

## Is Hong Kong Ready for D-Day?: An Examination of the Up-and-Coming Commercial Drone Industry from a Legal Perspective

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### 1. Introduction

It is Saturday morning and you hear some buzzing sounds outside your window, it is neither a bee nor is US declaring a war against your state. It is an unknown flying object carrying the McDonald's breakfast you just ordered online. Welcome to the future. The flying object was in fact a delivery drone used to transfer goods from sellers to buyers. Drones were invented in mid 1900s for wars, in fact, it is still used for wars as demonstrated from those used to bomb the Islamic State.<sup>1</sup> Alongside its military use as a weapon, human beings have learnt to make use of its features in harmonious ways. One of these is to deliver goods with drones.

Whether one accepts it or not, drones have already been eyed by some of the greatest commercial minds as part of their money making portfolio. Amazon founder Jeff Bezos described his aim to use autonomous drones to provide half hour delivery for Amazon orders a few months ago.<sup>2</sup> Meanwhile, in China, Alibaba announced last month that its subsidiary, TaoBao, will start delivering packages around the country with delivery drones.<sup>3</sup> Even the Wall Street listed Dominos is starting to deliver its Pizzas with drones.<sup>4</sup>

This Note explores the rise of the commercial drone industry in Hong Kong and the law's response to the benefits and challenges that this new industry poses to sellers, buyers, carriers, and consumers. Part II of this article discusses drone use in Hong Kong. Part III analyses the

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<sup>1</sup> Nesta, *Drones: a history of flying robots*, NESTA, <http://www.nesta.org.uk/node/753/>.

<sup>2</sup> Jillian D'Onfro, *Jeff Bezos Says Amazon's Delivery Drones Are 'Truly Remarkable,' But You Probably Won't See Them Soon*, BUSINESS INSIDER (Dec. 2, 2014), <http://www.businessinsider.com/amazon-jeff-bezos-delivery-drones-amazon-prime-air-2014-12/>.

<sup>3</sup> Arjun Kharpal, *Alibaba tests drone deliveries after Amazon push*, CNBC (Feb. 4, 2015), <http://www.cnbc.com/id/102396427/>.

<sup>4</sup> Julianne Pepitone, *Domino's tests drone pizza delivery*, CNN (June 4, 2013), <http://money.cnn.com/2013/06/04/technology/innovation/dominos-pizza-drone/>.

legal status of Do-It-Yourself drones while Part IV focuses on Ready-To-Go drones. Part V evaluates the obligations for sellers of drone-related products. Part VI analyses the duties of Hong Kong sellers whom entrust drone carriers to carry and transport drones and Part VII reviews the duties of drone carriers who deliver goods. Finally, Part VIII provides concluding remarks.

## 2. Drone Use in Hong Kong

Hong Kong is already home to approximately 5,000 recreational and commercial drones.<sup>5</sup> As echoed by many commercial law specialists, Hong Kong is a jurisdiction which shall witness enhanced commercial drone use because it is (i) a densely populated yet tech-savvy region comfortable with e-commerce; (ii) commercial drones shall alleviate traffic congestion and maximize delivery efficiency; (iii) Hong Kong is close to drone technology producers in Asia; and (iv) HK has a permissive regulatory regime for commercial drone operations.<sup>6</sup>

There are two major types of drones in Hong Kong. Do it yourself ('DIY') drones which are made by purchasing parts separately and those which are ready to go drones which are already built for sale.

### 2.1. Current Regulation of Drones in Hong Kong

At the moment, the use of smaller drones which weigh below seven kilograms and do not use fuel are unregulated in Hong Kong. Meanwhile, persons who use drones for commercial purposes regardless of drone size and weight must apply to the Civil Aviation Department ('CAD') for the use of such drone. According to a press release from the CAD, the CAD is only concerned about safety requirements, insurance and model of the drone. In other words, so long as the commercial drone is safe, the delivery is ready to take off.<sup>7</sup>

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<sup>5</sup> Editorial, *Drone Invasion Needs Regulation*, SOUTH CHINA MORNING POST (July 13, 2014), <http://www.scmp.com/comment/insight-opinion/article/1552895/drone-invasion-needs-regulation>; Danny Lee, *Our Skies Are Within Reach...Of Everyone*, SOUTH CHINA MORNING POST (July 7, 2014), <http://www.scmp.com/news/hong-kong/article/1548079/hong-kongs-hands-regulations-prompt-growth-drone-flying-amateurs>

<sup>6</sup> Yuet Ming Tham, *Legal Issues Surrounding the Use of Commercial Drones in Hong Kong and Singapore*, SIDLEY AUSTIN LLP (Jan. 15, 2015), <http://www.sidley.com/news/01-15-2015-privacy-data-security-and-informationlaw-update/>.

