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**NAVAL
POSTGRADUATE
SCHOOL**

MONTEREY, CALIFORNIA

THESIS

**FENTANYL: CARTELS' SCARIEST AND MOST
INNOVATIVE PRODUCT YET**

by

Lacey Le Shae Thompson

December 2019

Thesis Advisor:

Robert E. Looney

Second Reader:

Rodrigo Nieto-Gomez

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**FENTANYL: CARTELS' SCARIEST AND MOST INNOVATIVE
PRODUCT YET**

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Submitted in partial fulfillment of the
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**MASTER OF ARTS IN SECURITY STUDIES
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ABSTRACT

Opioid dependence in the United States has reached unprecedented levels, having risen substantially since 2012. Fentanyl’s contribution to the opioid epidemic has been of particular concern and has caught the attention of the highest levels of the U.S. government. Despite the federal government’s efforts to address opioid dependence and to combat the trafficking of illicit fentanyl into the United States, deaths involving synthetic opioids continue to rise. While myriad news and medical articles on fentanyl have been published—especially as media coverage of the opioid epidemic increases—a major gap exists in non-medical scholarly research on the substance. This research fills that gap by providing a single repository of some of the most pertinent information on fentanyl. It answers the following questions: What is fentanyl? What is its relationship to the ongoing opioid crisis? How and why did cartels incorporate fentanyl into their business model? By answering these questions, this research provides policymakers and law enforcement officials with sufficient information to properly gauge the scope and intricacies of illicit fentanyl trafficking so that they may develop effective counter-strategies for this complex problem set.

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LIST OF ACRONYMS AND ABBREVIATIONS

4-ANPP	4-anilino-N-phenethyl-4-piperidone
CBP	Customs and Border Protection
CDC	Centers for Disease Control and Prevention
CVP	Customer Value Proposition
DEA	Drug Enforcement Administration
DTO	Drug Trafficking Organization
FRS	Fentanyl-related Substances
FSPP	(The DEA's) Fentanyl Signature Profiling Program
IMF	Illicitly Manufactured Fentanyl
IV	Intravenous
LSD	Lysergic Acid Diethylamide
NPP	N-phenethyl-4-piperidone
SLMA	St. Louis Metropolitan Area
TCO	Transnational Criminal Organization
WHO	World Health Organization
WMD	Weapon of Mass Destruction

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I. INTRODUCTION

A. MAJOR RESEARCH QUESTION

On April 24, 2019, President Donald Trump assured participants at a drug abuse summit, “Everyone here today is united by the same vital goal—to liberate our fellow Americans from the grip of drug addiction and to end the opioid crisis once and for all.”¹ Opioid dependence in the United States has reached unprecedented levels, increasing more than sevenfold between 2012 and 2016.² In 2017, nearly 29,000 people died from synthetic opioid-related overdoses, most from fentanyl.³ According to the Centers for Disease Control and Prevention (CDC), synthetic opioids other than methadone (including fentanyl and fentanyl analogues) were responsible for a 45 percent increase in overdose deaths from 2016 to 2017.⁴ As opioid addiction in the United States became more acute, President Donald Trump declared the crisis a national Public Health Emergency in 2017 and allocated billions of dollars in the federal budget to fight it.⁵ Fentanyl’s contribution to the epidemic has been of particular concern. Despite the federal government’s efforts to address the opioid addiction problem and to combat the trafficking of illicit fentanyl into the United States, deaths involving synthetic opioids continue to rise. What is more, fentanyl is not only of concern from a substance abuse perspective; it is also a threat to the general public. In fact, national security officials are considering classifying fentanyl as a

¹ Sari Horwitz et al., “Fighting Fentanyl,” *Washington Post*, May 22, 2019, https://www.washingtonpost.com/graphics/2019/national/fentanyl-epidemic-trump-administration/?noredirect=on&utm_term=.4329c4338e2b.

² “Senators Markey and Rubio Introduce Resolution Calling for Cooperation to Stop Trafficking of Illicit Fentanyl from Overseas,” U.S. Senate, July 14, 2016, <https://www.markey.senate.gov/news/press-releases/senators-markey-and-rubio-introduce-resolution-calling-for-cooperation-to-stop-trafficking-of-illicit-fentanyl-from-overseas>.

³ Horwitz et al., “Fighting Fentanyl.”

⁴ Holly Hedegaard, Arialdi Miniño, and Margaret Warner, “Drug Overdose Deaths in the United States, 1999–2017,” NCHS Data Brief, no. 329 (November 2018): 1.

⁵ Celina Realuyo, “The New Opium War: A National Emergency,” *PRISM* 8, no. 1 (2019): 137.

weapon of mass destruction (WMD) since its extreme toxicity make it a prime candidate for use in a chemical attack.⁶

While myriad news and medical articles on fentanyl have been published—especially as media coverage of the opioid epidemic increases—a major gap exists in consolidated non-medical scholarly research on the substance. This research fills that gap by providing a single repository of some of the most pertinent information on fentanyl. It answers the following questions: What is fentanyl? What is its relationship to the ongoing opioid crisis? How and why did cartels incorporate fentanyl into their business model? By answering these questions, this research provides policymakers and law enforcement officials with sufficient information to properly gauge the scope and intricacies of illicit fentanyl trafficking so that they may develop effective counter-strategies for this complex problem set.

B. BACKGROUND ON OPIOID CRISIS

The opioid crisis in the United States can be separated into three stages of development: Phase I in the early 1990s, Phase II circa 2010, and Phase III around 2013. The first phase began in the late 1990s when Purdue Pharma released what it claimed to be a miracle drug for pain, OxyContin.⁷ Purdue Pharma aggressively marketed the painkiller as less addictive than other prescription narcotics, a claim which caught the eye of physicians across the country.⁸ The release of OxyContin was timely; it was concurrent with a focus on patients' rights and their satisfaction with the medical care they received. In the decade from the mid-1980s to the mid-1990s, obligatory pain scales were implemented in hospitals and clinics nationwide, and patient satisfaction surveys were introduced in order to measure how well hospitals treated patient pain.⁹ It was also during

⁶ David Shortell, "Pentagon, DHS Considering Designating Fentanyl a WMD, Memo Says," CNN, April 21, 2019, <https://www.cnn.com/2019/04/21/politics/dhs-fentanyl-wmd/index.html>.

⁷ Scott Higham, Sari Horwitz, and Katie Zezima, "The Fentanyl Failure," *Washington Post*, March 13, 2019, <https://www.washingtonpost.com/graphics/2019/national/fentanyl-epidemic-obama-administration/>.

⁸ Higham, Horwitz, and Zezima.

⁹ Sam Quinones, *Dreamland: The True Tale of America's Opiate Epidemic* (New York: Bloomsbury Press, 2015), 96.

this time that the World Health Organization (WHO), in its quest to manage pain treatment for the terminally ill, declared that freedom from pain was a universal human right.¹⁰ All of this provided an environment for patients to relate their pain levels to physicians and for physicians to consequently offer patients a prescription substance for pain relief. With OxyContin, medical professionals could feel confident in an effective painkiller that purportedly did not run the risk of addiction which older narcotics had. As such, OxyContin went viral in the medical community. Doctors prescribed the drug in massive quantities, generating incredible revenues for Purdue Pharma, making OxyContin the company's most darling drug.¹¹

The advent of OxyContin, and physicians' subsequent embrace of it, coincided over the next ten years with an overall substantial increase in opioid prescriptions.¹² To meet the skyrocketing demand, pharmaceutical companies flooded the U.S. market with prescription opioid pills, hundreds of millions of which illicit drug dealers diverted to the black market.¹³ While pill numbers for the 1990s are relatively scarce, recent opioid pill distribution data show that pharmaceutical companies surged supply by 51 percent, increasing from 8.4 billion pills in 2006 to 12.6 billion in 2012.¹⁴ In all, from 2006 to 2012, over 76 billion hydrocodone and oxycodone (two popular prescription opioids) pills were distributed across the United States.¹⁵ In contrast, during that seven-year period, prescriptions for morphine (another common treatment for pain) averaged just over 500 million per year.¹⁶ It is important to note that during this time period, pills were not the only form in which opioids were prescribed; they are, however, the only form for which

¹⁰ Quinones, 82.

¹¹ Higham, Horwitz, and Zezima, "The Fentanyl Failure."

¹² Higham, Horwitz, and Zezima.

¹³ Higham, Horwitz, and Zezima.

¹⁴ *Washington Post*, "The Opioid Files: The Post's Investigation of the Opioid Epidemic," July 19, 2019, https://www.washingtonpost.com/national/2019/07/20/opioid-files/?utm_term=.2b9d8160eef9.

¹⁵ *Washington Post*, "The Opioid Files: The Post's Investigation of the Opioid Epidemic."

¹⁶ Joel Achenbach et al., "An Onslaught of Pills, Hundreds of Thousands of Deaths: Who Is Accountable?," *Washington Post*, July 20, 2019, https://www.washingtonpost.com/investigations/an-onslaught-of-pills-hundreds-of-thousands-of-deaths-who-is-accountable/2019/07/20/8d85e650-aafc-11e9-86dd-d7f0e60391e9_story.html?noredirect=on&utm_term=.8c4496946580.

comprehensive data exist. Pharmaceutical companies capitalized on the rapidly growing demand for pain treatment medications, innovating heavily to offer pain killers as transdermal patches, oral dissolving strips, and nasal sprays.¹⁷

As supply soared, the U.S. judicial system began aggressively targeting those entities involved in the development, marketing, and distribution of prescription opioids, in an effort to decrease their availability in the United States and arrest the nation's growing addiction problem. This legal crackdown focused specifically on suspending the licenses of physicians who prescribed opioids outside of legally allowable limits as well as on shutting down pill-mill pharmacies.¹⁸ Concurrently, in 2007, Purdue Pharma lost a lawsuit in which it was forced to acknowledge that it had falsely claimed that OxyContin was less addictive than other painkillers.¹⁹ Around the same time, the federal government also fined large drug distributors and pharmacies for failing to report suspicious orders of prescription narcotics.²⁰ Law enforcement efforts to hold responsible parties accountable for the opioid epidemic resulted in a nationwide clampdown on prescription opioids, driving up demand for opioids on the black market. As a result, beginning in 2005, the Drug Enforcement Administration (DEA) redirected its operations to address the growing demand for illicit pills.²¹ Mexican drug trafficking organizations (DTOs) saw an opportunity: they could offer opioid addicts heroin, which supplied a faster and more potent high than a prescription opioid, and at a much lower price.²²

¹⁷ Nabarun Dasgupta, Leo Beletsky, and Daniel Ciccarone, "Opioid Crisis: No Easy Fix to Its Social and Economic Determinants," *American Journal of Public Health* 108, no. 2 (February 2018): 182, <http://dx.doi.org.libproxy.nps.edu/10.2105/AJPH.2017.304187>.

¹⁸ Achenbach et al., "An Onslaught of Pills, Hundreds of Thousands of Deaths: Who Is Accountable?"

¹⁹ Higham, Horwitz, and Zezima, "The Fentanyl Failure."

