

# MIKE POWER





# GREEN SCREEN

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# 1. Introduction

## About the author

Mike Power is a British freelance investigative journalist specialising in drugs and technology.

His book *Drugs 2.0* was published by Granta in 2013 in the UK, and 2014 in the USA and Germany, and documented a new digital frontline in the war on drugs, revealing how users and dealers have outmanoeuvred law enforcement and created a global, online black market in narcotics.

His reports around the emergence of so-called “legal highs” - recreational drugs manufactured in Chinese laboratories that are legal in most countries - have prompted complex policy debates in the UK and beyond.

His in-depth research into the Dark Web, Tor, Bitcoin and cryptomarkets predicted accurately the explosive growth in digital drug dealing that we have witnessed in the past three years.

His "Drugs Unlimited" report for Matter.com documented an undercover mission to produce and import to the UK a new, legal drug – using only a laptop – and won the 2014 British Science Writers Association's prize for best investigative journalism.

Power offers colourful reportage and research on this topic, from undercover infiltration of clandestine labs in Shanghai, to treks through Colombian coca fields, and frank debate with cryptomarket drug dealers, and argues the case for a wide-ranging and radical rethink of all drug laws in the digital age.

Power has reported extensively from Panama and Colombia for Reuters, and his clients include The Guardian, Mixmag, Matter.com, Deutsche Welle, The Mail on Sunday, The Sunday Herald, Lonely Planet, Dazed & Confused, Granta, The London Evening Standard and many more.



## **We propose: a digital cannabis market**

### **Objectives**

- To outline a novel strategy for controlling the cannabis market, making it safer through the creation of a regulated digital marketplace model.
- To limit access to this system, by technical design, by underage cannabis users through industry-leading identity control and verification procedures that will be enforced upon both purchase and delivery.
- To offer a roadmap to legislators looking to act in the public interest and modernise and formalise this chaotic and archaic industry.

### **Assumptions**

This paper assumes that the so-called Tide Effect of cannabis policy innovation seen in the US, Canada, Uruguay and elsewhere will soon be witnessed in the UK, and stands prepared in full readiness for such a rational time when cannabis law reform has been enacted. It includes in its ambitions the fostering of a political, cultural and technological climate whereby such conditions will come to exist.

As cannabis law increasingly liberalises internationally, whether for medicinal or recreational use, political pressure for its legalisation in the UK is likely to continue building – especially when proper consideration is made of its potential as a net contributor to the public purse via taxation, rather than the current burden it places upon public finances through the cost of enforcement.

It is beyond this paper's remit to make the case for cannabis law reform in the UK or globally; we believe that position has been argued successfully by many notable organisations, whose valuable work has informed our own and to whom we are grateful.

### **Arguments**

We believe that Britain's multibillion-pound cannabis market should be developed and operated exclusively online by a private sector that is stringently controlled and regulated by democratically elected governments.

By almost any metric, a digital and legal solution such as the Online Cannabis Market (OCM) we propose offers many significant improvements upon all current models for the production, distribution and use of the drug.

A controlled and regulated online market is both essential and long overdue in order to protect users from the risks of the illicit market; to limit access to younger users; to offer safer products and increase consumer choice; to develop less harmful products and safer routes of administration; and to control marketing and advertising in any eventual legal context.

While cannabis remains illegal in the UK, use rates – including rates of problematic use – remain roughly stable, with almost 6.5% – or 2.1 million adults in England – using the drug every year (Statistics on Drug Misuse England, 2016 )

Yet that market is currently served by three models, all of them illicit, that present, in descending order, a number of undesirable sociocultural, practical and medical impacts.

The three models are:

1. Traditional dealer networks, ranging from anonymous street-dealing to more formalised, organised criminal networks and neo-social supply.
2. Illegal suppliers on the dark web, who use the encrypted web browser Tor, encryption software (PGP or Pretty Good Encryption) to obscure user data and cryptocurrency (generally, if not exclusively, Bitcoin) to obfuscate payees' and vendors' identity.
3. Small-scale homegrowers and their associated socio-commercial supply.

We will explore these models and their negative effects in depth later in this study, and outline the ways that an OCM might address and solve these problems using free-market principles to influence consumer choice.

Stronger strains of cannabis, such as the badly named “skunk” varieties, now dominate the UK market, since they offer a better commercial return for operators in an illegal environment. Research suggests that strains such as these with high levels of tetrahydrocannabinol – the psychoactive chemical in cannabis that causes its distinctive “high” – can increase the harms that may be associated with cannabis use in those with pre-existing mental health conditions.

Given a favourable legal climate, OCMs would offer users a range of products with a balanced cannabinoid profile, including higher-strength products and even concentrates, and propose the creation of new strains bred specifically with Dutch, Spanish and American expertise to increase the cannabidiol (CBD) content of each variety, since CBD has been demonstrated to act as an antipsychotic.

## Conclusions

The central aim of this paper is to provide practical, workable suggestions for the online supply of cannabis in what we consider to be the inevitable event of cannabis law reform in the UK and similar countries.

We believe that, in common with many digital disruptors, the current, so-called dark web model of online cannabis sales and delivery offers a precursor to what we believe will be the final, preferred model: digital marketplaces for cannabis sales, using standard delivery mechanisms to answer market needs.

The effect of such a model would be to protect users; to eliminate incentives for an illicit marketplace through a combination of convenience, pricing, quality and choice; and to create incentives for the uptake of less harmful products and consumption practices through pricing, tax and regulatory models.



## 2. Sector analysis – UK

**As outlined in the introduction, the UK retail cannabis market is currently fulfilled by the following participants:**

1. Traditional dealer networks, ranging from anonymous street-dealing to more formalised, organised criminal networks and neo-social supply.
2. Illegal suppliers on the dark web, who use the encrypted web browser Tor, encryption software (PGP or Pretty Good Encryption) to obscure user data and cryptocurrency (generally, if not exclusively, Bitcoin) to obfuscate payees' and vendors' identity.
3. Small-scale homegrowers and their associated socio-commercial supply.