<sup>7</sup> See Editorial, *supra* note 5; see also Danny Lee, *supra* note 5.

### 3. Legal Status of Do It Yourself (DIY) Drones in Hong Kong

#### 3.1 Software and Hardware for DIY Drones

As opposed to Europe, not many firms in Hong Kong sell ready-to-use drones. Small enterprises or tech-savvy youngsters may find readily made drones unaffordable. A cheaper way will be building one themselves. They would purchase constituent parts from brands, such as Airware<sup>8</sup> and DroneDeploy,<sup>9</sup> from tech-savvy shops in Sham Shui Po to build their own drones. These constituents include specific parts of hardware, software and cloud control.<sup>10</sup> For instance, Airware's operating system is assembling what Windows does for personal computers. It develops a flexible and cost-effective autopilot system which is a combination of software and hardware for the commercial drones market. Examples of hardware include cameras, radiation detection sensors and communications systems. There are companies specialising in manufacturing drones parts for different commercial applications, such as mapping, recreational photography, agriculture and delivery.

Assuming that some parts of the drone are now defective, it is necessary to know where redress can be sought. From the legal standpoint, all drone-related products are not land or things built on land, so these are personal property rather than real property. Personal property is defined as 'all the property that is left after real property has been subtracted from the class of property taken as a whole.'<sup>11</sup> The hardware and the drone itself are clearly tangible chattels personal. But what about software? Is it tangible or intangible (choses in action)? The correct nature of software can be important in some legal contexts, namely taxation and sale of goods. For instance, section 2(1) of the Sale of Goods Ordinance ('SOGO') defines 'goods' as including all chattels personal other than things in action and money.<sup>12</sup>

The main question in relation to constituent parts of drones concerns the meaning of software. It is hard to determine whether software falls within the definition of 'goods'. If it does not, drone software providers may not be subject to the statutory implied terms, namely of quality and fitness for purpose. A similar question was considered in *St Albans City and District*

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<sup>8</sup> Airware official website, <http://www.airware.com/>.

<sup>9</sup> DroneDeploy official website, <https://www.dronedeploy.com/>.

<sup>10</sup> Peter Lansverk, *Nine drone startups that are changing the commercial landscape*, HACK THINGS (Aug. 12, 2013), <http://www.hackthings.com/nine-drone-startups-that-are-changing-the-commercial-landscape/>.

<sup>11</sup> LS SEALY AND RJA HOOLEY, *COMMERCIAL LAW: TEXT, CASES AND MATERIALS* 55 (4th ed. OUP, 2009).

<sup>12</sup> Sales of Goods Ordinance (Cap. 26), s 2(1).

*Council v International Computers Ltd*,<sup>13</sup> where the English Court of Appeal concluded that 'software' in the case refers to both the disk (tangible) and the program (intangible). In other words, even if parts like software were purchased separately by the drone owner, sellers of each of the parts have to account for SOGO.

### 3.2 Transactions Surrounding DIY Drones

From the above, we know the sellers of various physical parts of drones are accountable for the quality of their goods under SOGO, it will be necessary to consider the liability of those who provide non-physical GPS or software for drones. In *Lee v Griffin*<sup>14</sup> the court stated that 'if the contract is intended to result in transferring for a price from B to A, a chattel in which A had no previous property, it is a contract for the sale of a chattel'.<sup>15</sup>

Many companies specialise in developing and updating drone specific software. They are not providers of the software per se but they are responsible for updating. For instance, DroneDeploy designs enhanced web-based management platform for drone users. Yet, the software is sold without a tangible carrier, such as a disk, it is not 'goods' within the SOGO definition.<sup>16</sup> So what governs these kind of contracts?

Practically, updating of software and GPS is tailor-made for specific drones according to the drone manufacturers' instructions. This will be the case where the work or skill involved goes wholly into the creation of the final product to be delivered as illustrated in the Benjamin's Sale of Goods.<sup>17</sup> Following the line of cases adopting this test,<sup>18</sup> it is most likely that the sales of the software with a tangible carrier and of the hardware are treated as a contract of sale of goods.

## 4. Legal Status of Ready-To-Go Drones

As discussed above, in Hong Kong, DIY drones are governed by the Hong Kong Sale of Goods Ordinance (Cap 26)<sup>19</sup> It is now worthy to consider the position of companies, such as

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<sup>13</sup> *St Albans City and District Council v International Computers Ltd* [1996] 4 All ER 481.

<sup>14</sup> (1861) 1 B. & S. 272.

<sup>15</sup> BENJAMIN'S SALE OF GOODS, para 1-047 (Michael G. Bridge, ed., 8th ed. Sweet & Maxwell, 2010).

<sup>16</sup> Sales of Goods Ordinance (Cap. 26), s 2(1); See *St Albans City and District Council*, *supra* note 14.