²⁰ Lenny Bernstein and Scott Higham, "Investigation: The DEA Slowed Enforcement While the Opioid Epidemic Grew Out of Control," *Washington Post*, October 22, 2016, https://www.washingtonpost.com/investigations/the-dea-slowed-enforcement-while-the-opioid-epidemic-grew-out-of-control/2016/10/22/aea2bf8e-7f71-11e6-8d13-d7c704ef9fd9_story.html?utm_term=.6536a5c3b6e4.

²¹ Higham, Horwitz, and Zezima, "The Fentanyl Failure."

²² Higham, Horwitz, and Zezima.

This started the second phase in the opioid epidemic by 2010, which coincided with a large increase in overdose deaths.²³ This phase is marked especially by a significant spike in heroin overdoses, as well as concern over mixed use of opioid analgesics with heroin.²⁴ Some scholars attribute the transition from prescription opioids to heroin to patients' increasing dependence and tolerance for opioids, and their desire for a cheaper and more potent alternative.²⁵ Enter fentanyl, a drug that is exponentially stronger than heroin, and that offered users a better high at a significantly decreased price for distributors, since distributors can lace a miniscule amount of fentanyl with heroin, thereby increasing the product's potency and extending their own drug supplies.²⁶

Around 2013, this set off rumblings of the third and current phase in the epidemic, when a notable increase in fentanyl-related overdose deaths was observed.²⁷ This increase followed an encouraging—if short-lived—leveling-off of opioid-related overdose deaths in 2011–2012 (41,500), and most experts blame the significant rise in 2017 (71,000) wholly on fentanyl.²⁸

C. FENTANYL AND ITS ROLE IN THE OPIOID EPIDEMIC

Fentanyl is a synthetic opioid that was developed in the 1960s as a painkiller and anesthetic. It has a potency that is roughly 100 times that of morphine and 50 times that of heroin and is used primarily in patients with severe, chronic pain problems.²⁹ It is the most potent opioid for human medical use on the market today.³⁰ Fentanyl was approved for

²³ Higham, Horwitz, and Zezima.

²⁴ Dasgupta, Beletsky, and Ciccarone, "Opioid Crisis," 182.

²⁵ Dasgupta, Beletsky, and Ciccarone, 182–83.

²⁶ Higham, Horwitz, and Zezima, "The Fentanyl Failure."

²⁷ Higham, Horwitz, and Zezima.

²⁸ German Lopez, "New Data Shows Drug Overdose Deaths Fell in 2018. But There's a Big Catch.," Vox, July 17, 2019, <https://www.vox.com/science-and-health/2019/7/17/20698040/opioid-epidemic-drug-overdose-deaths-2018>.

²⁹ Nick Tate, "Fentanyl: What You Should Know," WebMD, May 1, 2018, <https://www.webmd.com/mental-health/addiction/news/20180501/fentanyl-what-you-should-know>.

³⁰ Kathleen Davis, "Fentanyl: Use, Abuse, Side Effects, and Warnings," Medical News Today, January 22, 2019, <https://www.medicalnewstoday.com/articles/308156.php>.

use in the United States as an intravenous (IV) anesthetic in 1976, and in less than 10 years after its release, sales of the drug rose more than ten-fold.³¹ It is considered safe and effective when used in a medical setting or by controlled prescription; however, because of its potency and effects on the brain, fentanyl also carries a high risk for abuse.³² Fentanyl is used medically as a pre-anesthetic medication, a primary IV anesthetic before surgery, and a post-operative pain reliever.³³ It is most frequently used as a surgical anesthetic because of its rapid onset (2-3 minutes), high potency, short duration of effectiveness (30-60 minutes), and its ability to produce anesthesia without cardiovascular depression.³⁴ It is also used for long-term pain management in patients with chronic conditions like cancer.³⁵

Fentanyl's effects are similar to those of heroin, inducing (among other things) euphoria, relaxation, and drowsiness.³⁶ Undesired effects include nausea, constipation, respiratory depression and arrest, and chest wall rigidity, particularly with IV usage.³⁷ In cases of fentanyl overdose, medical examiners have "blue discoloration of the lips...gurgling sounds with breathing...stiffening of the body or seizure-like activity...foaming at the mouth...and confusion or strange affect before unresponsiveness."³⁸ Chest wall rigidity is assessed to be the primary cause of rapid death from fentanyl overdose, as it restricts breathing capacity at the same time that the drug is relaxing the body's respiratory functions, causing severe respiratory compromise.³⁹

³¹ Patil Armenian et al., "Fentanyl, Fentanyl Analogs and Novel Synthetic Opioids: A Comprehensive Review," UC San Francisco, October 1, 2017, <https://escholarship.org/uc/item/8xh0s7nf#author>.

³² Davis, "Fentanyl."

³³ J. J. Kuhlman et al., "Fentanyl Use, Misuse, and Abuse: A Summary of 23 Postmortem Cases," *Journal of Analytical Toxicology* 27, no. 7 (October 1, 2003): 499, <https://doi.org/10.1093/jat/27.7.499>.

³⁴ Kuhlman et al., 499.

³⁵ Davis, "Fentanyl."

³⁶ National Institute on Drug Abuse, "Drug Facts: Fentanyl," February 2019, 5, <https://d14rmgtrwzf5a.cloudfront.net/sites/default/files/drugfacts-fentanyl.pdf>.

³⁷ Armenian et al., "Fentanyl, Fentanyl Analogs and Novel Synthetic Opioids."

³⁸ Armenian et al.

³⁹ Armenian et al.

Fentanyl is a Schedule II controlled substance under U.S. federal law, which is paradoxically in a less severe category than marijuana, a Schedule I substance.⁴⁰ According to the DEA, “Schedule II drugs, substances, or chemicals are defined as drugs with a high potential for abuse, with use potentially leading to severe psychological or physical dependence. These drugs are also considered dangerous.”⁴¹ Its euphoric effects make fentanyl a prime candidate for drug addiction, and its extreme toxicity greatly increases the risk of overdose with the drug.⁴² To illustrate the high potential for addiction, the Mayo Clinic warns that a person’s odds of staying on opioids a year after beginning a short course increase after just five days of use.⁴³ A lethal dose of fentanyl is just two milligrams, the equivalent of seven poppy seeds.⁴⁴ By contrast, a lethal dose of morphine is 200 milligrams, heroin between 75 and 375 milligrams, hydrocodone around 90 milligrams, and oxycodone roughly 40 milligrams.⁴⁵ Because the lethal dose for fentanyl is so low, there is a high potential for miscalculation in dosage among users. A 2003 study of 23 cases of fentanyl-related overdose deaths shows that in just three of the cases, death was considered “natural” or “suicidal”; the remaining 20 were “accidental,” indicating that the user died unexpectedly from unintentionally ingesting a lethal dose of fentanyl.⁴⁶ These cases show just how easy it is for users to misjudge the serious danger fentanyl presents. So, while the drug offers patients effective pain relief, fentanyl’s high potency and potential

⁴⁰ Drug Enforcement Administration, “Drug Scheduling,” accessed July 21, 2019, <https://www.dea.gov/drug-scheduling>.

⁴¹ Drug Enforcement Administration, “Drug Scheduling.”

⁴² Tate, “Fentanyl: What You Should Know.”

⁴³ Mayo Clinic, “How Opioid Addiction Occurs,” February 16, 2018, <https://www.mayoclinic.org/diseases-conditions/prescription-drug-abuse/in-depth/how-opioid-addiction-occurs/art-20360372>.

⁴⁴ Esmé Deprez, Li Hui, and Ken Wills, “Deadly Chinese Fentanyl Is Creating a New Era of Drug Kingpins,” Bloomberg.Com, May 22, 2018, <https://www.bloomberg.com/news/features/2018-05-22/deadly-chinese-fentanyl-is-creating-a-new-era-of-drug-kingpins>.

⁴⁵ Oxford Treatment Center, “Fentanyl: What Is a Lethal Dosage?,” June 24, 2019, <https://www.oxfordtreatment.com/substance-abuse/fentanyl/lethal-dose/>.

⁴⁶ Kuhlman et al., “Fentanyl Use, Misuse, and Abuse,” 500–501.

for abuse mean that it is prescribed ideally only to patients who have a demonstrated tolerance for opioids and thus a lower risk of becoming addicted.⁴⁷

The fentanyl problem did not cause the opioid epidemic; rather, it is an opportunistic (for drug traffickers) by-product of the evolution of opioid addiction in the United States over the past few decades. The origins of U.S. opioid addiction are debated. It is widely accepted that in the 1960s, the majority of users' first opioid abuse was heroin.⁴⁸ Today, however, the origin is not so clear. For example, the DEA claims that current users began abusing prescription opioids before turning to illegal substance abuse.⁴⁹ Conversely, public health officials declare that, similar to the 1960s, users entering treatment programs today are more likely to have begun their opioid use with heroin rather than a prescription analgesic.⁵⁰ Regardless of whether users start first on heroin or a prescription opioid, there is widespread agreement that in recent years, the increasing demand for opioids has led to a subsequent increased demand in heroin.⁵¹

Heroin is an opiate, a naturally occurring substance that is derived from the opium poppy plant, and shares many of the same characteristics as synthetically produced opioids like hydrocodone, oxycodone, and fentanyl.⁵² Heroin affects the brain very similarly to synthetic opioids. Once it enters the body, the brain immediately converts heroin into morphine, after which time the process is the same—although much more rapid—for prescription opioids as for heroin: molecules in the brain bind to opioid receptors, increasing dopamine levels that reduce the perception of pain and increase feelings of

⁴⁷ Paul E. Knierim, "Stopping the Poison Pills: Combatting the Trafficking of Illegal Fentanyl from China," § Caucus on International Narcotics Control (2018), 1, https://www.dea.gov/sites/default/files/2018-10/DEA%20Testimony%20-International%20Drugs%20-%20Senate%20Drug%20Caucus_2Oct18_final.pdf.

⁴⁸ Theodore J. Cicero et al., "The Changing Face of Heroin Use in the United States: A Retrospective Analysis of the Past 50 Years," *JAMA Psychiatry* 71, no. 7 (July 1, 2014): 821, <https://doi.org/10.1001/jamapsychiatry.2014.366>.

⁴⁹ Drug Enforcement Administration, "National Heroin Threat Assessment Summary - Updated," June 2016, 8, https://www.dea.gov/sites/default/files/2018-07/hq062716_attach.pdf.

⁵⁰ Dasgupta, Beletsky, and Ciccarone, "Opioid Crisis," 183.

⁵¹ Armenian et al., "Fentanyl, Fentanyl Analogs and Novel Synthetic Opioids."

⁵² Pasadena Recovery Center, "The Difference Between Opiates and Opioids," May 22, 2018, <https://www.pasadenarecoverycenter.com/the-difference-between-opiates-and-opioids/>.

euphoria.⁵³ As such, while fentanyl is chemically unrelated to opiates, because it produces similar pharmacological and toxicological actions in the body, from an effects-based standpoint, the transition from opioids to heroin is logical.⁵⁴

How is fentanyl connected to this transition? As noted earlier, it was not until 2013 that fentanyl became significant in the opioid abuse scene. Between 2013 and 2016, deaths attributed to fentanyl spiked by 540 percent.⁵⁵ In nearly all cases where fentanyl was detected, it was laced into other products like cocaine and heroin, or into counterfeit prescription pills marketed to users as oxycodone or hydrocodone.⁵⁶ While in most cases when a drug is cut with another substance, that drug is made weaker, when fentanyl is used as a cutting agent, the potency of the original substance is substantially increased, making it extremely dangerous for users.⁵⁷ Illegal drug users are often unaware that the product they are consuming has been adulterated with fentanyl; point-of-use testing kits—which are rare and costly—are the only way for users to verify whether the products they buy contain fentanyl.