(NB: We have not included the workings of organised crime gangs operating major/multiple growhouses for the purposes of this paper, since small, private, retail-level customers, upon whose needs and behaviour we will focus, do not access the market at that level of the supply chain.)

### 1. Traditional dealer networks

This is the most commonplace, profitable and socially disruptive model of cannabis supply.

First, we have the chaotic street-dealing scene common in various parts of most cities in the UK. Given the associated social costs of violence between customers and dealers, internecine gang fights over territory and custom, and simple robbery, this model – with its links to organised crime on the supply side – is the least preferable under current prohibitory measures.

Customers face theft, fraud and arrest, as well as exposure to more dangerous drugs and criminality. Consumer choice in this most distressing of distress purchases is non-existent, with quality, weight and freshness of product all at a minimum, or non-existent, standard.

Policing costs drain the public purse and divert already curtailed resources from other crime.

Next, many dealers operate from private premises, usually their homes. Without legislation to cover opening hours, and with dealers operating outside current business zoning laws, such arrangements cause significant disturbance to neighbourhoods, with irregular hours being kept by both dealers and customers.

Delivery services are common in major cities, with increased prices reflecting the extra time and effort made. Cannabis is often a sideline for dealers offering a wider range of drugs, often, but not exclusively, cocaine powder and MDMA (ecstasy) pills or powder and prescription tranquilisers.

Finally, we have the use of commercial premises under cover of some other business. One such example is the infamous Green Leaf cafe in Clapham, south London. At the 2004 trial of owner Errol Anderson, the prosecution noted pithily that the cafe's £620,000 revenue "could not possibly be accounted for by the sale of jerk chicken and patties".

Customers noted that cannabis deals were "just handed out ... from bin liners full of the stuff".

While such setups – which are replicated by many current market operators – cause less social disturbance, it is still not sustainable, or socially acceptable, to have illicit drug dealers operating in an uncontrolled public marketplace with only the mild threat of discovery and punishment serving as a deterrent to both market operators and opportunistic thieves.

## **2. The dark web**

Digital cannabis markets exist today and are hugely profitable, although they remain completely illegal, untaxed and unregulated. Yet their choice of products and systems of overnight delivery and customer feedback offer major upgrades on all other current fulfilment models.

These systems, if seen through a lens of digital entrepreneurship, rather than as acts of criminality, can guide any interested party looking to create a roadmap towards a regulated online cannabis market in the future.

Darknet Markets (DNMs) use the closest model of online cannabis sales in the UK to the digital solution we propose, with several significant differences. The most important distinction is that these sites also offer far more dangerous drugs – heroin, cocaine (in both crack and powder form) and benzodiazepines are a few curious mouse clicks away from the cannabis offerings.

We propose a strict market segmentation that would prevent cannabis users of all ages from casual exposure to addictive and dangerous drugs.

### **History and functionality**

DNMs first came to prominence in October 2013, when the FBI arrested Ross Ulbricht for operating the Silk Road, a site connecting dealers and users both nationally and internationally that had been running since February 2011. Ulbricht is now serving life imprisonment for money laundering, computer hacking and conspiracy to sell narcotics.

The Silk Road was a sprawling bazaar, wherein users could buy any drug they desired and have it shipped to them by regular mail. Such mail-order drug services had existed before, but the Silk Road perfected the form in a number of groundbreaking ways.

The site was hosted on the encrypted Tor network, meaning users needed specialist software to access the site. It also meant that law enforcement could not easily discover the hosting server's whereabouts. Bitcoin offered users and dealers pseudonymity in relation to payments, and the use of PGP encryption software meant addresses for postal delivery were shared only with their intended recipients.

The Silk Road sold every drug imaginable, via a storefront reminiscent of the early iterations of web retailers such as Amazon and eBay, and dealers paid a percentage of each sale to the site's owner. The market operated pretty much unhindered, with more than 1.3m sales generating \$1.2bn in revenue and \$78m in commission in just over three years, according to the September 2013 criminal complaint. There were 146,946 buyers and 3,877 vendors.

Since Ulbricht's arrest, dozens of markets have risen to prominence as public awareness and adoption of the technology underpinning them has grown. All of these DNMs have absconded with customers' funds upon closure, which are held in centralised Bitcoin wallets controlled by market operators, with two noble exceptions: a site named Agora, which warned users of its imminent shutdown and allowed the withdrawal of funds held in the site's



escrow system; and Black Market Reloaded, which allowed users to withdraw millions of pounds, dollars and euros before closing due to security concerns. Criminals, it seems, are not always dishonest.

Markets operating in late 2016 include Dream, Valhalla, Hansa, AlphaBay and dozens of others. URLs for these markets, and site status, can be seen at [deepdotweb.com](http://deepdotweb.com).

### **How do they work?**

Users make deposits and purchases using Bitcoin, a pseudonymous cryptocurrency, then await delivery via standard mail systems. Vendors deploy great ingenuity to prevent the smell of drugs escaping from the packages, such as using moisture-barrier bags (MBBs) and vacuum seals, with many swabbing the packages between wrappers using alcohol. Anti-x-ray materials are used in some cases, as well as professional mailing packages common to internet shopping services, ensuring that the contents are not easily visible and in many cases are indistinguishable from standard commercial mail.

### **How big are the DNMs?**

Turnover has risen from an estimated \$15-17m in 2012 to \$150-180m in 2015, according to data cited in the Economist in July 2016. However, that underestimates the true picture as discovered in the police capture of the Silk Road server, as noted above.

The number of American drug takers who used DNMs jumped from 8% in 2014 to 15% this year, according to the Global Drug Survey, an online study of 100,000 drug users. The UK figure stands at 12% of users who responded to the 2015 Global Drug Survey.

A system scrape of one of the busiest markets, Dream, on 25 August 2016 revealed 32,283 separate offers for drugs. Of those, cannabis accounted for 8,896 listings – almost a third of all listings on the site. Within cannabis, herbal cannabis accounted for 3,825 of the 9,000 or so listings. The remainder were split between hashish and other concentrated forms of the drug.