<sup>17</sup> See BENJAMIN'S SALE OF GOODS, *supra* note 15, para 1-047.

<sup>18</sup> *Id.* para 1-047; *Re Blyth Shipbuilding Co Ltd* [1926] Ch. 494 (construction of ship); *Cammell Laird & Co Ltd v. Manganese Bronze & Brass Co Ltd* [1934] A.C. 402 (construction of ship's propellers); *J Marcel (Furriers) Ltd v. Tapper* [1953] 1 WLR 49 (fur jacket made to order); *Deta Nominees Pty Ltd v. Viscount Plastic Products Pty Ltd* [1979] V.R. 167 (plastic-moulding dies to customer's specification).

<sup>19</sup> Sale of Goods Ordinance (Cap. 26), s 2.

CyPhy Works<sup>20</sup> and DJI Innovations,<sup>21</sup> which focus on manufacturing ready to go drones. In relation to ready to go drones, there are two types of sellers, they include those who sell standard ready to go drones and others specialising in providing tailor made drones.

#### 4.1 Standard Ready-To-Go Drones

The sale of standard ready to go drones is governed under s.19 and s.20 of SOGO which largely depend on whether the specific drone is “deliverable”.<sup>22</sup> SOGO and case law defines “deliverable” state as a state that the buyer is bound to take delivery under the contract.<sup>23</sup> A ready drone box set is an example of drone in deliverable state and thus section 20, rule 1 of SOGO is applicable.<sup>24</sup>

On the other hand, section 20, rule 2 of SOGO deals with specific goods that require the seller to perform further actions in putting them into a deliverable state.<sup>25</sup> This may be by email from the seller notifying that the good is ready for shipment. For instance, Parrot offers a range of optional accessories for their AR.Drones<sup>26</sup> and the drones can only be passed when the buyer has the notice of the accomplishment by Parrot to put the drones into specified configuration which the buyer has opted for.

#### 4.2 Tailor Made Ready-To-Go Drones

Some drone companies tailor make drones for customers.<sup>27</sup> They take orders from corporations to manufacture custom-made drones to meet specific requirements such as ones which could keep Pizzas warm for Dominos.<sup>28</sup> This will involve a sale of future goods by

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<sup>20</sup> CyPhy Works official website, <http://cyphyworks.com/>.

<sup>21</sup> 'The company was founded in 2006 by Frank Wang, then a student at the Hong Kong University of Science and Technology. It has emerged as the world's most popular consumer drone maker, at least by revenue.' See Ben Popper, *DJI is about to become the first billion dollar consumer drone company*, THE VERGE (Mar. 12, 2015), <http://www.theverge.com/2015/3/12/8196413/dji-drone-funding-billion-dollar-sales/>;  
Hong Kong Dajiang Innovation Technology Co. Ltd. official website, <http://www.dji.com/cn/>.

<sup>22</sup> Sales of Goods Ordinance (Cap. 26), s 19, s 20.

<sup>23</sup> Sales of Goods Ordinance (Cap. 26), s 2(4); *Underwood Ltd v Burgh Castle Brick & Cement Syndicate Ltd* [1922] 1 KB 123.

<sup>24</sup> Sales of Goods Ordinance (Cap. 26), s 20 r 1.

<sup>25</sup> Sales of Goods Ordinance (Cap. 26), s 20 r 2.

<sup>26</sup> Parrot official website, with a list of optional extra that can be added the drones, <http://cdn.ardrone2.parrot.com/>.

<sup>27</sup> Custom build program for commercial drones can be found in many drone manufacturer, for example RatFlight <http://www.radflight.com/#!custom-builds/c1g1q/>.

<sup>28</sup> It is noted that some companies, such as DHL and Amazon, have their own research teams to manufacture drones to suit their own business models. See *DHL parcelcopter launches initial operations for research purposes*, DHL (Sep. 24 2014),

description. ‘Future goods’ is defined as ‘goods to be manufactured or acquired by the seller after the making of the contract of sale.’<sup>29</sup> According to section 20, rule 5(1) of the SOGO, where there is a contract for the sale of drones “to be” manufactured by the seller, property in the drones will pass only when the manufacturing of the drone have been completed and that the seller has appropriated to the contract with assent of the buyer.<sup>30</sup>

‘Appropriate’ in the context of s.20 r.5 of the SOGO refers to more than a purely earmarking of goods or a mere setting apart of selection.<sup>31</sup> It is usually the last important and decisive act to be done by seller.<sup>32</sup>

Applying this definition, appropriation will be held to have been made only when the custom-made drones are completed and ready for delivery. An example is when the seller puts the drones onto shipment<sup>33</sup>, or when the seller has placed the drones in a designated place for picking up and the buyer has been informed and agrees to pick them up.<sup>34</sup>

## 5. Obligations for Sellers of Drones and Constituent Parts

As established, in Hong Kong, sellers of both DIY drones and ready to go drones are governed by the implied terms in the Hong Kong Sale of Goods Ordinance (Cap 26).