Some analysts attribute illicit fentanyl’s emergence to increasingly efficient global supply chains and expanded drug interdiction efforts that prompted the opportunity for more potent and less bulky illicit products.⁵⁸ Others point to the skyrocketing demand for opioids, and the simultaneous tightening of prescription regulations that restricted users’ access to the drugs, as factors that drove some users to heroin and eventually created an environment for the production of illicitly manufactured fentanyl (IMF).⁵⁹ According to this hypothesis, drug distributors merely followed the demand for a more easily accessible and more cost-effective alternative to prescription opioids. They took advantage of an

⁵³ “The Connection Between Prescription Opioids and Heroin,” *Pharmacy Times*, September 12, 2016, <https://www.pharmacytimes.com/contributor/shelby-leheny-pharmd-candidate-2017/2016/09/the-connection-between-prescription-opioids-and-heroin>.

⁵⁴ Kuhlman et al., “Fentanyl Use, Misuse, and Abuse,” 499.

⁵⁵ Dasgupta, Beletsky, and Ciccarone, “Opioid Crisis,” 183.

⁵⁶ Armenian et al., “Fentanyl, Fentanyl Analogs and Novel Synthetic Opioids.”

⁵⁷ Tate, “Fentanyl: What You Should Know.”

⁵⁸ Dasgupta, Beletsky, and Ciccarone, “Opioid Crisis,” 183.

⁵⁹ Realuyo, “The New Opium War: A National Emergency,” 134–35.

opportunity to exponentially expand their customer base (prescription opioid users who were now turning to heroin).⁶⁰ They also saw a chance to increase their profits and product supplies by mixing existing substances (namely heroin) with highly potent and easily concealable/transportable fentanyl.⁶¹ More on traffickers' involvement with fentanyl will be discussed in Chapter IV.

Since its emergence six years ago, fentanyl has been increasingly attributed to drug overdose deaths. The substance continues to cause tremendous concern as fentanyl-related deaths have been doubling every year since 2013.⁶² In 2018, the DEA concluded that fentanyl is the “most significant synthetic opioid death to the United States and will very likely remain the most prevalent synthetic opioid threat in the near term.”⁶³

⁶⁰ Drug Enforcement Administration, “Fentanyl Remains the Most Significant Synthetic Opioid Threat and Poses the Greatest Threat to the Opioid User Market in the United States,” May 2018, 8, <https://www.dea.gov/sites/default/files/2018-07/PRB-DIB-003-18.pdf>.

⁶¹ Drug Enforcement Administration, “2018 National Drug Threat Assessment,” October 2018, 21, [https://www.dea.gov/sites/default/files/2018-11/DIR-032-18 2018 NDTA final low resolution.pdf](https://www.dea.gov/sites/default/files/2018-11/DIR-032-18%2018%20NTA%20final%20low%20resolution.pdf).

⁶² Melissa Healy, “Fentanyl Overdose Deaths in the U.S. Have Been Doubling Every Year,” Los Angeles Times, March 20, 2019, <https://www.latimes.com/science/sciencenow/la-sci-sn-fentanyl-overdose-deaths-skyrocketing-20190320-story.html>.

⁶³ Drug Enforcement Administration, “Fentanyl Remains the Most Significant Synthetic Opioid Threat and Poses the Greatest Threat to the Opioid User Market in the United States,” 2.

II. DRUG DEALING STARTUP AND DISRUPTIVE INNOVATION

In order to gain insight into the process that drug traffickers may have used for incorporating fentanyl into their business model, it is useful to first explore the business model of drug enterprises. A survey of literature on business model generation and disruptive innovation will provide a foundation from which to analyze how cartels operate and why they chose fentanyl as their newest product offering. For this research, it is important to point out that trying to ascertain details of cartels' economic endeavors or business operations is inherently speculative; illicit businesses neither keep accounting records, nor do they publish business plans or annual disclosures.⁶⁴ An inside understanding of cartels' inner-workings and access to their business practices is impossible. Therefore, it is necessary to rely on second-hand information available from seizures, raids, arrests, interviews, etcetera, to surmise how cartels conduct business.

A. GENERATING A BUSINESS MODEL

A business model can be described simply as the strategy a business will use to make money.⁶⁵ According to Joan Magretta of the *Harvard Business Review*, business models are “at heart, stories—stories that explain how enterprises work. A good business model answers Peter Drucker’s age-old questions: Who is the customer? And what does the customer value? It also answers the fundamental questions every manager must ask: How do we make money in this business? What is the underlying economic logic that explains how we can deliver value to customers at an appropriate cost?”⁶⁶ Business models are important for a company to design a plan of action that, if effective, will eventually generate profit. Magretta explains that a new business model is a variation on the generic

⁶⁴ Patrick Radden Keefe, “Cocaine Incorporated: How a Mexican Drug Cartel Makes Its Billions,” *New York Times*, June 15, 2012, sec. Magazine, <https://www.nytimes.com/2012/06/17/magazine/how-a-mexican-drug-cartel-makes-its-billions.html>.

⁶⁵ Alexander Osterwalder and Yves Pigneur, *Business Model Generation* (Hoboken, NJ: John Wiley & Sons, Inc., 2010), 15.

⁶⁶ Joan Magretta, “Why Business Models Matter,” *Harvard Business Review*, May 1, 2002, <https://hbr.org/2002/05/why-business-models-matter>.

value chain that is common to all business and that the process of developing a new business model is a lot like writing a new story: it is a modification on an old way of doing things (and old story) to make it more adaptable and useful (relevant) in modern times.⁶⁷ A business must focus on developing a model that addresses both parts of the generic value chain: they need to critically design the product they want to create while also focusing heavily on the needs of the potential customer.

There are several descriptions for what makes up a business model. For simplicity's sake, Johnson's, Christensen's, and Kagermann's four elements of a business model provide the basis of analysis for this research project. These four elements, according to the authors, are "the basic building blocks for any business."⁶⁸ First is the Customer Value Proposition (CVP). This part of the process is, according to many analysts, the make-or-break step for winning or losing at business.⁶⁹ CVP is when the company identifies a problem that needs fixing and then develops a solution to that problem. In other words, it is "a way to help customers get an important job done."⁷⁰ Second is the Profit Formula. This is where the company outlines how it will create value for both itself and the customer.⁷¹ The formula includes a revenue model, a cost structure, a margin model, and resource velocity.⁷² Third are Key Resources. These take the Profit Formula a step further, focusing on the *key* elements (people, technology, equipment, facilities, etc.) required to deliver value to the customer and the company.⁷³ Fourth are Key Processes. This element encapsulates "the operational and managerial processes that allow [successful companies]

⁶⁷ Magretta.

⁶⁸ Mark W. Johnson, Clayton M. Christensen, and Henning Kagermann, "Reinventing Your Business Model," *Harvard Business Review*, December 1, 2008, <https://hbr.org/2008/12/reinventing-your-business-model>.

⁶⁹ Steve Blank and Bob Dorf, *The Startup Owner's Manual: The Step-by-Step Guide for Building a Great Company* (Pescadero, CA: K and S Ranch, Inc., 2012), xxiii.

⁷⁰ Johnson, Christensen, and Kagermann, "Reinventing Your Business Model."

⁷¹ Johnson, Christensen, and Kagermann.

⁷² Johnson, Christensen, and Kagermann.

⁷³ Johnson, Christensen, and Kagermann.

to deliver value in a way they can successfully repeat and increase in scale.”⁷⁴ A successful business model negotiates these four elements in order to create something new, better, and useful to customers.

B. STARTING UP A STARTUP

One of the top buzzwords in business these days is *startup*. Among the most famous and valuable startups are Ant Financial (a Chinese financial services company that owns *Alipay* and is the first startup worth more than US\$100 billion), Uber, Didi Chuxing (a ridesharing firm in China), and Airbnb.⁷⁵ What is a startup, and what does it take to build one? What makes a startup different from other businesses? Two startup experts, Steve Blank and Bob Dorf, explain that “a startup is a temporary organization designed to search for a repeatable and scalable business model” and that it is “*not a smaller version of a large company*.”⁷⁶ A startup is a way for entrepreneurs to approach business in a scientific way, developing and testing hypotheses, then—as many times as necessary—going back to the drawing board to make adjustments and refine their product, all in search of developing that *repeatable and scalable business model*.⁷⁷ Blank and Dorf point out that “[w]ithin this definition, a startup can be a new venture or it can be a new division or business unit in an existing company.”⁷⁸ They note that if the business model is *unknown*, and a company is still looking for a market, customers, pricing, etc., then it is in the startup stage, “*searching* for a repeatable business model.”⁷⁹ If, however, the business model is known, then the company will be *executing* it.⁸⁰ “*Search* versus *execution* is what differentiates a new

⁷⁴ Johnson, Christensen, and Kagermann.

⁷⁵ Oliver Featherston, “World’s Most Valuable Startups: Top 10,” *CEO Magazine*, October 8, 2018, <https://www.theceomagazine.com/business/start-ups-entrepreneurs/worlds-top-10-startups/>.

⁷⁶ Blank and Dorf, *The Startup Owner’s Manual: The Step-by-Step Guide for Building a Great Company*, xxix.

⁷⁷ Blank and Dorf, 11.

⁷⁸ Blank and Dorf, 22.

⁷⁹ Blank and Dorf, 22.

⁸⁰ Blank and Dorf, 22.

venture from an *existing* business unit.”⁸¹ In *search* mode, a company is seeking to “validate its business model hypotheses”; in *execution* mode, the hypotheses have been proven and the quest to put together operating and financial plans, and the management tools necessary for sustained success, begins.⁸²

Blank and Dorf outline the four steps to building a startup: 1. Customer Discovery, 2. Customer Validation, 3. Customer Creation, and 4. Company-Building.⁸³ The first two steps are part of the “search” for a business model, and the last two steps “execute” the model that has been created, tested, and validated in steps one and two.⁸⁴ Step one is where the founder’s vision for a product is turned into a series of business hypotheses that are used to find customers and market that vision.⁸⁵ Step two introduces the product to customers for the first time and tests whether the product adequately solves a customer problem; if the customers validate the problem and solution, customer discovery is complete; if not, the company pivots back to step one until a repeatable business model is achieved.⁸⁶ Accomplishing these first two steps is critical because it verifies

the product’s core features, the market’s existence, locates customers, tests the product’s perceived value and demand, identifies the economic buyer ... establishes pricing and channel strategies, and checks out the proposed sales cycle and process. Only when an adequately sized group of customers and a repeatable sales process that yields a profitable business model are clearly identified and validated is “escape velocity” achieved.⁸⁷

After reaching “escape velocity,” a company can move to the final two steps: step three, where end-user demand is outlined, sales start, and business scaling is accomplished; and step four, where an organization transitions “from a startup to a company focused on

⁸¹ Blank and Dorf, 22.