### **How many users do DNMs have?**

The markets have hundreds of thousands of users every month, with the most popular products being cannabis, ecstasy and cocaine. Other drugs, such as methamphetamine and heroin, are permanently available, as well as more exotic offerings, such as DMT and LSD.

Every country in the EU now has some kind of local variant on the market, with individual vendors setting up stores rather than trusting an escrow model.

### **Why do people use DNMs? What are the benefits of buying online compared with buying from a street or social-supply dealer?**

The technical difficulties of acquiring Bitcoin, accessing the markets and learning encryption are fairly steep barriers to entry. The threat of an exit scam, non-delivery or interception are further material risks that buyers face, along with the inconvenience of waiting for a delivery to be made. Nonetheless, Darknet Markets have grown exponentially since their inception.

An analysis of users' motivations would reveal the qualities any new offering in the digital cannabis space must emulate in order to compete.

#### **Benefits of online sourcing**

- Free-market competition
- Price
- Quality
- Choice of products
- Verification of product and service
- Reliability
- Speed of delivery

**Later, we will analyse which of these characteristics could be taken forward and used in our model.**

### **3. Small-scale homegrowers**

The final participant in the UK retail cannabis market is perhaps the most benign: the homegrower and his or her associated personal/social supply.

In contrast to the commercial use of residences and premises for large-scale growth, the homegrower of 2016 tends to produce enough cannabis for his or her own needs, with a small amount saved for sale or barter to friends and relatives. Operating like an informal version of the ad hoc cannabis clubs of the EU – Spain, in particular – these producer-consumers cause little social ill or distress and are included here mainly for the sake of completeness.

For indoor crops, high energy costs, electricity theft in some cases, the danger of fire or disturbance from the noise from exhaust fans and the associated odours of flowering cannabis are among the annoyances and dangers caused by this model to residents and neighbours.

Growing a small number of plants either indoors or outdoors, these operators tend to produce no more than a few hundred grammes per year. As a rough guide, one gramme of cannabis, depending on potency, can be made into about three or four joints, depending on the users' taste and tolerance, meaning many homegrowers aim mainly for self-sufficiency.

Vaporisation and edibles are more economical means of consumption, but it is accurate to say that the majority of regular, casual cannabis users smoke between 3g and 7g a week.

The motivation of many homegrowers is to supply themselves or associates with cannabis for medical use, such as multiple sclerosis patients, cancer patients and HIV patients who need to stimulate their appetite following chemotherapy, and others with chronic pain or migraines.



### 3. International legal changes

Cannabis prohibition worldwide is crumbling. The Tide Effect of legal changes has already headed north from the US, where four more states voted to legalise cannabis in November this year:

Canadian prime minister Justin Trudeau aims to implement radical cannabis law reform in spring 2017.

He told Canadian politicians in April 2016: “We believe in legalisation and regulation of marijuana, because it protects our kids and keeps money out of the pockets of criminal organisations and street gangs.”

The Canadian task force’s discussion paper, “Toward the legalization, regulation and restriction of access to marijuana: discussion paper” laid out the following objectives that its new policy must achieve:

Protect young Canadians by keeping marijuana out of the hands of children and youth.

Keep profits out of the hands of criminals, particularly organized crime.

Reduce the burdens on police and the justice system associated with simple possession of marijuana offences.

Prevent Canadians from entering the criminal justice system and receiving criminal records for simple marijuana possession offences.

Protect public health and safety by strengthening, where appropriate, laws and enforcement measures that deter and punish more serious marijuana offences, particularly selling and distributing to children and youth, selling outside of the regulatory framework, and operating a motor vehicle while under the influence of marijuana.

Ensure Canadians are well-informed through sustained and appropriate public health campaigns, and for youth in particular, ensure that risks are understood.

Establish and enforce a system of strict production, distribution and sales, taking a public health approach, with regulation of quality and safety (eg: child-proof packaging, warning labels), restriction of access, and application of taxes, with programmatic support for addiction treatment, mental health support and education programs.

Continue to provide access to quality-controlled marijuana for medical purposes consistent with federal policy and Court decisions.

Conduct ongoing data collection, including gathering baseline data, to monitor the impact of the new framework.

The wave is heading south, to Latin America, where countries including Uruguay, Mexico, Brazil, Colombia and Chile are either creating new, legal markets for medical cannabis or relaxing rules on possession and cultivation. Meanwhile, the tide has reached the shores of the EU, where Germany is preparing for full medicinal legalisation in spring 2017.

While in the past all discussion of the benefits and practicalities of a legal cannabis market were by necessity hypothetical at best and fanciful at worst, researchers can now draw conclusions from hard data or valid projections by studying the US market and consumer behaviour there.

Following a vote on 8 November 2016, California – the fifth-largest economy in the world and home to tech giants Apple and Google – is expected soon to have a recreational marijuana market bigger than those in Colorado, Washington, Oregon and Alaska combined, according to Ethan Nadelmann, executive director of reform advocate the Drug Policy Alliance.

“When I talk to everybody from allies to government officials in Mexico and I ask them what’s it going to take to transform the debate,” he told the Guardian, “the response to me is when California legalises marijuana.”

The votes by US citizens in California, Massachusetts, Maine and Nevada in November 2016 have not only transformed the debate, but also redrawn the battle lines in the War on Drugs. The citizens of these states now join those of Alaska, Colorado, Oregon, Washington and Washington DC, all of whom have voted in favour of similar measures in recent years, meaning that about 20% of the US population is now free to use cannabis (although citizens in DC are not technically free to use cannabis, due to Congress opposition).

In addition, Arkansas, Florida and North Dakota legalised medical cannabis in November 2016, meaning that the US now has 29 states offering legal medical marijuana and eight states with legal recreational cannabis markets.

Given the nature of US law, a patchwork of differing regulations and restrictions apply. Depending on your state, personal possession limits can vary by as much as 150% (people in California may carry an ounce, or 25 grammes, while in Maine more than double that quantity may be carried). Likewise, laws on personal cultivation of the plant differ from state to state, as does legislation on where or whether stores selling the drug can legally operate.

### Age limits and child protection

What all the US states to have legalised cannabis have in common is an age limit set at 21, rather than 18. This should be adopted as an international standard in the event of wider legalisation, and as a legal requirement for purchase in the OCM model.