### 5.1 Merchantable Quality

Section 16 of SOGO deals with implied conditions as to quality and fitness.<sup>35</sup> As provided by s. 16(2) of SOGO, an implied condition concerning goods of merchantable quality<sup>36</sup> is

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[http://www.dhl.com/en/press/releases/releases\\_2014/group/dhl\\_parcelcopter\\_launches\\_initial\\_operations\\_for\\_research\\_purposes.html](http://www.dhl.com/en/press/releases/releases_2014/group/dhl_parcelcopter_launches_initial_operations_for_research_purposes.html); Amazon Prime Air, <http://www.amazon.com/b?node=8037720011/>.

<sup>29</sup> Sales of Goods Ordinance (Cap. 26), s 2(1).

<sup>30</sup> *Id.* at s 20 r 5(1); *Elliott v Pybus* (1834) 10 Bing 512(construction of machines).

<sup>31</sup> *Carlos Federspiel & Co SA v Charles Twigg & Co Ltd* [1957] 1 Lloyd’s Rep 240; Sales of Goods Ordinance (Cap. 26), s 20 r 5.

<sup>32</sup> *Carlos Federspiel*, *supra* note 31 at 255-256.

<sup>33</sup> See also Sales of Goods Ordinance (Cap. 26), s 20 r 5(2).

<sup>34</sup> See *supra* note 32 at 256.

<sup>35</sup> Sales of Goods Ordinance (Cap. 26), s 16.

<sup>36</sup> *Id.* s 2(5): Goods of any kind are of merchantable quality within the meaning of this Ordinance if they are-

- (a) as fit for the purpose or purposes for which goods of that kind are commonly bought;
- (b) of such standard of appearance and finish;
- (c) as free from defects (including minor defects);
- (d) as safe; and
- (e) as durable,

as it is reasonable to expect having regard to any description applied to them, the price (if relevant) and all the other relevant circumstances; and any reference in this Ordinance to unmerchantable goods shall be construed accordingly.

imposed on sellers selling goods in the course of business.<sup>37</sup> In *Tung Ga Linen & Cotton (HK) Ltd*,<sup>38</sup> the court gave the common law definition of 'merchantable quality' as 'goods of such quality and in such condition that a reasonable man, acting reasonably, would, after a full examination, accept the goods in the circumstances of the case in performance of his offer to buy them, whether he buys for his own or to sell again.'

The implication for both commercial drone and drone parts manufacturers is that the product they make must be safe and durable as it is expected from any similar products.<sup>39</sup> Neither the DIY drones nor readily made drones shall fall from high altitude as a result of poorly made parts or product.

## 5.2 Fitness for Purpose

Section 16(3) of the SOGO also implies the condition that the goods are reasonably fit for the purpose which buyer is relying on seller's skill.<sup>40</sup> A DIY consumer of software is relying on the software manufacturers to make sound software. Additionally, a readily made drone consumer expects the drone to be safe. Under this section, the mere fact that the seller followed the buyer's tailor made specification does not negate liability of creating products unfit for purpose.<sup>41</sup>

## 5.3 Sale by Description

Both drone constituent parts and readily made drones are sold by description. Under s.15 of SOGO, terms are implied to ensure that goods shall match the description.<sup>42</sup> In *Harlingdon & Leinster Enterprises Ltd v Christopher Hull Fine Art Ltd*, the Court of Appeal stated that description must be influential in the sale to such an extent that it constitutes an essential term or condition of the contract.<sup>43</sup> Given the fact that most readily available drones and drone constituent parts are sold online with descriptions attach, it seems that buyers do not have the

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<sup>37</sup> *Id.* s 16(2).

<sup>38</sup> *Tung Ga Linen & Cotton (HK) Ltd v Winnitex Investment Co Ltd* [2006] HKEC 1373.

<sup>39</sup> Safety and durability issues are examples of the most common major concerns for drone delivery identified by Google's top-rated futurist speaker Thomas Frey, Thomas Frey, *37 Critical Problems that need to be Solved for Drone Delivery to become Viable*, FUTURIST SPEAKER (Jan. 27 2015), <http://www.futuristspeaker.com/2015/01/37-critical-problems-that-need-to-be-solved-for-drone-delivery-to-become-viable/>.

<sup>40</sup> Sales of Goods Ordinance (Cap. 26), s 16(3).

<sup>41</sup> *Cammell Laird & Co Ltd v Manganese Bronze and Brass Co Ltd* [1934] AC 402.

<sup>42</sup> Sales of Goods Ordinance (Cap. 26), s 15.