⁸² Blank and Dorf, 22.

⁸³ Blank and Dorf, 22.

⁸⁴ Blank and Dorf, 22.

⁸⁵ Blank and Dorf, 25.

⁸⁶ Blank and Dorf, 22,25.

⁸⁷ Blank and Dorf, 27–28.

executing a validated business model.”⁸⁸ Building a startup is an iterative, fluid process; as such, it is common for companies to cycle back and forth between the first two steps in order to continue developing, hypothesizing, testing, and validating their products. During this process, failure is seen as inevitable. When faced with failures, a successful startup will address them head-on, figuring out what is not working, determining how best to fix it, and then being proactive to work towards a solution.⁸⁹ This process is applicable not only to a company readjusting its course of action in order to perfect a product in development; it is also applicable to why a startup may be established in the first place: to identify an existing problem whose solution presumably lies within the framework of the startup platform.

C. RUNNING A DRUG TRAFFICKING STARTUP

“Drug trafficking continues to be the most lucrative illicit activity in the world,” says Celina Realuyo of the journal *PRISM*.⁹⁰ Indeed, a 2002 *New York Times* article estimated that annual drug trafficking revenues exceeded US\$400 billion, a figure that has undoubtedly risen over the past 17 years.⁹¹ Moisés Naím’s description of the drug scene in Washington, DC—the headquarters for the war on drugs—reflects the current state of drug trafficking at the macro level: “Supply is abundant and prices are steady, hallmarks of a volume business. The purity levels of heroin are rising. There are products for every taste and budget.”⁹² This enormous success did not happen by accident. Drug cartels have adroitly developed a solid, sustainable business model that continues to generate estimated revenues that are significantly higher than the US\$20 billion annually that the U.S. federal

⁸⁸ Blank and Dorf, 22.

⁸⁹ Blank and Dorf, 33.

⁹⁰ Realuyo, “The New Opium War: A National Emergency,” 138.

⁹¹ Matthew Brzezinski, “Re-Engineering the Drug Business,” *New York Times*, June 23, 2002, <https://www.nytimes.com/2002/06/23/magazine/re-engineering-the-drug-business.html?mtrref=undefined>.

⁹² Moisés Naím, *Illicit: How Smugglers, Traffickers, and Copycats Are Hijacking the Global Economy* (New York: Anchor Books, 2005), 68.

government spends to combat drug use and trafficking.⁹³ What is the successful business model that cartels have adopted?

Professor Rodrigo Nieto-Gómez of the Center for Homeland Defense and Security, and research professor at the Naval Postgraduate School, postulates that drug cartels operate much like the entrepreneurs and startups of Silicon Valley.⁹⁴ He explains:

What we see in Mexico is more akin to Silicon Valley, and the relationship with venture capitalists and startups. You're good at what you do so I'll fund you. I'll give you access to the narcotics, you sell them for me, and you make some money. Out of that money you hire somebody else to help. You start to create your small little enterprise. If one day one part of the operation is captured or killed it's just one start-up. The different organizations in Mexico will have hundreds of operations like that operating at the same time and in the same chain.⁹⁵

This method of conducting business is in line with Blank's and Dorf's explanation of startups being either completely new ventures or new divisions within a larger company, with cartel startups fitting most frequently into the latter category. They are often new breakaways that are part of the larger drug smuggling enterprise. As Nieto-Gómez mentioned, drug traffickers have learned over time that a small, repeatable, disposable (read: startup) business model is necessary for long-term survivability. Narcotrafficking operations need to be decentralized, diffuse, and self-contained; otherwise, they risk endangerment of the larger organization as a whole if a compromise at the tactical level occurs. Take, for example, the Medellín and Cali cartels in Colombia. Both enterprises were the first in drug trafficking to vertically integrate, a business decision that analysts attribute to both organizations' eventual demise.⁹⁶ These cartels' insistence on controlling all levels of operation—from manufacturing to sale—set the environment for one broken link in the business chain to bring down the entire organization.⁹⁷ Their downfall in getting

⁹³ Naím, 68.

⁹⁴ Rodrigo Nieto-Gomez, "How Drug Cartels Operate Like Silicon Valley Startups," interview by Rory Smith, September 16, 2016, <http://hdl.handle.net/10945/50770>.

⁹⁵ Nieto-Gomez.

⁹⁶ Brzezinski, "Re-Engineering the Drug Business."

⁹⁷ Brzezinski.

too big, and consequently highlighting their operations and growing presence to law enforcement, was likely a primary reason for cartels now choosing to follow a startup model.

Cartels are arguably some of the most useful examples of how to effectively apply the startup concept. Most notably, they are experts at doing what successful startups do best: maximizing the Customer Value Proposition (CVP) by basing their entire operation around their customers. They work incessantly to identify customer problems and then use customer demand and feedback to develop sustainable solutions. They are interested not only in creating products customers want but also in accommodating customers' preferences for how they get those products. For example, lots of users no longer want to bother with the hassle of meeting a dealer in a deserted parking lot or back alley, risking detection with every transaction. Instead, they demand safer and more convenient ways to get their drugs. There are some users who prefer to shop for their drugs in the same way they do their weekly Amazon re-stock: online from the comfort of their own home, with their booty arriving quickly and discreetly to their doorstep. Like any good business, cartels have swiftly responded to this demand by moving their products online. They recognize that "the closer a company gets to a web/mobile channel and a web/mobile product, the faster it can change, test and optimize both *product and offer*."⁹⁸

Dealing drugs through e-commerce has allowed cartels to expand their customer reach from local to global, and it has decreased transaction costs since online retailing eliminates several middlemen in the distribution, sale, and delivery chains.⁹⁹ It has also improved the customer experience. Tom Wainwright, author of *Narconomics*, describes how by moving the drug business to an online platform, customers are now able to solicit and submit reviews for products, allowing them to be more discerning about which dealer from whom to buy.¹⁰⁰ He explains, "Reading hundreds of reviews of a batch of heroin, written by people who enjoyed it and lived to tell the tale, does a lot to take the scary image

⁹⁸ Blank and Dorf, *The Startup Owner's Manual: The Step-by-Step Guide for Building a Great Company*, xxvii.

⁹⁹ Tom Wainwright, *Narconomics: How to Run a Drug Cartel* (New York: PublicAffairs, 2016), 168.

¹⁰⁰ Wainwright, 169.

away from the drug,” pointing out that, “potential buyers should bear in mind that those customers who overdosed wouldn’t have been in a position to leave negative feedback, however.”¹⁰¹

E-commerce has also made the drug dealing business more transparent which has increased competition among sellers. This has forced sellers to distinguish themselves from one another by offering, for example, faster or more convenient shipping options, or by providing a money-back guarantee if the product received does not match the online description.¹⁰² Still, even while many drug users appreciate the convenience of online shopping, others prefer the gratification of near-instant product delivery. Cartels have not missed a beat in devising a scheme to service these customers’ demands as well. True to the startup model, the Xalisco Boys in Denver, Colorado, operated a series of several pizza delivery-like businesses for selling and distributing heroin there.¹⁰³ As Dennis Chavez of the Denver Police narcotics unit explains, these heroin delivery services were the Xalisco Boys’ response to “middle-class white kids’” demands for service and convenience; these kids “didn’t want to go to skid row or some seedy dope house to buy their drugs. Now they didn’t need to. The guys from Xalisco would deliver it to them” instead.¹⁰⁴ Quinones explains:

Each heroin cell or franchise has an owner in Xalisco, Nayarit [Mexico], who supplies the cell with heroin. The owner often doesn’t come to the United States. He communicates only with the cell manager, who lives in Denver and runs the business for him. Beneath the cell manager is a telephone operator [who] takes calls...from addicts, ordering their dope. Under the operator are several drivers [whose] job is to drive the city with their mouths full of little uninflated balloons of black tar heroin. The operator’s phone number is circulated among heroin addicts, who call with their orders. The operator’s job...is to tell [the addict] where to meet the driver [and then] relay the message to the driver. The driver swings by the parking lot and the addict pulls out to follow him. Then the driver stops. The addict jumps into the driver’s car [and] a cross-cultural heroin deal is

¹⁰¹ Wainwright, 169.

¹⁰² Wainwright, 169–70.

¹⁰³ Quinones, *Dreamland: The True Tale of America’s Opiate Epidemic*, 43.

¹⁰⁴ Quinones, 45.

accomplished, with the driver spitting out the balloons the addict needs and taking his cash. Drivers do this all day.¹⁰⁵

In addition to making transactions easier and more convenient for customers, these franchises (startups) allowed cells within the Xalisco Boys enterprise to operate independently, helping to compartmentalize operations and maintain secrecy.

In maintaining a tight focus on CVP, cartels will do almost anything to keep customers coming back. After all, a consistent customer base (i.e., constant demand) is the only factor keeping cartels at the top of the illicit business food chain. Cartels appreciate the need to keep customers happy, and so they refine marketing techniques to hook customers for life. The Xalisco Boys, for example, encouraged drivers to offer special deals to addicts in order to generate business: “fifteen dollars per balloon or seven for a hundred dollars. A free balloon on Sunday to an addict who buys Monday through Saturday.”¹⁰⁶ Cartels also recognize the importance of customer trust and loyalty. In one instance, a well-known addict / buyer from the Xalisco Boys complained that a young driver tried to scam him, offering 18 balloons for US\$100 when the deal they had negotiated previously was for 25 balloons; once the boss of the cell found out, he gave the addict the 25 balloons for free, and the addict never saw that driver again.¹⁰⁷ The addict said he never had known a dealer to offer free product “to get people hooked, or to keep addicts from getting clean...[u]ntil he met the Xalisco Boys. ‘This marketing technique *was* about that. They knew what they were doing. They were marketers.’”¹⁰⁸ Cartels know their customers inside and out, and they use this knowledge to mold current consumption and future demand by carefully selecting the best methods for generating a faithful pool of consumers for long term.

¹⁰⁵ Quinones, 43–44.

¹⁰⁶ Quinones, 44.

¹⁰⁷ Quinones, 70–71.

¹⁰⁸ Quinones, 71.

D. INNOVATING IN A DRUG TRAFFICKING STARTUP

Cartel bosses are very business-savvy. They understand as well as any other leader of a large corporation that innovation is key to sustaining a successful business enterprise; the business of drug trafficking is no exception. In fact, cartels are shrewd innovators, and experts contend that improvisation is perhaps their greatest asset.¹⁰⁹ Disruptive innovation is particularly important for a business to prosper and sustain itself over the long haul. What is disruptive innovation, though, and why does it matter? Why would cartels pursue disruptive innovation, and what effects can it have on their long-term success?