We agree with Californian legislators who, in the Adult Use of Marijuana Act 2016, noted:

“Currently, children under the age of 18 can just as easily purchase marijuana on the black market as adults can. By legalising marijuana, the Adult Use of Marijuana Act will incapacitate the black market and move marijuana purchases into a legal structure with strict safeguards against children accessing it. The Adult Use of Marijuana Act prohibits the sale of non-medical marijuana to those under 21 years old and provides new resources to educate youth against drug abuse and train local law enforcement to enforce the new law. It bars marijuana businesses from being located within 600 feet of schools and other areas where children congregate. It establishes mandatory and strict packaging and labelling requirements for marijuana and marijuana products. And it mandates that marijuana and marijuana products cannot be advertised or marketed towards children.”

While we support and applaud US voters’ democratic choices to enact rational cannabis controls, we believe that any physical sales of cannabis through bricks-and-mortar stores create a new, distinct and unaddressed set of challenges and problems.

For example, although the Californian law “bars marijuana businesses from being located within 600 feet of schools and other areas where children congregate”, it seems probable that cannabis stores, no matter where they are located, will quickly become locations that attract young people, along with cannabis users of any age. This will increase the likelihood of secondary markets and antisocial behaviour, as well as increased levels of public consumption and intoxication.

Given that public consumption of the drug is barred in all US states where cannabis is legal, punishable by fines from \$100 (Alaska) to \$999 (Colorado), it seems contradictory and incoherent to offer the drug for sale in public spaces. As we reduce the burden on lawmakers to pursue citizens for the choice to consume a mainly benign plant by controlling its production and distribution, it seems irrational to create spaces where new laws are overwhelmingly likely to be broken.

**This problem, we argue, is best solved by virtualising the industry, removing the market from our streets and neighbourhoods completely and reducing its visibility to zero for all but those who actively intend to participate in it – online.**

To the Canadian taskforce currently deliberating legal changes that will make the production, distribution and sale of the plant legal, we would suggest that the proliferation of retail premises selling cannabis, under whatever guise, in many US cities has normalised use of the drug to such an extent that even regulations forbidding the advertising and marketing of the drug, to discourage greater uptake by young and vulnerable users, cannot and do not achieve their goals.

These scenarios are no longer purely hypothetical: they are urgent public health and law-and-order issues that need to be addressed urgently.

## 4. Practicalities

### Governing principles

The solution to cannabis sales we propose would operate entirely within the constraints of regulated market economics. OCMs' goal is to limit young people's access to cannabis by undercutting black markets on price, choice and convenience, and to supply pure and dose-measured herbal cannabis, cannabis resin and edibles to adults for use in their homes.

All products should be taxed. Taxation should be higher on higher-strength products, as in the alcohol model.

### Age limit

The age limit for users should be 21, initially, until evidence is gathered to demonstrate that a lower age limit would not increase harm.

### Harm reduction information

It is important to note that, in a liberalised cannabis model, it is possible that some users would try the drug for the first time, or for the first time in many years, and that they might have a difficult or challenging experience. As such, OCMs have a responsibility to ensure that users have a safe and enjoyable experience, which is best achieved through education and information.

Also, we note that young and inexperienced users would be in the vanguard of legal use; they, too, would need clear guidance on how to use the products safely and enjoyably.

Simple advice, such as never using cannabis with alcohol, before driving or operating heavy machinery or looking after children, should be included with every purchase, in common with the documentation supplied with tranquilisers, sleeping tablets and alcohol.

OCMs should offer users detailed information on the safest use of the products on sale, from dose size and strain choice to ideas about pulmonary and respiratory health. OCMs should also advise the sale of low-price vaporisers that heat the herbal cannabis, allowing the user to inhale the THC vapours from the plants and avoid tars and carcinogens.

OCMs should not recommend daily or heavy use of cannabis; indeed, they should counsel strongly against it in all labelling. They should offer tools such as online questionnaires, helplines and chatbots to direct those who felt their use was becoming problematic to local health or mental health services, and impose limits on users' monthly purchases.

OCMs should offer drug-driving test kits similar to those used by law enforcement worldwide so that users could check their ability to drive, along with the advice that UK drug impairment levels have been set so low that they risk losing their licence if they drive within even as much as 24 hours from last consumption.

They should follow the precedent set by guidelines on medicines, such as those for medicines containing opiate-based analgesics such as codeine, muscle relaxants and tranquilisers such as benzodiazepines, and drugs in the Zopiclone class.



OCMs should include a dose and duration-of-effects chart for all edibles and, in a move the alcohol industry may like to emulate, publish accurate data regarding how long the effects of the drugs they sell will last. A 2015 study by Honda found that one in three British people admitted to driving the morning after heavy drinking and that 40% of them may still have been over the limit.

### **Quantity and frequency of purchase**

We propose a limit on each customer's account of 30g of herbal cannabis or 30g of cannabis resin a month to discourage resale on secondary markets, thus limiting resale and increased access to younger users. Regulation around concentrates should follow similar guidelines: the sale of no more than 3g of concentrate per person a month should be permitted. In terms of edibles, OCMs should allow adults to buy up to a limit of 30 doses per month. These limits are set deliberately low, and it must be acknowledged that any limit in such unexplored territory as this is by its nature arbitrary. It is proposed that these limits would be subject to revision in years following any law change, which should be accompanied by a research programme evaluating the impact of those legislative changes on users' physical and mental health, and, for example, the incidence of cannabis-related road traffic accidents. It is conceivable they could be increased or decreased; these self-imposed limits serve as a starting point from which future research could be measured and monitored, and take as their lead the limits imposed by many of the US jurisdictions where cannabis law reform is in place.

If users continue to buy cannabis from illicit suppliers, a case could similarly be made to increase these levels, thus denying criminals income sources and protecting users from unsafe products.

### **Helplines/chatbot**

Many people who seek help from emergency services while using cannabis suffer feelings of dread and imminent danger and can become fearful. We propose that a helpline, staffed by bots and human operators offering calming advice, could help prevent extra pressure being applied to hard-pressed emergency services. Those who feel their use is becoming problematic, or dependant, should also be offered advice.