<sup>43</sup> *Harlingdon & Leinster Enterprises Ltd v Christopher Hull Fine Art Ltd* [1991] 1 QB 564.

chance to physically inspect the product, it is therefore certain that buyers greatly relied on the description and it is likely that such description forms an essential condition of the contract.

One of the most common descriptions about a drone is battery duration. What will happen if there is a slight variation of the actual flying time from the guaranteed one? In *Arcos, Limited Appellants v E.A. Ronaasen and Son Respondents*,<sup>44</sup> it was held that it is not sufficient that the goods are 'commercially within' the description as the correspondence between description and actuality must be exact. The buyer may be entitled to reject the drones on the ground that they did not conform to the description shown online.

Nevertheless, SOGO allows the parties to negate or vary by express agreement any terms implied by SOGO subject to s.11 of the Control of Exemption Clauses Ordinance.<sup>45</sup>

#### **5.4 Acceptance of the Drone and Its Related Parts**

There have always been disputes as to the exact point of time when buyers are deemed to have accepted goods. Flying the drone may be considered an act inconsistent with the ownership of the seller from sellers' perspective and therefore the buyer is deemed to have accepted the drones or its constituent parts as described in s. 37(1).<sup>46</sup> However, this subsection is subject to s. 37(2) which allows a buyer, without examination on the goods before, to have a reasonable opportunity to examine them before he is deemed to have accepted them.<sup>47</sup> By examination, it normally means flying the drones to test if the parts perform their functions conforming to the descriptions implied as conditions in the contracts and in the case of a readily made drone, it is flying properly. In any event, under s. 2A(1), no agreement or waiver can make a consumer of drone constituent or readily made drone lose their right to rely on s. 37(2).<sup>48</sup>

#### **6. Duties of Hong Kong Drone Sellers and Drone Carriers**

The commercial world is evolving at a rapid speed. Not only are goods evolving, the old school ways of delivering by trucks or ships is also evolving. For instance, the German postal courier DHL began to deliver medical and food supplies to places with low accessibility.<sup>49</sup>

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<sup>44</sup> [1933] A.C. 470.

<sup>45</sup> Sales of Goods Ordinance (Cap. 26), s 57; Control of Exemption Clauses Ordinance (Cap. 71), s 11.

<sup>46</sup> Sales of Goods Ordinance (Cap. 26), s 37(1).

<sup>47</sup> Sales of Goods Ordinance (Cap. 26), s 2A(1), s 37(2).

<sup>48</sup> *Id*, s 37(3).

<sup>49</sup> Danielle Elliot, *DHL Testing Delivery Drones*, CBS NEWS (Dec. 9, 2013), <http://www.cbsnews.com/news/dhl-testing-delivery-drones/>.

Businessmen would of course opt for drone couriers for their lower cost and quicker delivery in beating the busy traffic and labour costs. This part aims to analyse the risks of delivering by drones and analyse liability for both sellers who engage drone carriers and drone carrier themselves.

## 6.1 Practical Challenges of Engaging Drone Carriers

### 6.1.1. Risks

As drones are tiny compared to giant vessels and vehicles, they are more fragile in response to risks during delivery. As to the drone itself, the battery life is the greatest concern.<sup>50</sup> Durability of the Battery is dependent on the weight of goods delivered, the altitude at which the drone is flying at and the drag coefficient. Battery may exhaust during delivery and thus goods may be delivered late or even destroyed as a result of free fall.

Other risks include threats from animals. Reports indicate that drones may be attacked by birds.<sup>51</sup> Additionally, thieves may attempt to take down drones so as to appropriate the goods being delivered.<sup>52</sup> Last but not least, weather conditions may cause delay and extreme weather conditions such as heavy downpour, thunderstorm and typhoon may lead to the malfunctioning of the drones. The rainwater will damage goods if goods are not properly packed.

### 6.1.2 Possible Solutions

The drone delivery companies should not solely rely on GPS or other technologies during the delivery process. To exercise reasonable care, the companies should try to carry out investigation to make sure that there will not be too many birds obstructing the delivery process before route planning. Also, the companies should prevent delivering goods by drones under extreme weather conditions. Even though the delivery is needed, the companies should make sure that the delivery will be successful by installing different accessories etc. To tackle the

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<sup>50</sup> Jack Nicas, *Technical Hurdles Delay Drone Deliveries*, WALL STREET JOURNAL (Mar. 20, 2015), <http://www.wsj.com/articles/technical-hurdles-delay-drone-deliveries-1426867441/>.

<sup>51</sup> Rob Walker, *Birds vs. Drones: The Battle for the Skies Continues* (Oct. 15, 2014), <https://www.yahoo.com/tech/birds-vs-drones-the-battle-for-the-skies-continues-99998606684.html/>; Megan Garber, *Another Problem for Amazon's Delivery Drones? Angry Birds*, THE ATLANTIC (Dec. 5, 2013), <http://www.theatlantic.com/technology/archive/2013/12/another-problem-for-amazons-delivery-drones-angry-birds/282082/>.