Disruptive innovation refers to how a product *over time* has revolutionized the playing field within its market, rather than to how that particular product or service changed the scene at one specific point in time.¹¹⁰ It allows companies to anticipate how trends may change value for customers over the long term. “By looking across time—from the value a market delivers today to the value it might deliver tomorrow—managers can actively shape their future and lay claim to new market space.”¹¹¹ In seeking a new market space, disrupters tend to work on getting both the business model and the product just right.¹¹² Eric Ries writes that a *product* is anything that “encompasses any source of value for the people who become customers.”¹¹³ Therefore, a product can be a physical item, a service, or anything that “customers experience from their interaction with a company.”¹¹⁴

Similar to a startup, disrupters aim to develop a useful product that solves a customer problem, as well as to discover a scalable, sustainable business model that can be transferred to the mainstream. In disruptive innovation, entrants most frequently target the

¹⁰⁹ Keefe, “Cocaine Incorporated: How a Mexican Drug Cartel Makes Its Billions.”

¹¹⁰ Clayton M. Christensen, Michael E. Raynor, and Rory McDonald, “What Is Disruptive Innovation?,” *Harvard Business Review*, December 1, 2015, <https://hbr.org/2015/12/what-is-disruptive-innovation>.

¹¹¹ W. Chan Kim and Renée Mauborgne, “Creating New Market Space,” in *Harvard Business Review on Innovation* (Boston, MA: Harvard Business School Publishing Corporation, 2001), 25–26.

¹¹² Christensen, Raynor, and McDonald, “What Is Disruptive Innovation?”

¹¹³ Eric Ries, *The Lean Startup* (New York: Crown Publishing Group, 2011), 28.

¹¹⁴ Ries, 28.

needs of non-mainstream customers who may be overlooked by incumbent businesses.¹¹⁵ In doing so, they are looking for an opportunity to create a new source of value for these customers. Entrants gain a foothold with the customers by offering a product or service with more-suitable, more cost-effective functionality.¹¹⁶ Once these fringe customers accept the new product and the entrant's customer pool expands beyond the fringe into the mainstream market, disruption has occurred.¹¹⁷ When disruptive innovation occurs, however, business managers need to adjust their companies' capabilities to now run two businesses simultaneously: one focused on the existing business model and the other that is geared toward the new model.¹¹⁸ This is perhaps why a startup model works so well for cartels; it allows managers to maintain oversight of several smaller businesses (startups) while at the same time keeping focus on the main drug enterprise.

Disruptive technologies differ from *sustaining technologies* in that they are not merely improvements of established products, but rather are completely new product offerings that bring to market an entirely different value proposition than that which was previously available.¹¹⁹ Disruptive technologies are often difficult for a company to pursue because, at least in the short term, they tend to be isolated to small-scale markets and to underperform existing products.¹²⁰ Ultimately, however, successful disruptive technologies (innovations) can become performance-competitive in mainstream markets against established products because they offer solutions to problems that customers did not yet know they had.¹²¹ In other words, disruptive innovation enables businesses to “find unoccupied territory that represents a real breakthrough in value.”¹²²

¹¹⁵ Christensen, Raynor, and McDonald, “What Is Disruptive Innovation?”

¹¹⁶ Christensen, Raynor, and McDonald.

¹¹⁷ Christensen, Raynor, and McDonald.

¹¹⁸ Ries, *The Lean Startup*, 120.

¹¹⁹ Clayton M. Christensen, *The Innovator's Dilemma: The Revolutionary Book That Will Change the Way You Do Business* (New York: HarperCollins, 2011), xviii.

¹²⁰ Christensen, xviii.

¹²¹ Christensen, xxvii–xxviii.

¹²² Kim and Mauborgne, “Creating New Market Space,” 3.

While many legitimate businesses may find it difficult and unpalatable to pursue disruptive innovation, cartels seem to implement disruptive technologies with surprising ease. Fentanyl provides a good example of this, representing a major disruptive innovation in the business of narcotrafficking. In fentanyl, cartels saw an opportunity to venture into unexplored territory by manufacturing a legal product for illicit means, establishing a new drug market that they hope will capture existing customers and perhaps even create a completely new pool of users. It does deviate from the idea of disruptive technologies in one very important way, however: performance. Fentanyl is exponentially more profitable than any drug in traffickers' current lineup. In applying the startup model—whose goal is to figure out what customers want and will pay for—traffickers have discovered a niche market in fentanyl.¹²³ Even still, the question now is: who wants it? There is heavy debate on whether users actively seek out fentanyl or, on the contrary, work to avoid it by all means possible. Heroin is another example of disruptive innovation in the drug business. By bringing a better business model (an alternative option for pain relief) to an existing market (opioid addicts who sought a cheaper, more readily available substitute to prescriptions), cartels disrupted the common use and traditional market for heroin.¹²⁴

According to Devin Liddell, drug cartels are more adept than most Fortune 500 companies at building successful businesses.¹²⁵ One of the main reasons for this, he says, is cartels' ability to improvise (innovate): “They think of innovation as an organizational imperative. Where there is a threat or an opportunity, criminal syndicates improvise.”¹²⁶ Cartels must be highly innovative in order to gain a comparative advantage in their markets and to work around the obstacles of running an illicit business. Unlike legitimate businesses, who can encourage innovation “as long as no laws are broken,” cartels thrive

¹²³ Ries, *The Lean Startup*, 20.

¹²⁴ William Evans, Ethan Lieber, and Patrick Power, “How the Reformulation of OxyContin Ignited the Heroin Epidemic” (National Bureau of Economic Research, April 2018), 2, <https://www.nber.org/papers/w24475.pdf>.

¹²⁵ Devin Liddell, “3 Business Lessons From The Sinaloa Drug Cartel,” *Fast Company*, August 1, 2014, <https://www.fastcompany.com/3033847/3-business-lessons-from-the-sinaloa-drug-cartel>.

¹²⁶ Liddell.

on the necessity to innovate entirely because of legal barriers.¹²⁷ Counter-illicit efforts force cartels to constantly overcome and adapt their operations so that they can continue to provide their customers with the products they demand while guaranteeing a sustained profit flow in return. Talking about El Chapo's booming enterprise, the *New York Times* observes, "As a mirror image of a legal commodities business, the Sinaloa cartel brings to mind that old line about Ginger Rogers doing all the same moves as Fred Astaire, only backward and in heels. In its longevity, profitability and scope, it might be the most successful criminal enterprise in history."¹²⁸

Perhaps one of the most infamous innovators in the history of the illegal drug industry is Carlos Lehder Rivas. After he entered the picture in 1976 as a drug runner for the Medellín cartel, the drug-smuggling game was transformed permanently. Lehder, who had experience in smuggling marijuana to the United States (a crime for which he served time), embodied the spirit of outside-the-box, imaginative thinking.¹²⁹ In fact, U.S. Attorney and Chief Prosecutor Robert Merkle once said of Carlos Lehder's knack for innovation that he "was to cocaine trafficking what Henry Ford was to automobiles."¹³⁰ In order to get cocaine to the U.S. market, Lehder fashioned the revolutionary idea of using small, private aircraft instead of mules to transport the product into the United States, capitalizing on the marijuana trafficking routes that the Medellín cartel had already established throughout the Caribbean.¹³¹ Lehder's ingenuity, combined with the ease of transporting cocaine (which required less space and fewer people than smuggling marijuana), meant huge increases in profits for Pablo Escobar's burgeoning enterprise.¹³² In contrast to perhaps only a few kilos of cocaine that could be smuggled by mule, hundreds

¹²⁷ Andrew Hargadon and Robert I. Sutton, "Building an Innovation Factory," in *Harvard Business Review on Innovation* (Boston, MA: Harvard Business School Publishing Corporation, 2001), 70.

¹²⁸ Keefe, "Cocaine Incorporated: How a Mexican Drug Cartel Makes Its Billions."

¹²⁹ Robert Filippone, "The Medellín Cartel: Why We Can't Win the Drug War," *Studies in Conflict & Terrorism* 17, no. 4 (January 1, 1994): 324, <https://doi.org/10.1080/10576109408435960>.

¹³⁰ Filippone, 324–25.

¹³¹ Filippone, 324.

¹³² Filippone, 324.

of kilos of cocaine could be piled into the cargo space of even a small aircraft.¹³³ A similar pattern of seeking new ways to maximize profits with less product and fewer resources can be seen in Mexican cartels' transition to fentanyl, which is massively more potent than heroin and requires significantly less real estate, both for production as well as transportation.

In addition to painstakingly preoccupying themselves with detection-avoidance during routine business operations, cartels must add to the complexity of running an underground business by also constantly making sure that they move their products in ways that meet fickle customer demand. Cartels' customers are always demanding new products (for example, synthetic opioids that they can no longer get through other means) and new ways of getting those products (say, via the Dark Web). Cartels' swift, effective responses to customer demands ensure that their enterprise remains successful and extremely profitable. One way to quickly respond to customer demand is to eliminate the need to circumvent border security—and thereby reduce transport times—by growing products locally. The Sinaloa cartel did just that when, several years back, DEA agents discovered one of their marijuana farms in a remote part of Wisconsin; the farm was established to feed the market in Chicago.¹³⁴

Cartels are always quick to adapt new technologies that will enhance their area of expertise or expand their portfolio. For example, the Gulf Cartel was the first to employ drones to deliver their products (sorry, Amazon).¹³⁵ Cartels are perhaps more apt to incorporate emerging technology into their business practices than legal firms because of the low-risk/high-reward structure of their operations. One innovation expert explains that a major factor in determining whether a business is successful or not is its willingness to invest in new technology; firms will be more likely to allocate resources to developing new

¹³³ Filippone, 332.

¹³⁴ Keefe, "Cocaine Incorporated: How a Mexican Drug Cartel Makes Its Billions."

¹³⁵ Nieto-Gomez, *How Drug Cartels Operate Like Silicon Valley Startups*.

technologies when those technologies have higher gross margins and are—therefore—seen as more profitable.¹³⁶

Cartels are less concerned than legal businesses about the economic impact on their profits of adopting a new technology, likely due to the high profitability of the products in which cartels specialize, which opens the door to more creative innovation. Drug trafficking operations “are low probability high reward kinds of environments. And that is highly ambitious behavior that you want to encourage. Those are the people that see a problem and don’t get deterred. They change everything.”¹³⁷

To demonstrate, faced with the geographic and security challenges of moving products over land from Mexico to the United States, the Sinaloa Cartel has turned to narco-submarines to transport drugs via a maritime route.¹³⁸ The narco-sub represented a major game-changer in the narcotrafficking business. While it is unclear exactly who developed the first narco-sub, evidence suggests that Colombian traffickers may have been the first to utilize this method of transport.¹³⁹ As of 2017, U.S. counter-drug officials estimated that upwards of 30 percent of all cocaine coming from Latin America into the United States was being transported via narco-subs.¹⁴⁰ The invention of narco-subs provides another example of the startup model being applied to the drug business. The venture is a series of compartmentalized operations that cycle through a process of trial-and-error to develop a solid product that can be replicated and scaled for high-volume operations. Builders are hired by cartels to design and construct a repeatable submarine model, locals are hired to offer expertise on the terrain and the best way to navigate it, and crewmen are hired to test

¹³⁶ Christensen, *The Innovator’s Dilemma: The Revolutionary Book That Will Change the Way You Do Business*, 36,43.

¹³⁷ Nieto-Gomez, *How Drug Cartels Operate Like Silicon Valley Startups*.

¹³⁸ Rodrigo Canales, “The Deadly Genius of Drug Cartels,” 2013, https://www.ted.com/talks/rodrigo_canales_the_deadly_genius_of_drug_cartels.