### **Website user journey**

Registered and age-verified users would choose from a range of products offered in a typical web store interface and add items to a basket. After reconfirming their ID and making payment, they would check out and choose a delivery service, which could be same-day, overnight, signed-for or via regular mail, depending on the level of ID verification they have provided and any exemptions sought. Receiving addresses should be limited only to territories that have similarly regulated their cannabis markets.

Standard web sales procedures should be followed, such as email contact upon purchase, dispatch and receipt. Feedback could then be offered by customers with proved purchases against the following categories:

- Quality
- Freshness
- Weight
- Aroma
- Effects
- Packaging
- Delivery time

- Ease of purchase/customer service

OCMs should incentivise detailed customer feedback, especially with regard to effects, to increase the public knowledge base around strains. OCMs should include categories such as: onset of effects; dose size; duration and nature of high, especially in regard to euphoria; motivation levels; paranoia; hunger; lethargy; racing thoughts; and anxiety, since these effects can be caused – or reduced – by cannabis. These incentives could be offered as goods and services, such as free delivery or discounts, and would increase users' status in the eyes of fellow market participants.

Leafly.com's cannabis strain reviews currently offer much useful information to users in the US; a UK-specific version is not hard to imagine and would not be difficult to produce, given the right legal environment.

### **Products for sale**

OCMs should sell the following categories of cannabis:

#### **Herbal**

A variety of strains from indica-dominant, for more physical effects, to cerebrally stimulating sativa-dominant to balanced hybrids should be offered. A range of different strengths should also be offered, from low THC options, common to African commercial cannabis, up to 20% THC, typical of many sensimilla/skunk-type products.

Strengths would be clearly signposted and would require user opt-in via check boxes or similar, and should carry appropriate and consistent warnings. Varieties could rotate through the year.

We propose the sale of high-CBD strains and varieties that can address anxiety, mood and sleep problems. An example of this is Charlotte's Web, a cannabis strain with less than 0.3% THC that has gained popularity among medical users in the US. It was first cultivated by the Stanley Brothers breeders in Colorado for a young epileptic patient named Charlotte. This strain has no psychoactive effects.

Pre-rolled joints containing only cannabis may be popular with some users and should also be offered for sale.

**Hashish**

A range of different hashes from Morocco, Afghanistan, India and Pakistan should be offered. Their compact size makes them ideal for posting, and their effects profile is more balanced than many modern herbal cannabis varieties.

**Edibles**

A range of simple, edible cannabis products with clear doses and instructions for use should be offered. For fuller details on this, see below.

**Tinctures**

Three strengths, from mild to strong. Sold in labelled medical bottles, with safety seals, minimal branding and no medical claims. Ethanol extractions of certified goods only should be permitted, with clear information on THC quantity per standardised 5ml dose.

**Vape or e-juice cartridges**

Should be sold in a wide range of strengths and varieties, including high-CBD strains.

**Concentrates**

Including oils, shatter and rosin. NB: all solvents will be purged from finished products in professional labs. For more on this category, see below.

**Ointments and salves**

Some users have reported strong anti-inflammatory and analgesic effects from ointments and salves. As such, we believe sites should be able to sell them.

**Accessories**

Vaporisers and childproof storage cases should be available.

**Edible cannabis**

“We consider 10mg to be a unit or dose of THC,” said Christie Lunsford, director of operations at leading Colorado-based retailer 3D Cannabis Center.

We feel it is too early to suggest that a UK cannabis edibles market should not be strictly regulated, especially online. The number of emergency medical cases in jurisdictions with legal cannabis models has risen, often in line with the use of edibles – sweets, candies or cakes which contain a set, stated quantity of THC.

Since the drug is more efficiently metabolised via this route of administration, many people find it takes practice to dose accurately. Equally, many users seldom ingest cannabis in this way and can be taken aback by the strength of the experience. The slower impact of the drug when eaten can also surprise new users. As such, it should be advised, on packaging, that the onset of the drug can be slow, especially if taken after heavy food such as a dessert.

Cannabis edibles should not come in child-friendly sweet, cake, biscuit, drink or chocolate form, as is common in the US and on the black market. Instead, we propose that OCMs sell small pastilles or gums, with the THC quantity they contain labelled clearly on each item and on all packaging. The size of the pastilles or lozenges should reflect the size of the dose. They should contain no added sugar or flavourings, except strong peppermint, menthol or cardamom oils, for example, to dissuade infant palates that accidentally come into contact with them. High-cocoa content chocolates of over 70% are also unappetising to most infant palates and would appeal to adult users.

We believe that, if edible cannabis were not sold online in dose-controlled and clearly labelled packages, a secondary market could quickly flourish. These higher-potency products could easily be produced by customers – but without any labelling. We believe it is better to have a regulated market than an unregulated one.

The simplest solution to this issue is to test, regulate and clearly label all edibles and to offer them in sealed, prepared packages. While a standard dose of THC is 10mg, the effect can vary greatly in users.

### **Concentrates**

A similar argument applies to the rationale behind the supply of concentrates and oils. With the internet buckling beneath the weight of user videos showing dangerous techniques for extracting the THC from fresh cannabis using explosive gases and powerful solvents, we feel it is futile – indeed, irresponsible – to limit users’ access to these products while selling them the raw materials to produce their own, stronger forms independently.

Butane honey oil, the base ingredient for the stronger, more novel forms of concentrated cannabis such as shatter, is made by exposing cannabis to butane under pressure, which can have disastrous consequences.

OCMS should instead offer lab-tested and purified shatters and rosins – an oleoresin extracted at heat and under pressure using no solvents – at prices that undercut the black market. This would not be difficult, since the price for such products on the dark web now can exceed £50 a gramme for what is, after all, a simple herbal extraction.

In common with the sale of stronger forms of herbal cannabis, we propose that all concentrates should be sold with explicit warnings, opt-ins and consumption guidelines.