<sup>52</sup> Jeff John Roberts, *Can You Shoot Down a Drone on Your Land? New Incident Raises Self-defense Questions* (Oct. 1, 2014), <https://gigaom.com/2014/10/01/can-you-shoot-down-a-drone-on-your-land-new-incident-raises-self-defense-questions/>; Daniel Terdiman, *No, You Can't Shoot Down Drones Over Your House* (Feb. 18, 2015), <https://gigaom.com/2014/10/01/can-you-shoot-down-a-drone-on-your-land-new-incident-raises-self-defense-questions/>.

weather and animals' attack problems, companies can consider using parachutes to protect the goods so that the goods and the drones can be landed safely.

Indeed there is a system introduced in Mexico recommending the use of parachute during the delivery process.<sup>53</sup> As to the preservation of the goods, when delivering food the companies may consider adding a small pack of preservative or designing an insulated box particularly for food delivery. Moreover, the companies should allocate manpower to patrol along the planned route to prevent people from taking down the drones. Flight recorder with GPS and camera system can be installed to track the drones to get back the goods or locate the person attempting to appropriate the goods. Most importantly, the companies may insert exclusion clauses in the contract so as to limit liability.

## 6.2 Liability of Sellers Who Entrust Drone Carriers

The starting point is that under s.34 of the SOGO, delivery is presumed by the seller giving the contract goods to a carrier who is to transmit them to the buyer.<sup>54</sup> Nevertheless, sellers still have to take precautions when engaging a drone courier. These duties exist both pre-delivery and upon arrival.

### 6.2.1 Pre-Delivery

For sellers, one of the most important concerns in entrusting drone carriers is the increase in liability, it is worthy to address this concern. Under s.34 (1) of SOGO, the general rule is that if the seller is authorized or required to send the goods to the buyer, delivery of the goods to a carrier, whether named by the buyer or not, for the purpose of delivering the goods to the buyer is prima facie deemed to be a delivery of the goods to the buyer.<sup>55</sup> This is because a carrier is generally viewed as an agent of the buyer to take delivery.<sup>56</sup> The exception to this general rule is when the drone carrier is an employee or agent of the seller. In *Gailbraith v Block*, since both parties agreed that the carrier was the "seller's agent" instead of the buyer's agent, mere delivery

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<sup>53</sup> Darwin Aerospace, *The First World's First Airborne Mexico Food Delivery System* (2012), <http://www.darwinaerospace.com/burritobomber/>.

<sup>54</sup> Sales of Goods Ordinance (Cap. 26), s 34.

<sup>55</sup> Sales of Goods Ordinance (Cap. 26), s 34(1); BENJAMIN'S SALE OF GOODS, *supra* note 15, at paras 8-014, 19-011, 20-002, 21-072

<sup>56</sup> CHITTY ON CONTRACTS: HONG KONG SPECIFIC CONTRACTS, 984 para 11-338 (Sweet & Maxwell, 2013); *Hammer and Barrow v Coca-Cola* [1962] NZLR 723,730.

of goods to the carrier did not constitute delivery.<sup>57</sup> In short, so long as the drone carrier is not an employee or agent of the seller, the carrier will be viewed as the buyer's agent. The seller only needs to deliver the goods to the drone carrier to invoke a delivery.

Sellers can entrust drone carriers before which a delivery contract must be entered into. Under s.34 (3) of SOGO, unless the contract states differently, the seller must take into account the nature of goods and other circumstances to make a "reasonable" contract with the carrier on behalf of the buyer.<sup>58</sup> If the seller does not or omits to do so, and the goods are lost or damaged in the course of transit, the buyer may decline to treat the delivery to the carrier as a delivery to himself or may hold seller responsible for damages.<sup>59</sup>

The test for "reasonable" was discussed in *Thomas Yung & Sons Ltd v Hobson & Partners*.<sup>60</sup> In that case, the seller sold some electric engines and engaged a train company as carrier. The delivery contract stated that the delivery was at "owner's risk". The engines were damaged during the train delivery because the engines were not properly strapped to the carriages. The Court held the buyer was entitled to refuse to accept the machines because the seller failed to make "reasonable" contract in opting for delivery under "company's risk" rather than "owner's risk".

It is therefore necessary for businesses entering into such contracts to negotiate reasonable terms on behalf of the buyer such as requiring the delivery to be made at the "drone delivery company's risk". Circumstances peculiar to drone delivery include strapping the goods tight to the drone itself, wrapping the drone properly to ensure it will not be pecked by birds and ensuring the environmental lapse will not affect quality of goods.