¹³⁹ Avi Jorisch, “The Drug War at Sea: Rise of the Narco Subs,” *The Daily Beast*, May 13, 2012, <https://www.thedailybeast.com/articles/2012/05/13/the-drug-war-at-sea-rise-of-the-narco-subs>.

¹⁴⁰ Jorisch.

the vessel and provide feedback to builders.¹⁴¹ While narco-sub technology may be extremely costly to adopt, if even one of the submarines makes it to its destination undetected—allowing the onboard contraband to be successfully distributed—the resultant profits will more than compensate for the cost of investing in such a transport vehicle. In fact, cartels construct these vessels for, effectively, one-way use, to be disposed of at the conclusion of a successful journey north.¹⁴² Put bluntly, the risks of investing are very low compared to the rewards (astronomically high profits).

While cartels are astute innovators, they at the same time do not sacrifice simplicity for the sake of innovation; they will readily stick to basic methods when those methods are most effective for accomplishing their objectives. To illustrate, a former Drug Enforcement Administration official recalls that cartels used catapults to propel bales of marijuana over a high-tech border fence with the United States, thereby thwarting a multi-million-dollar innovation with a “2,500-year-old technology.”¹⁴³ Professor Nieto-Gómez agrees that even the simplest of innovations can be useful: “You take a compressor and mix it with a potato gun and you start shooting cocaine or marijuana ... over the border. It’s freaking amazing. It’s completely unhindered by regulation. If you want to see what true libertarian, Ayn Rand capitalism looks like, don’t look at the US, but Mexico, and specifically the drug cartels.”¹⁴⁴ Innovation within the drug industry is what keeps the enterprise moving. It is what enables cartels to stay a step ahead of law enforcement in their never-ending game of cat-and-mouse. In the drug business, nearly anything is possible, and the only limit to what can be achieved is the capacity of human imagination.

¹⁴¹ Javier Guerrero, “Innovation in the War on Drugs: Narcosubs,” *The Maritime Executive*, June 19, 2018, <https://www.maritime-executive.com/editorials/innovation-in-the-war-on-drugs-narcosubs>.

¹⁴² Keefe, “Cocaine Incorporated: How a Mexican Drug Cartel Makes Its Billions.”

¹⁴³ Keefe.

¹⁴⁴ Nieto-Gomez, *How Drug Cartels Operate Like Silicon Valley Startups*.

III. THE RISE OF MEXICAN CARTELS

A. KEYS TO MEXICAN CARTELS' SUCCESS

Any large firm that is wanting to grow will look for opportunities to expand into new markets and to reach new customers. Drug cartels are no different. They will search for ways to improve product offerings and widen customer reach in order to boost their bottom line. Moisés Naím contends that Mexican cartels have done this exceptionally well. He explains how Mexican cartels successfully maximized the areas in which they hold an advantage by pursuing three critical keys for success in business: partnerships, diversification, and financial expertise.¹⁴⁵ As the world market has become more intertwined with the spread of globalization, businesses—both legitimate and illegal—have had to restructure operations to accommodate the highly interconnected global economy. For the sake of efficiency, businesses can no longer operate in a vacuum. As Colombian traffickers' prominence waned, and Mexico became a critical transit zone for drugs being smuggled north, Mexican cartels realized they held a trump card in the drug trade. They control the “the single most lucrative bottleneck in the drug supply chain”: border entry into the United States.¹⁴⁶ The U.S. border is the threshold for where the most value is added in the drug smuggling chain. And while Mexican cartels could work solo to produce and move drugs across the border, they knew this was not the best way to maximize their geographic advantage. As such, they began working with other traffickers who needed access to their coveted resource, offering partnerships and selling rights to border access points, extorting tolls of up to 60 percent of the value of a shipment, in order to take full advantage of their enviable location.¹⁴⁷

Mexican cartels' ingenuity and business savvy to switch from product expertise to functional specialty completely upended and redesigned the drug smuggling game.¹⁴⁸

¹⁴⁵ Naím, *Illicit*, 76.

¹⁴⁶ Naím, 75.

¹⁴⁷ Naím, 75.

¹⁴⁸ Naím, 75.

From now on, it was no longer about how well you manufactured a specific product but rather about how skillfully you capitalized on your functional expertise. As the drug game continued transforming away from product specialty, Mexican cartels knew that offering just one or two primary products or services would not guarantee a sustainable business model. They needed to diversify. As a result, many moved beyond just cocaine and marijuana and went polydrug instead.¹⁴⁹ As profits were soaring and cash was pouring in, Mexican cartels saw a problem that needed fixing: how to funnel the cash to the licit market. Therein lay yet another business opportunity, and this is when Mexican cartels started venturing into the art of large-scale money laundering.¹⁵⁰

By the mid-1990s, a combination of all of these entrepreneurial endeavors—partnerships, diversification, and financial expertise—propelled Mexican cartels to the top of the illegal drug game. This ascension did not happen overnight, however. Mexican cartels had to journey through the complex and ever-changing economics of business in order to attain the leadership status they hold today. Why focus on Mexican cartels, though, as opposed to any other drug trafficking syndicate? First, because Mexican cartels—namely the Sinaloa cartel—remain the most significant criminal drug threat to the United States, and second, because Mexican transnational criminal organizations (TCO) are assessed to be the primary importers of both heroin and illicit fentanyl coming into the country.¹⁵¹

B. THE PATH TO ROCKSTAR STATUS

The evolution of the illegal drug business from Colombian cocaine to Mexican heroin helps provide context for the recent emergence of the fentanyl on the illicit drug market as well as a point of reference for how the future of fentanyl may unfold. The origins of the current drug trade flowing through Mexico toward the United States have their roots in the 1980s, at the height of the cocaine trade from South America into Southern Florida. During the 1980s, U.S. demand for drugs was at an all-time high, infamously securing the

¹⁴⁹ Naím, 76.

¹⁵⁰ Naím, 76.

¹⁵¹ Drug Enforcement Administration, “2018 National Drug Threat Assessment,” vi, 11.

country's position at the top of the list for the world's biggest, most lucrative drug market.¹⁵² In particular, the United States' demand for a new highly addictive form of cocaine known as "crack" was skyrocketing.¹⁵³

Recognizing a solid business opportunity, Colombian cartels quickly stepped in to feed the growing demand. The primary purveyor of cocaine to the United States was Pablo Escobar's Medellín Cartel, which is said to have controlled at least 60 percent of the Colombian cocaine trade and 80 percent of the global cocaine market.¹⁵⁴ At the peak of its operations, it is estimated that the cartel was smuggling over 15 tons of cocaine into the United States every day, resulting in revenues of \$420 million per week and \$22 billion annually.¹⁵⁵ Adjusted for inflation from 1980 to present day, and that amount equates to roughly \$72 billion.¹⁵⁶ That is nearly one third the total annual revenue for one of the most profitable (legal) businesses today, Jeff Bezos' Amazon.¹⁵⁷ Such profit potential alone makes it easy to understand why the drug business is so attractive to entrepreneurs. It is a very reliable business; cartel bosses need not worry that demand for their products will dissipate or that their customer base will disappear.

The Medellín Cartel did not begin as such a large and profitable empire. It initially specialized in marijuana, getting the product into the United States primarily through "mules" who carried small amounts of the drugs smuggled on their person.¹⁵⁸ After Carlos Lehder Rivas joined the narco-trafficking team, however, and invented the idea of using

¹⁵² Bruce Michael Bagley, "US Foreign Policy and the War on Drugs: Analysis of a Policy Failure," *Journal of Interamerican Studies and World Affairs* 30, no. 2/3 (1988): 190, <https://doi.org/10.2307/165986>.

¹⁵³ Bagley, 190.

¹⁵⁴ Filippone, "The Medellin Cartel," 324.

¹⁵⁵ Amanda Macias, "10 Facts Reveal the Absurdity of Pablo Escobar's Wealth," *Business Insider*, December 29, 2017, <https://www.independent.co.uk/news/people/pablo-escobar-worth-wealth-money-how-much-a8133141.html>.

¹⁵⁶ DollarTimes.com, "Inflation Calculator," accessed August 3, 2019, <https://www.dollartimes.com/inflation/>.

¹⁵⁷ Forbes, "Billionaires 2019: The Richest People in the World," March 5, 2019, <https://www.forbes.com/billionaires/#3d34f8e9251c>.

¹⁵⁸ Filippone, "The Medellin Cartel," 324.

planes instead of people to carry drugs, the Medellín cartel's smuggling capacity soared, generating incredible revenues. Lehder's new, efficient transportation scheme allowed the cartel to quickly respond to the insatiable appetite in the United States for Colombian cocaine. In analyzing the importance of Carlos Lehder's contribution to the U.S. cocaine problem, author Tom Wainwright laments, "If one person can claim to have gotten America hooked on coke, Carlos Lehder is as good a candidate as any."¹⁵⁹

With cocaine-related violence and deaths reaching unprecedented levels, the United States government realized that it had to ramp up its crackdown on the drug trade. President Reagan viewed the drug problem as a direct threat to U.S. national security, and as a result, adopted a hardline stance against cartel activities, propelling counter-drug operations to the top of his administration's priority list.¹⁶⁰ Massive amounts of resources were put into combatting the flow of cocaine into the United States. Although it took many years for these efforts to gain momentum against cartel operations, they eventually enjoyed some success. The South Florida Task Force's effective interdiction operations in the Caribbean forced Colombian cartels to seek an alternative route for delivering their product north.¹⁶¹ Unfortunately for law enforcement officials, however, the cartels' ability to adapt and overcome counterdrug efforts in the Caribbean was remarkably fast and innovative.

Understanding that they could no longer safely transport their goods via air or sea across the Caribbean, they turned to a more secure land route in the Americas. New transportation routes for Colombian cocaine quickly emerged, stretching from the northernmost point of South America, across Central America, into Mexico, and over the border into the United States.¹⁶² In counter-narcotics jargon, this phenomenon of stamping out illicit activity in one area only for it to re-appear in another is known by Western observers as the *balloon effect*; Latin Americans know it as the *efecto cucaracha*, or

¹⁵⁹ Wainwright, *Narconomics: How to Run a Drug Cartel*, 58.

¹⁶⁰ Bagley, "US Foreign Policy and the War on Drugs," 194.

¹⁶¹ Wainwright, *Narconomics: How to Run a Drug Cartel*, 56.

¹⁶² Wainwright, 56.

“cockroach effect.”¹⁶³ Once the cocaine trade shifted to a land route across the Americas, Mexican cartels recognized an opportunity for expansion.