### **Prices**

In any new market, setting the price is perhaps the hardest question. This is even more the case in the cannabis sector. Users have become accustomed to paying about £8 a gramme for high-quality hashish and £10-12 a gramme for high-quality herbal cannabis. Given that the prices for these products reflect those of luxury goods, such as single malt whiskey and champagne, only by dint of their illegality, we believe price-setting should be a simple matter of undercutting black market operators by at least 10% – and coupling that with guaranteed delivery.

### **ID and age verification**

Users will be offered a range of options for delivery, each designed to prevent the drug falling into the hands of anyone but the intended recipient and to limit access to the drug by young people.

The online paid-pornography and gambling industries currently verify the age of users; we suggest that OCMs adopt best practice from these market leaders.

All standard commercial data protection guidelines should be observed and adhered to. Each OCM should be responsible for the safe storage of all user data, including industry standard encryption and salting of usernames, passwords, personal information, and purchase history.

### **Delivery and receipt**

ID and age must be proved both at the point of purchase and at the point of delivery. This presents logistical problems that are complex, but surmountable.

Delivery could be made to customers' homes or work if they have proved identification while registering via an app.

We propose that, in the early stages of OCMs, delivery in most cases should be made to local stores, following Amazon's Pass My Parcel system, offering maximum convenience for the buyer and maximum ID and age verification for the OCM via a bespoke app linking age, ID, payment details and phone ownership.

An ID-verification app for each OCM could be created whereby users would grant app- or device-level access to their credit-record data, such as that provided by Experian and Equifax and used by banks to grant loans and mortgages. The app would then tie this information to the user's mobile phone ID, creating a simple, scannable ID-verification solution that could be used by the store or parcel-holding employee.

This could also be done via driving licences, passports or other age-verified ID, as is common with alcohol sales.

In most cases, the packages would be small and indistinguishable from most internet-shopping packages, meaning no great storage space or extra security would be required on the part of shop-owners. In more remote areas where the Amazon-like delivery option is inconvenient, small letters such as these could be tracked in the postal service much like regular signed-for or special delivery items, with app-enabled ID and age verification a condition of delivery.

### **Payment**

We propose standard credit card, debit card and PayPal procedures common to all online retail interfaces.

**Packaging**

No package containing cannabis should easily be identifiable from the outside. Vacuum sealing and MBBs can prevent aromas escaping and revealing the contents of the package.

Precision tools for weighing are widely used in many other industries and could be adopted here.

OCMs should be compelled to provide medical-standard, self-sealing bottles and vials for the relevant products sold, along with safety instructions common to the medicine industry regarding infants' access.

**Website designs**

This will be covered in detail in later documents, but we suggest a classic, minimal look without excessive branding. A simple, regular layout and high-quality macro photography would enable users to examine the buds, resins etc. No advertising of any kind should be permitted in the earliest iterations of OCMs.

**Refunds**

Refunds would only be offered if an item arrived damaged or incomplete or if it went missing. Cannabis is a complex drug and many varieties may not be to users' tastes, either physically or mentally, but that would not be a valid reason for a refund. Unused edibles or concentrates could be returned via registered mail in their original packaging, as could other products. This would all occur under existing customer-protection legislation.

**Customer protection**

Industry-standard encryption measures should be taken to ensure confidentiality of orders, customers' payment details and identification. All standard data protection law should be observed.

## **Market structure**

We envisage a market structure that involves a limited number of licensed OCMs at the end of a supply chain into which feed individual growers, state or privately owned farms or importers. All would have to comply with licensing requirements yet to be created.

Suppliers into OCMs would be stringently vetted by multiple government agencies, tied under an umbrella grouping, speculatively named ‘the Cannabis Production and Distribution Agency’, which would incorporate expertise from the agricultural, food, medicine, and chemistry sectors.

The strength and purity/freshness of each batch would be bought into licensed OCM storage and distribution facilities and tested before sale. Additional random purchases would be made anonymously by external agencies to ensure quality is maintained.

We propose a supply chain whereby growers can submit samples of dried and cured crops or ready concentrates to a governing agency that has the analytical capabilities to check the samples for strength, purity and contaminants.

Upon receiving certification against a crop, any grower could then supply the OCM of their choice.

To expand:

## **Supply**

1. Cannabis growers apply for supplier licences to a new Cannabis Growers’ Licencing Agency, which defines who may or not participate in the market.
2. Successful growers submit dried and cured crops to a new Cannabis Testing Agency, which determines strength, purity and lack of contaminants, and issue certificates on each crop. Open, transparent accounting systems linked to sales and inventory systems (yet to be created) that would track each gramme sold of each crop. Each kilo would have to be accounted for with sales and tax receipts, ensuring no OCM or grower could pass off bad crops as good.
3. Growers win approval to sell certified crops into licenced and approved OCMs.



**Distribution**

1. Companies or individuals apply for licences to operate OCMs. (These may be growers). Sites have to comply with all requirements laid out in this white paper, with particular reference to age and ID and crop-strength purity.
2. OCMs invite licenced growers to regularly submit full, certified crops for sale and distribution, and adhere to accountancy and tracking standards detailed above.
3. OCMS sell the cannabis to users and are regularly inspected, anonymously, by new Online Cannabis Market Monitoring Agency, to ensure crops sold comply with sales regulations and age/ID standards.

We also envisage government-run grows adhering to the above regulations.

Since we do not yet have a legal model in the UK or the EU against which to compare this, it is beyond the remit and expertise of this paper to suggest limits and detailed regulations on matters as complex as safe levels of mould, nutrient residue, pesticide and bacteria levels, or to set the acceptable margins of error across a crop on, for example, THC strength. These call for further research and investment.

## 5. Benefits, challenges, remedies

### Benefits of the proposed OCM model

The presumed benefits of OCMs have been noted throughout this paper where relevant, and are added again here for the sake of completeness. Note that most of the benefits discussed here are specific to the distribution model we propose; the wider benefits of cannabis law reform itself are, in the main, outside this paper's scope.

It does bears repeating, though, that the cost to the public purse of arresting 471,202 cannabis users in the past five years, and imposing criminal charges and records on 126,789 of those, for the use of a herbal relaxant, is unsustainably expensive in these austere times. Legalising cannabis would confer instantaneous and measurable cost and time savings and enable police to focus on crimes with a tangible negative impact to a larger number of people.