### 6.2.2 Upon Arrival

Now that the drone delivery contract has been entered into and the delivery drone arrives at the balcony of the buyer's home, what is next? Section 36(2) of SOGO provides that a buyer should be given a reasonable opportunity to examine goods for the purpose of ascertaining whether they are in conformity with the contract.<sup>61</sup>

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<sup>57</sup> *Gailbraith v Block* [1922] 2 KB 155.

<sup>58</sup> Sales of Goods Ordinance (Cap. 26), s 34(3).

<sup>59</sup> CHITTY ON CONTRACTS: HONG KONG SPECIFIC CONTRACTS, *supra* note 56 at 984 para 11-340.

<sup>60</sup> [1949] 65 TLR 365.

<sup>61</sup> Sales of Goods Ordinance (Cap. 26), s 36(2).

This seems to be a difficult condition for drone deliveries because drones are only designed to follow GPS systems and drop goods. In this light, parties may need to add terms in their contract to displace of this requirement. Now the goods have arrived, but some of it might have been eaten by birds or turned bad because of the cold weather in high altitude, who bears the risk?

Under section 35 of the SOGO, the rule is that the seller must bear any loss of deterioration which occurs due to extraordinary or unusual circumstances during transit; meanwhile the buyer must accept goods which only underwent ordinary wear and tear.<sup>62</sup>

In effect, if the goods are indeed pecked by birds or damaged because of a high altitude, the seller will bear such risks. Whereas if the subject of the delivery is McDonald's ice-cream and it melts during the drone delivery, the buyer shall bear such risk.

## 7. Duties of Drone Carriers in Hong Kong

Drone Carrier business seems to be lucrative. However, similar to other delivery services, it is important for drone carriers to understand their responsibility towards their clients.

### 7.1 Duty of Drone Carrier as Bailee

Aside from the drone carrier's responsibility as a contractual party to the delivery contract, they also assume the position of bailees. Drone carriers are bailees because they (a) take possession of chattels; (b) consent to the possession of chattels;<sup>63</sup> and (c) the seller retains superior interest of the chattel. Holt CJ had suggested six types of bailment in *Coggs v Bernard*.<sup>64</sup> In fact, generally bailment is divided into two categories, namely gratuitous bailment and bailment for rewards.<sup>65</sup> Applying the general categorization, the type of bailment of the drone delivery industry is bailment for rewards since the drone carriers will charge either the buyers or the sellers the shipment fees<sup>66</sup> and such charge is considered a reward.

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<sup>62</sup> *Id.* s 35; *Bull v Robinson* [1854] 10 Exch 342, 346; See *supra* note 56 paras 6-017, 18-222, 19-114, 20-089, See *supra* note 57 986 para 11-344.

<sup>63</sup> See LS SEALY AND RJA HOOLEY, *supra* note 11, at 78-79.

<sup>64</sup> (1703) 2 Ld Raym 909; The six types of bailments suggested by Holt CJ in the case are: (1) depositum; (2) commodatum; (3) locatio et conduction; (4) Latin vadium; (5) when goods or chattels are delivered to be carried, or something is to be done about them for a reward to be paid by the person who delivers them to the bailee, who is to do the things about them and (6) when there is a delivery of goods or chattels to somebody, who is to carry them, or do something about them gratis, without any rewards for such his work or carriage.

<sup>65</sup> See LS SEALY AND RJA HOOLEY, *supra* note 11, at 80-81.

<sup>66</sup> It is estimated that the average shipment fee by using drones can be low as US\$2. See D'Onfro, *supra* note 2.

According to *Ashby v Tolhurst*,<sup>67</sup> the court held that possession is needed to prove that there is bailment. Usually the drone carriers will obtain chattels that have to be delivered in advance and this is actual possession. Therefore the first element is satisfied.

The bailees' consent is necessary according to *The Pioneer Container*.<sup>68</sup> The drone carriers and their clients will usually enter into contracts beforehand and this shows that the drone carriers consent to the possession of chattels.

As the drone carriers are obliged to either return the chattels or to deal with them as instructed by their clients – the bailors.<sup>69</sup> This element is also satisfied.

## 7.2 Liability of Drone Carriers as Bailees

Drone carriers have to fulfill their duties as bailees. As they are common carriers, the liability will be a strict one unless there are unexpected circumstances such as Act of God. If there is the deviation of the conduct in the bailment the carriers can be sued for repudiatory breach, conversion and restitution. To discharge its duties, the company has to satisfy the reasonable care requirement as suggested by *Houghland v RR Low (Luxury Coaches) Ltd*,<sup>70</sup> where the court held that the bailee's standard of care is determined by the circumstances of the particular case. Apart from these, the nature of the goods being delivered may result in a different standard of care. Some countries such as Russia are now trying using drones to deliver food like pizza.<sup>71</sup> The food may go bad if it takes a long time to deliver or the weather is extremely hot. By applying *China Pacific SA v Food Corporation of India (The Winson)*,<sup>72</sup> the bailees have the duty to preserve the food.