One of the most successful Mexican drug trafficking cartels today, the Sinaloa cartel, led by Joaquín “El Chapo” Guzmán, got its start in exactly this manner, by profiting from the crackdown in the Caribbean and the Colombian cartels’ need to depend on Mexico for routing their cocaine to the United States.¹⁶⁴ Previously, the Sinaloa cartel’s operations focused primarily on the marijuana trade, but now that their territory became the gateway for transporting drugs into the United States, they capitalized on their geographic comparative advantage to incorporate cocaine into their business model.¹⁶⁵ The cartel initially assumed the role of middle-man between Colombian cartels and their U.S. distributors, collaborating to move Colombian cocaine over the border, taking a cut of profits along the way.¹⁶⁶ Soon, however, Colombian cartels began paying them in cocaine, which encouraged them to “stop serving as logistical middlemen and invest in their own drugs instead.”¹⁶⁷ At the same time that the Sinaloa cartel was becoming a major distributor of cocaine, they were also ramping up production of domestically grown drugs like marijuana and heroin in order to make the most of their growing operational successes.¹⁶⁸ Heroin is easier to smuggle than marijuana but is more difficult to produce; despite this, however, since its value-to-weight ratio was (at the time) better than that of any other drug, heroin was a particularly attractive investment.¹⁶⁹ Fentanyl now offers a far better ratio than that of heroin: its potency is 50 times greater, which means a lot less product goes further and brings in a whole lot more profit.¹⁷⁰

¹⁶³ Wainwright, 15.

¹⁶⁴ Patrick Radden Keefe, “Cocaine Incorporated: How a Mexican Drug Cartel Makes Its Billions,” *New York Times*, June 15, 2012, sec. Magazine, <https://www.nytimes.com/2012/06/17/magazine/how-a-mexican-drug-cartel-makes-its-billions.html>.

¹⁶⁵ Keefe.

¹⁶⁶ Keefe.

¹⁶⁷ Keefe.

¹⁶⁸ Keefe.

¹⁶⁹ Keefe.

¹⁷⁰ Tate, “Fentanyl: What You Should Know.”

Mexican TCOs were careful and calculating in how and when they chose to enter into the heroin market. The evolution of how they got into the heroin business is extensive and complex, but the following is a synopsis of the primary events in the story line. To begin, in United States during the 1960s and 1970s, heroin was all the rage. The Rolling Stones sang about letting go “with a needle and a spoon,” and another popular group, Velvet Underground, released a song dedicated to the drug.¹⁷¹ Nevertheless, the euphoria for heroin did not last long. By the 1980s, the image of a strung-out needle-pricked addict became the drug’s new identity. Then, after heroin became stigmatized, and the popularity of other drugs like cocaine and marijuana fell, methamphetamines took center-stage.¹⁷² Unlike marijuana and cocaine, meth is fully synthetic. It does not originate from any agricultural crop, and as such, can be manufactured in a laboratory. The same is true for fentanyl. Meth’s main ingredient, pseudoephedrine, is found in many over-the-counter cold medicines, so getting it was as easy as driving to your nearest grocery store or pharmacy.¹⁷³ Just like with baking a batch of brownies, people would drive to the store, buy the ingredients (large quantities of cold medicines), take them back home, and follow a recipe to cook up a batch of meth. Once law enforcement caught onto this, though, and realized that people were using household medicines to manufacture meth, they passed a law restricting access to medications that contained pseudoephedrine, putting a wrench in the meth-cooking process.¹⁷⁴

After that, with American meth makers going out of business, the venture moved south into Mexico, which offered a much more permissive environment for manufacturing meth.¹⁷⁵ Vast regions of unpatrolled territory, access to human capital, and more lax regulations provided the perfect opportunity for Mexican cartels to produce meth on a large scale. Their use of more sophisticated equipment also meant that they made a better and more sought-after product; in fact, since Mexican meth labs came on line, the product’s

¹⁷¹ Wainwright, *Narconomics: How to Run a Drug Cartel*, 209.

¹⁷² Naím, *Illicit*, 71.

¹⁷³ Wainwright, *Narconomics: How to Run a Drug Cartel*, 207.

¹⁷⁴ Wainwright, 207.

¹⁷⁵ Wainwright, 207.

purity has increased two-fold.¹⁷⁶ Furthermore, because Mexican cartels could produce meth themselves (unlike with cocaine), and they did not owe any payback to Colombia, the profit potential with the drug was much higher.¹⁷⁷ Competitive pressures in the illegal drug trade were mounting, pushing major players like the Mexican cartels into higher-margin products. Inspired by their success with meth, Mexican cartels decided to diversify into their next entrepreneurial endeavor: heroin.

Illegal drugs go in and out of fashion just like clothing fads. What was popular in the 1980s (e.g., teens taking LSD) may not be so trendy today.¹⁷⁸ The reverse is also true: what was not faddish in the past may now be the newest hip thing. Heroin used to be considered by mainstream America as a scary, repulsive drug, reserved only for the lowliest addicts. Thanks to the opioid heyday of the 1990s, however, argues Tom Wainwright, this image was completely erased.¹⁷⁹ He recounts a story that describes many heroin users' spiral toward addiction: Cynthia Scudo, who lives in a well-to-do neighborhood of Denver, sustained a hip injury. Her doctor was eager to help, prescribing six OxyContin pills daily to help with her pain. "I was hooked. I was finishing my thirty-day script in ten days," Cynthia recalls. Once her doctor left, however, the problems began.

The new doctor, horrified at the number of pills she was getting, cut down Cynthia's dose. Cynthia resorted to desperate measures. In order to enhance their effect, she started crushing, snorting, and smoking the pills. That did not cut it though; she needed more. OxyContin pills were available on the black market but cost too much for her to buy enough to keep withdrawal symptoms away. Then, from a friend of her daughter, Cynthia learned about heroin, a drug that was much more affordable than counterfeit OxyContin and that was even more effective. From then on, she was hooked.¹⁸⁰ Wainwright declares that instances like these, where trusted doctors readily prescribed opioids to needy patients,

¹⁷⁶ Wainwright, 208.

¹⁷⁷ Wainwright, 208.

¹⁷⁸ Wainwright, 206.

¹⁷⁹ Wainwright, 210.

¹⁸⁰ Wainwright, 210–11.

directly contributed to ridding opiates like heroin of their unsavory former reputation.¹⁸¹ “They put a respectable face on hard drugs,” he says.¹⁸² Once heroin was destigmatized and the drug’s appeal was broadened, Mexican cartels decided to incorporate it into their product lineup. They jumped on the opportunity to service a brand new pool of previously inaccessible customers: middle- to upper-class “painkiller addicts...without access to their normal supply [of prescription opioids], and desperate for a substitute.”¹⁸³ Since 2015, Mexico has been the primary supplier of heroin in the United States, where heroin-related deaths continue to rise at an alarming rate.¹⁸⁴ Purity levels of Mexican heroin are unmatched, and the DEA assesses that there is ample supply to meet demand.¹⁸⁵ While heroin continues to dominate the illicit drug market in the United States, fentanyl seizures are on a dramatic rise and are only expected to increase in the future.¹⁸⁶ Mexican cartels’ newest business venture is on track to leapfrog heroin and become America’s next greatest drug threat.

Impressively, in a matter of just a few decades, Mexican cartels have managed to catapult themselves to the front of the drug smuggling trade. They are the drug business’ equivalent of music’s rock stars. If its current trend continues, fentanyl may well be just the revolution needed to secure Mexican cartels a spot in the illegal drug trade’s Hall of Fame.

¹⁸¹ Wainwright, 211.

¹⁸² Wainwright, 211.

¹⁸³ Wainwright, 212.

¹⁸⁴ Drug Enforcement Administration, “2018 National Drug Threat Assessment,” 13.

¹⁸⁵ Drug Enforcement Administration, 11.

¹⁸⁶ Drug Enforcement Administration, “Fentanyl Remains the Most Significant Synthetic Opioid Threat and Poses the Greatest Threat to the Opioid User Market in the United States,” 7.

IV. FENTANYL IN THE ILLEGAL DRUG BUSINESS

A. EMERGENCE OF FENTANYL

Due to the secretive nature of narcotrafficking operations, it is difficult to trace just how cartels entered into the market of producing and distributing illicitly manufactured fentanyl (IMF, or fentanyl). Since the substance is still a relatively new phenomenon to law enforcement officials, more information is needed to be able to outline the evolution of fentanyl in the illegal drug trade. For now, most of the information on fentanyl details how it first caught the attention of medical personnel and law enforcement officials during the mid-2000s.

Fentanyl caused alarm beginning in 2005, when for the next two years, toxicology reports from several overdose deaths revealed the presence of the drug in victims' systems.¹⁸⁷ As an increase in fentanyl was noted in toxicology reports, so too was a rise in fentanyl detected in drug seizures. From 2013 to 2014, the DEA reported a 426 percent increase in the number of products that tested positive for fentanyl while synthetic-opioid related deaths increased by 79 percent nationwide.¹⁸⁸ Interestingly, however, the increase in seizures testing positive for fentanyl, and the rise in synthetic opioid-related deaths, did not correlate to a simultaneous increase in opioid prescription rates.¹⁸⁹ Instead, reports from “high-burden states”—states where fentanyl submissions and synthetic opioid deaths were primarily concentrated—showed that fentanyl-related overdose deaths were the primary drivers for an increase in synthetic opioid overdose deaths.¹⁹⁰ This led some analysts to hypothesize that, because opioid prescription rates during this time remained stable but opioid-related deaths increased, IMF may have been the deadly culprit.¹⁹¹

¹⁸⁷ Drug Enforcement Administration, “Fentanyl,” October 2018, https://www.deadiversion.usdoj.gov/drug_chem_info/fentanyl.pdf.

¹⁸⁸ R. Matthew Gladden, Pedro Martinez, and Puja Seth, “Fentanyl Law Enforcement Submissions and Increases in Synthetic Opioid–Involved Overdose Deaths — 27 States, 2013–2014,” *Morbidity and Mortality Weekly Report* 65, no. 33 (August 26, 2016): 838, <https://doi.org/10.15585/mmwr.mm6533a2>.

¹⁸⁹ Gladden, Martinez, and Seth, 838.

¹⁹⁰ Gladden, Martinez, and Seth, 838.

¹⁹¹ Gladden, Martinez, and Seth, 840.

Around 2013—when a surge in the distribution of IMF was recorded—their hypothesis became more likely. National fentanyl submissions in 2015 more than doubled, increasing from 5,343 in 2014 to 13,882 (a jump of 8,539), surpassing an increase of 4,328 from 2013 to 2014.¹⁹² In 2016, the DEA officially declared that “non-pharmaceutical fentanyl is primarily responsible for the current fentanyl epidemic.”¹⁹³ This marked the beginning of an unstoppable upward trend in fentanyl seizures and fentanyl-related deaths, something that caught everyone off-guard. For example, in its national drug threat assessment for 2013, the DEA had no entries or discussion on fentanyl; in the 2018 report, the substance was mentioned 443 times.¹⁹⁴ Alarming, from the first outbreak in 2005 to the overdose crisis of today, fentanyl has gone from being a nobody to now being classified as one of the most formidable drug threats in the United States.¹⁹⁵ Unfortunately, details on how this happened—how fentanyl moved so rapidly and abruptly into the illicit market—remain unclear.

B. AVAILABILITY AND USE OF FENTANYL

The DEA reports that fentanyl is available on the black market in two forms: pharmaceutical fentanyl and IMF.¹⁹⁶ Pharmaceutical fentanyl (which is federally regulated and intended for legitimate medical use) is sometimes diverted from pharmacies, healthcare facilities, and manufacturing plants for personal use or sale.¹⁹⁷ The DEA points out that this diversion occurs much less frequently, and on a much smaller scale, than the production and distribution of illicit fentanyl.¹⁹⁸ Rather than taking a ready-made product

¹⁹² Gladden, Martinez, and Seth, 380.