It must, however, be recognised that all drug use, including that of cannabis, remains a minority interest and pursuit, with most use concentrated in younger age brackets. According to the Crime Survey 2014, ("among younger adults aged 16 to 24, cannabis was also the most commonly used drug, with 16.3 per cent having used it in the last year." This compares with just 6.5% – or 2.1 million adults in England– using the drug every year (Statistics on Drug Misuse England, 2016 )

Given that majority social approval brokered via some form of political settlement would be needed before any legal change, the concerns, fears and apprehensions of those who would prefer the drug to remain illegal must be heard, and accommodated in a compromise acceptable to all stakeholders.

The OCM model answers the concerns of those who reject cannabis-law reform on the basis that they do not want cannabis dispensaries or Dutch-style coffee shops in their neighbourhood, thanks to its intrinsic design as a digital-only marketplace.

We argue that our OCM proposal could persuade some of the 14% of British people who are undecided on cannabis law reform, and some of the 39% who reject it outright, to join the 47% who support the call for cannabis legalisation, as made by the Liberal Democrats in 2016.

Many cannabis-law reform advocates believe the drug is completely harmless. However, the evidence base contradicting this claim is well-established, with Cannabis Use Disorder included in the latest DSM-5 Criteria for Substance Use Disorders.

It is anecdotally accepted that excessive cannabis consumption can have negative effects on individuals, families and relationships. With that in mind, our proposal has at its heart users' wellbeing and health and would provide help, information, advice and guidance to them in new and innovative ways.

The emergence of the dark web, its continued growth and the wider public awareness of the DNMs underpins this whole proposal: cannabis is already being sold online, hundreds of kilogrammes of it, every day in the UK. A legal OCM model would operate a similar fashion, albeit at a larger scale and to the benefit of the public purse, rather than costing the public money through enforcement, while ringfencing cannabis use away from other drugs.

**Age-controlled**

Our proposal to verify ID on purchase and on delivery via an app compares positively with all existing sales models, in which the only barrier to consumption of any quantity of cannabis is financial.

**Out of sight, out of mind**

An OCM model treats cannabis consumption as a respectfully private pastime that need not become part of our urban landscape.

By operating the cannabis markets online – instead of at high-street dispensaries and “clinics”, as in the US, or in stores selling the plant for recreational use – we would reduce its visibility only to those who were already actively seeking the drug and who likely intended to buy it anyway. Digital distribution would also reduce opportunistic purchasing by first-time users walking past stores on high streets.

It seems imaginable that public consumption of cannabis might proliferate around stores selling the drug on the high street; again, the digital model answers this question by design.

**Feedback system**

Feedback systems have revolutionised online retail transactions, enabling customers to make informed choices between a vastly increasing range of consumer goods sold online. OCMs’ cannabis strain feedback systems would help customers save money, avoid unpleasant or undesirable experiences and create a culture of informed use, rather than forcing them to trust in pot luck, as they do currently.

**Purity controls**

OCMs should be subject to stringent quality control and purity tests at every step of the supply chain, with vendors who failed to comply facing bans and fines. Street dealers and commercial growers offer nothing but a sales pitch, and are driven to maximise weight and cost to increase profit in a risky, illegal trade. Mouldy, contaminated or overfed plants containing fertiliser residue are common in the black market. Consider that wine and beer drinkers never have to worry if their drug of choice has been contaminated with methanol, rather than ethanol, as is common in developing-world economies. The same protections must be offered to cannabis smokers.

**Control of secondary market**

We propose that any customer ID database be centralised and accessible to all market operators, in order to prevent users from buying more than the permitted limits of cannabis by registering at multiple sites or under multiple identities.

### **Fewer targets for criminality**

A bricks-and-mortar cannabis store, with its valuable, portable and tradable inventory, would present significant opportunities for armed robbery, burglary and extortion, as well as attacks on staff. By contrast, an OCM, with its whereabouts unknown, would mainly be vulnerable to digital attacks, such as hacking of user data or DDoS attacks, both of which are easily preventable using modern security methods.

Of course, should the location of any OCM become known, it could face the attacks detailed above – but with fewer single physically points of attack, the OCM model is by design more robust and cheaper to defend than a widespread dispensary model, with its distributed targets.

### **Easier monitoring**

An OCM model would be easier for law enforcement, trading standards, advertising bodies and other involved parties to monitor and ensure compliance with any eventual legislation, since physical site visits by multiple agencies to high-street cannabis stores would be expensive – perhaps prohibitively so.

Any website that registered under the OCM model could be checked on a regular basis by a compliance team and would be required to be hosted on standard IP addresses. Anonymous purchases, to ensure compliance, would also be easier to achieve online, rather than in real life, since the decision-making process in approving a sale would be verified with third-party data and goods delivered could be tested anonymously.

### **Health benefits**

Cannabis users' health would be better protected under the OCM model relative to the status quo, since we propose that all products are sold with a clear, stated dose, with printed recommendations on means of consumption that protect the lungs and heart through vaporisation.

### **Social benefits**

A reduction in street-dealing, growhouses and domestic premises being used to sell drugs with no regard for neighbours' right to peace and security, plus reduced enforcement costs, have been noted and offer undeniable social benefits.

### **Challenges and remedies**

We do not argue that the OCM proposal offers a panacea to any difficulty that may arise from a regulated cannabis market. Consider, though, the 2m hospital visits made each year by users of alcohol and it is clear that even a tightly controlled industry in intoxicants can harm its consumers. Since cannabis is an inherently safer substance than alcohol, we believe these risks can be mitigated and avoided as cultural norms around cannabis change.

**User behaviour**

Most cannabis users in the UK have never bought their drug online, and only a minority have consumed it in jurisdictions such as the US, Spain and the Netherlands, where the drug is sold more or less openly to anyone prepared to make the effort. Given that cannabis users judge a purchase by its smell, look, feel and size, it may be that OCMs face initial resistance, since users will not be able to verify vendors' claims. However, through observation of the dark web, user feedback has been shown to add value to "brands" there, with honest appraisals of the drugs made by objective consumers in a spirit of communal altruism or simply good manners.

