human involvement in the commission of maritime crimes. Indeed, this represents a paradigm shift given that UNCLOS’ provisions governing the suppression of criminality at sea rest on the assumption of proximity – to be precise, that the perpetrator is on board the offending craft while engaging in the prohibited conduct. Whether this new paradigm requires new conventions – the question put to the authors by the editors of this book<sup>167</sup> – cannot be conclusively answered at this stage. The extent to which UNCLOS can accommodate the use of unmanned systems for the commission of maritime crimes ultimately depends on the interpretive approach pursued. While an evolutionary method would greatly facilitate the task, it is deemed inapposite for the interpretation of the Convention’s provisions containing both law of the sea and (transnational) criminal law elements – such as the provisions on piracy. This intradisciplinary nature requires the underlying values of (transnational) criminal law to also be taken into account, most notably the rule of law and the principle of legality that flows from it. Neither principle is absolute, rather they are gradual concepts aimed at maximizing certainty and minimizing arbitrariness.<sup>168</sup> Yet, what is for certain: ‘[t]he needs of a changing world cannot be understood, in and of themselves, as a justification for violating the principle of legality’.<sup>169</sup> Rather, the rule of law and the principle of legality provide a railing for the interpreter of UNCLOS’ provisions that govern maritime crime. The stability of this railing – that is, how far we can move away from the provisions’ wording – must be ascertained by further research carving out a specific

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<sup>164</sup> *ibid* para 19.

<sup>165</sup> Boister (n 116) 39.

<sup>166</sup> *ibid*.

<sup>167</sup> See above, text belonging to n 2.

<sup>168</sup> Grover, *Interpreting Crimes in the Rome Statute of the International Criminal Court* (n 123) 143.

<sup>169</sup> *ibid* 166.

interpretive methodology for establishing the meaning of ‘criminal law’ provisions contained in UNCLOS and international maritime security law more generally. This will pave the way for the critical task of deciding whether maritime criminal law provisions are frozen in time or whether they are capable of accommodating the ‘robotics revolution’ at sea.