There are many cases concerning the duties of delivery companies as bailees all over the world, including Hong Kong. Usually the ubiquitous problem that the delivery companies facing is theft. In addition to theft, the perishability of the goods is also one of the many concerns. The standard of the care varies due to the different surrounding circumstances of the case like the nature of the good and the precaution measures the delivery companies had taken. For instance,

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<sup>67</sup> [1937] 2 KB 242.

<sup>68</sup> [1994] 2 AC 324.

<sup>69</sup> JUDITH SIHOMBING, COMMERCIAL LAW IN HONG KONG (LexisNexis, 2013) 421.

<sup>70</sup> [1962] 1 QB 694.

<sup>71</sup> *Your Drones Arrived! Russian Pizzeria Launches Unmanned Delivery*, RT.COM (Jun. 23, 2014), <http://rt.com/news/167936-russia-drones-pizza-delivery>.

<sup>72</sup> [1982] AC 939.

in *China Pacific SA v Food Corporation of India (The Winson)*<sup>73</sup> concerning the delivery of wheat, the court held that the bailee owed a duty to take measures to prevent the wheat from deteriorating.<sup>74</sup> In *Berthier Godown Ltd v Cheung Lee Warehouse and Transportation Ltd*,<sup>75</sup> where some of the bailor's newsprint sustained damage from water escaping from an overhead duct, the court held that the bailee failed to prove that appropriate care was exercised.

Although the standard of care varies from case to case, one important guideline can be concluded from *Dense Billion Limited v Hui Ting Sung and Others*.<sup>76</sup> The court, by applying *Pitt Son & Badgery Ltd v Proulefc SA*<sup>77</sup>, held that despite slight foreseeable risk of loss it is impossible for the bailee to say that precaution measures need not be taken.<sup>78</sup> When taking this case into consideration, what are the foreseeable risks of loss during the drone delivery process? How can the drone delivery companies fulfill the reasonable standard requirement?

On top of that, under the law, it is the responsibility of sellers (bailors) to deliver goods and not to interfere with their lawful possession of goods after delivery. The seller (bailor) owes a duty to inform the drone carrier (bailee) if the goods are dangerous and to ensure that the goods are of merchantable quality and fit for purpose.<sup>79</sup> <sup>80</sup> Failure to inform the drone carriers the danger of the goods means the seller (bailor) will be liable to losses suffered by the buyer. On contrary, if the drone carriers neglect the warning, the seller (bailor) will not be liable. This is important because drones are vulnerable to surroundings including birds and wind as aforementioned. Additionally, additional measures may need to be taken when drone carriers deliver hazardous items such as chemicals like pesticides or fertilizers, measures to stabilise the drone may have to be taken to reduce the risk of explosion as a result of a shaky drone.<sup>81</sup>

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<sup>73</sup> [1982] AC 939.

<sup>74</sup> *China Pacific SA*, *supra* note 73, headnote.

<sup>75</sup> [1985] 2 HKC 1.

<sup>76</sup> [1996] 2 HKLR 107.

<sup>77</sup> (1984) 52 ALR 389.

<sup>78</sup> *See D'Onfro*, *supra* note 2.

<sup>79</sup> *Derbyshire Building Co Pty Ltd v Becker* (1962) 107 CLR 633.

<sup>80</sup> BRENDAN PENTONY, STEPHEN GRAW, DAVID PARKER AND KETURAH WHITFORD, *UNDERSTANDING BUSINESS LAW* (6<sup>th</sup> edn, LexisNexis, 2013) 624.

<sup>81</sup> Drones are used in agriculture nowadays. See Jason Koebler, *Drones Will Revolutionize Farming First Not Delivery* (Dec. 16, 2013), <http://motherboard.vice.com/blog/drones-will-revolutionize-farming-first-not-delivery/>.

### 7.3 Drone Carriers as Bailees Who Can Sue Third Parties

The drone carriers as bailees can sue the third parties as suggested by *The Winkfield*.<sup>82</sup> They can sue third parties for trespass, conversion and negligence.<sup>83</sup> As such, if someone takes down the drones during the delivery process, the drone carrier can file lawsuit against him/her. However, the drone carriers, after recovering the amount from the wrongful third parties, need to pay the surplus of damages to the seller (bailor).

### 8. Conclusion

All in all, drones are our future. Not long after today, drones will play a major part in cutting costs for the retail sector. What is more, it is anticipated that in the long run, roads in Hong Kong shall be planted with trees and flowers because majority of the traffic shall be diverted above our heads (drones) and beneath our grounds (MTR)! Welcome to the Green Hong Kong!

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<sup>82</sup> [1902] P 42.

<sup>83</sup> LS SEALY AND RJA HOOLEY, *supra* note 11.