We contend that, as soon as users experience the convenience of postal-delivery cannabis – which in our model would be a day after purchase, or same-day at a premium rate – most doubts and fears would fall away.

Consider, too, that online grocery sales in the UK, a comparable market in many ways, with users demanding freshness prepared to forego physical shopping for the convenience of online solutions, are forecast to reach £9.8bn in 2016, up 13% from an estimated £8.6bn in 2015, according to a 2016 survey by Mintel.



## 6. Economic analyses

### Market forces

The enormous and exponentially growing value of the cannabis trade has already changed the political climate and debate around medical and recreational legal reform. Politicians, in common with investors, can now observe a growing body of evidence that a regulated and state-controlled industry can act as a potential income stream through taxation and increased wider economic activity.

It is difficult to estimate the size and potential growth opportunities in the UK for any kind of cannabis market, including our proposed OCM model but the best -respected study of this complex and subject, The Institute for Social and Economic Research at Essex University's 2013 paper 'Licensing and regulation of the cannabis market in England and Wales', puts it at between £500m and £800m per year. That study does not take into account any specific cannabis tax, as has been imposed in Colorado, for example, and may therefore be underestimating the total somewhat.

Lower criminal justice costs would also be a net benefit to the public purse, through lower enforcement costs. The numbers of offenders in prison for cannabis-related offences in England and Wales would also drop. As noted in The Tide Effect, there are currently 1,363 inmates serving time for cannabis offences, which costs the taxpayer £50m a year.

International parallels offer a view of the current and potential size of the cannabis market more generally.

Legal cannabis sales in the US jumped 17%, to \$5.4bn, in 2015 and are expected to grow by 25% this year, to \$6.7 billion, according to Arcview Market Research, the leading national network of high-net-worth investors looking to capitalise on the legalisation of cannabis. "By 2020, legal cannabis sales in the United States are projected to hit \$21.8bn," it said in its latest report.

In 2015, Colorado reported that it had raised more revenue from cannabis taxes than from alcohol: it earned nearly \$70 million in tax revenue from cannabis between July 2014 and June 2015, while alcohol sales taxes brought in just \$42m. The growth is unabated: in the first nine months of 2016 alone, Colorado's cannabis sales revenue topped \$974.3m, with new higher taxes recently imposed.

In Washington, the first year of legal sales generated \$70 million in tax revenues from sales of \$257 million.

These figures, though, tell only half of the story. In every US state, business dealing in cannabis faces enormous difficulties opening bank accounts and accepting payment from customers, due to the incoherent federal intransigence on cannabis law. As such, many businesses operate cash-only marketplaces, presenting opportunities for fake accounting and tax evasion.

With the online-only model we propose, every transaction would be recorded and taxed, eliminating cash sales and tax evasion, while every transaction would be linked to individuals' real-world identities, ensuring access only to adults, rather than children and minors.

## 7. Conclusion

Cannabis-law reform, both in its medical and recreational guises, is spreading inexorably across US, the birthplace of the failed and discredited War on Drugs. Our next moves to control and regulate this new trade are more important than any drug policy reform since President Nixon opened hostilities against various molecules and plants.

Even in the UK, where drug law reform took a great leap backwards in 2016 when the government banned every substance in existence that affects human consciousness, green shoots of change are sprouting through the hard surface of prohibition in the east of the country. In Norfolk, 18 hectares – equivalent to 23 football pitches – of greenhouses owned by British Sugar will soon house tens of thousands of cannabis plants, which GW Pharmaceuticals is cultivating to produce enough of its experimental epilepsy treatment for children, Epidiolex, to help 40,000 children worldwide.

Although the low-THC/high-CBD form of the plant that will be raised in Norfolk is used exclusively to treat medical conditions and offers no recreational benefits, the tide, it seems, is turning conclusively, even in Europe's most reform-resistant corner.

It seems inevitable, that at some point in the near future, British lawmakers will assess and replace the dysfunctional and evidence-free legislation that keeps cannabis illegal. This white paper offers them a roadmap – and a rationale for such a journey.

The Lib Dems, in their recent consultation paper on cannabis legalisation, noted that an online marketplace model would one day be required: “We are conscious that people with health conditions and people who live in more remote rural communities may not be able to visit traditional shops or access CSCs [cannabis social clubs] easily, and we would not want these people to be arbitrarily denied access or have to fall back on the illicit market.

“It also seems inevitable that some sort of online market will need to exist and that it is therefore preferable to bring it under the purview of the regulated framework early on, to prevent informal online markets filling the void. For this reason, we consider some form of regulated online retail and delivery service a necessity, even if it is part of a ‘phase two’ market development. We suggest that, as far as possible, any such online retailing should seek to maintain the key benefits of face-to-face vending.”

However, the Lib Dems failed to identify the reasons that the OCM is in fact the essential, and preferable, model. This is because the party located its rationale in the perspective of users, who form the minority, rather than wider society. Cannabis, it must be repeated, is still a minority pursuit. We, that is to say, drug-law reform advocates, cannot reasonably expect wider civil society to suddenly and with minimal protest accept a complete overhaul of drug policies that have been in place for decades, and the opening of cannabis-dispensing businesses in their back yards or street corners. The fears of many people of all drug use are real, deep-seated and valid: they see cannabis use as dangerous and antisocial and do not wish to propagate a commercial culture that would lead to greater, and more visible, use.

But these more conservative and fearful views exist within a wider democratic context: one of global legal changes and scientific research that destroys, completely, any scientific rationale for the perpetuation of the status quo.

A compromise must, therefore, be reached, and it is our firm belief that the best way to achieve this compromise is to formalise the dark web model that has been functioning so successfully, so peacefully and so discretely for at least five years.

**Cannabis should be made available for purchase to consenting adults to consume in the privacy of their own home, with minimal interference from the state – other than to gather the millions of pounds in taxes that such a market would present to any government radical – and clear-sighted enough – to implement it.**







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