¹⁹³ Drug Enforcement Administration, “2016 National Drug Threat Assessment,” November 2016, 65, https://www.dea.gov/sites/default/files/2018-07/DIR-001-17_2016_NDTA_Summary.pdf.

¹⁹⁴ Drug Enforcement Administration, “2013 National Drug Threat Assessment,” November 2013, <https://www.dea.gov/sites/default/files/2018-07/DIR-017-13%20NDTA%20Summary%20final.pdf>; “2018 National Drug Threat Assessment.”

¹⁹⁵ Drug Enforcement Administration, “2018 National Drug Threat Assessment,” 37.

¹⁹⁶ Drug Enforcement Administration, “2015 National Drug Threat Assessment,” October 2015, 41, <https://www.dea.gov/sites/default/files/2018-07/2015%20NDTA%20Report.pdf>.

¹⁹⁷ Drug Enforcement Administration, “2016 National Drug Threat Assessment,” 65.

¹⁹⁸ Drug Enforcement Administration, “2018 National Drug Threat Assessment,” 21.

and diverting it for illegal use, IMF is illegally produced in clandestine laboratories and then sold to drug users throughout the United States.¹⁹⁹ It is usually laced with heroin or pressed into counterfeit opioid pills.²⁰⁰ IMF can be abused by injection or inhalation, just as with heroin, or it can be smoked or snorted.²⁰¹ Counterfeit pills containing fentanyl can be crushed into a powder for inhalation or smoking.²⁰² Clandestine distributors are extremely adept at pressing pills that are visually identical to legitimate prescription opioids. In 2015, as opioid prescriptions were more tightly regulated, a marked surge was reported in fentanyl-laced counterfeit prescription opioids.²⁰³ These counterfeit pills were consistent with the appearance, coloring, and markings of prescription opioids, and the presence of fentanyl was detected only after laboratory analysis was performed.²⁰⁴ Regardless of how the product is consumed—shooting up, smoking, snorting—fentanyl is exponentially more dangerous than other drugs. Even the most experienced opioid abuser, for example, may face death when ingesting even miniscule amounts of fentanyl.

C. WHERE IS FENTANYL COMING FROM?

Fentanyl is not believed to be mass-produced within the United States.²⁰⁵ While more fidelity is needed on exactly where fentanyl is being produced and how it is being distributed within the United States, most evidence to date suggests that Chinese chemical companies and TCOs—specifically Mexican drug cartels—are the primary players.²⁰⁶ The DEA explains that clandestinely produced fentanyl comes primarily from Mexico, while fentanyl analogues and precursors are sourced from distributors in China.²⁰⁷ The 2005 to 2007 fentanyl outbreak, in fact, was traced to a single clandestine laboratory in Toluca,

¹⁹⁹ Drug Enforcement Administration, 21.

²⁰⁰ Drug Enforcement Administration, “2016 National Drug Threat Assessment,” 65.

²⁰¹ Drug Enforcement Administration, “2015 National Drug Threat Assessment,” 41.

²⁰² Drug Enforcement Administration, “2016 National Drug Threat Assessment,” 68.

²⁰³ Drug Enforcement Administration, 67.

²⁰⁴ Drug Enforcement Administration, 67.

²⁰⁵ Drug Enforcement Administration, 69.

²⁰⁶ Drug Enforcement Administration, “2018 National Drug Threat Assessment,” vi.

²⁰⁷ Drug Enforcement Administration, “2015 National Drug Threat Assessment,” vii.

Mexico, which authorities immediately seized and dismantled, resulting in a subsequent decline in fentanyl-related deaths.²⁰⁸ The DEA notes that similarities in poly-drug seizures along the U.S. south west border indicate that the Sinaloa cartel and the Cartel Jalisco Nueva Generación are the main Mexican smugglers of fentanyl into the United States.²⁰⁹ Similar to fentanyl, the vast majority of heroin seized in the United States—a staggering 91 percent in 2017—comes from Mexico.²¹⁰ As such, it is impossible to discuss Mexican TCOs’ dealings with fentanyl without also discussing their involvement with heroin; the two markets are inextricably interlaced. In nearly every drug threat assessment issued over the past five years, the DEA has discussed fentanyl extensively throughout the section dedicated to heroin, demonstrating just how tightly linked the two markets are. That the primary purveyors of fentanyl into the United States are Mexican cartels is not coincidental; they are using their extensive experience with heroin, and existing distribution routes, to funnel fentanyl into the U.S. market. It happens to be highly convenient that the potential user pool for fentanyl can be found in the existing heroin market.

Mexican TCOs bring heroin into the United States primarily through land-based routes across the U.S. border instead of through commercial air routes commonly used by South American and Asian traffickers.²¹¹ In 2008, 47 percent of U.S. Customs and Border Protection (CBP) heroin seizures were made from air conveyances while 49 percent were made on land; in 2016, those numbers were 14 percent and 82 percent, respectively.²¹² Their monopoly over their land border with the United States makes Mexican TCOs’ heroin-trafficking business an extremely lucrative empire, as the value of any illicit drug (e.g., fentanyl) soars as soon as it crosses the border into the United States. To further boost their profits, Mexican TCOs are working to capture a larger share of heroin markets where

²⁰⁸ Drug Enforcement Administration, “2014 National Drug Threat Assessment,” November 2014, 14, <https://www.dea.gov/sites/default/files/2018-07/dir-ndta-unclass.pdf>.

²⁰⁹ Drug Enforcement Administration, “2018 National Drug Threat Assessment,” 34.

²¹⁰ Drug Enforcement Administration, 18.

²¹¹ Drug Enforcement Administration, “2017 National Drug Threat Assessment,” 47.

²¹² Drug Enforcement Administration, 47–48.

white powder heroin is used by lacing fentanyl—also a white powder—into heroin (and also cocaine, to a lesser extent).²¹³ The technique is pervasive. “In 2016, all DEA Domestic Field Divisions containing white powder heroin markets reported the presence of heroin supplies laced with fentanyl and/or fentanyl disguised as heroin.”²¹⁴

Most of the fentanyl seized in the United States is mixed with other substances, but in a select few white powder markets, fentanyl is actually supplanting the heroin market. In the St. Louis metropolitan area (SLMA), for example, fentanyl is being marketed as fentanyl and not veiled under the label of heroin; consequently, deaths that are attributed solely to fentanyl have been on the rise.²¹⁵ In fact, fentanyl alone was responsible for over half of all overdose deaths in SLMA in 2016.²¹⁶ Instances of pure fentanyl being sold as such are relatively rare, however. For that reason, the DEA assesses that in the near-term, fentanyl will remain a secondary substance and will not eclipse heroin supplies in the United States.²¹⁷ Alluding to its high profit margin, the DEA posits that “the extent to which fentanyl takes market share from heroin will depend upon the degree to which traffickers incorporate fentanyl into their opioid distribution activities.”²¹⁸

D. WHY FENTANYL?

Any legitimate business will follow the money when deciding on which new products offer the best investment opportunities. Cartels are the same. They eagerly jump on attractive new business opportunities that offer a greater profit potential than their current inventory. For example, in the 1980s, cartels followed the growing demand for cocaine and transitioned from investing primarily in marijuana to specializing in the white powder substance. It was an added bonus to the rising demand that cocaine was also much simpler to transport, and smaller quantities generated significantly more revenue than

²¹³ Drug Enforcement Administration, 54.

²¹⁴ Drug Enforcement Administration, 55.

²¹⁵ Drug Enforcement Administration, 55.

²¹⁶ Drug Enforcement Administration, 55.

²¹⁷ Drug Enforcement Administration, 46.

²¹⁸ Drug Enforcement Administration, 55.

marijuana. Marijuana was a bulky product, but cocaine was not. Large amounts of cocaine could be tightly packed into almost any space (body cavities, vehicles, boats, aircraft) and thus smuggled much more easily than marijuana. This same line of thinking applies to traffickers' investment in fentanyl. For narcotraffickers, fentanyl today is what cocaine was in the 1980s; it is their hottest, newest, highest-cash-generating product yet. Fentanyl is alluring for four reasons in particular: It makes money, and lots of it; it is highly addictive; its precursors are relatively cheap to procure and synthesis relatively easy; and it is easier for traffickers to smuggle than most currently marketed drugs.

First, the manufacture and distribution of fentanyl is an extremely lucrative business. While profitability estimates vary widely, in all cases, fentanyl generates substantially more profit than any drug in cartels' current lineup. A recent Bloomberg article explains that if you purchased \$1,000 worth of heroin in Mississippi and prepared it for resale, you could make a profit of up to \$4,000; to sell that same amount in fentanyl (\$1,000 wholesale price), however, could generate a street profit of up to \$7.8 million.²¹⁹ The extensive gap in profit margins between heroin and fentanyl is partly due to fentanyl's strength. Fentanyl's high potency means that significantly smaller amounts of the product are needed to achieve the same effect as heroin, meaning that very little fentanyl goes a lot longer way than the same amount of heroin.

To illustrate, one kilogram of heroin produces just that: one kilogram of heroin. On the other hand, one kilogram of pure fentanyl can produce anywhere from 16 to 24 kilograms of street product, primarily through adulterating it with other drugs.²²⁰ This, in turn, translates to substantial financial gain. The DEA (whose estimates, while lower than Bloomberg's, are nevertheless just as staggering) says that one kilogram of heroin purchased from Colombia for \$5,000 to \$7,000 can be sold in the United States for roughly \$80,000.²²¹ Generating profits of 11 to 12 times what one paid for a product is nothing to balk at. Even more impressive, though, is taking in revenues of over 350 times the original

²¹⁹ Deprez, Hui, and Wills, "Deadly Chinese Fentanyl Is Creating a New Era of Drug Kingpins."

²²⁰ Drug Enforcement Administration, "2017 National Drug Threat Assessment," 62.

²²¹ Drug Enforcement Administration, 62.

amount paid for a product, an almost unfathomable reality that fentanyl offers. In contrast to the \$80,000 that can be generated from one kilogram of heroin, nearly \$1.28 to \$1.92 million can be generated from one kilogram of fentanyl originally purchased from China for about \$3,300 to \$5,000.²²²

Second, fentanyl is extremely potent and highly addictive. Like heroin, fentanyl impacts the brain's reward centers, so once a person begins using the product, it is often very difficult for him or her to stop.²²³ In fact, some experts estimate that mental addiction to fentanyl can begin upon first use of the drug, and physical dependency after taking it "just a couple of times."²²⁴ Cartels use illicit fentanyl to target opiate (namely heroin) and prescription opioid users because it contains the same strong opioid properties that abusers seek. It produces the same intense euphoric high as prescription opioids and heroin but at a much lower dose. This benefits traffickers who want to use less product to produce the same effects, but it can be dangerous for users who are, often unwittingly, being exposed to the toxic drug. The DEA notes that fentanyl widened traffickers' market potential because it can be geared toward the large population of controlled prescription drug users that are dependent upon the diversion of legitimate pills to the illicit market.²²⁵ From a law enforcement perspective, this could become even more problematic, as traffickers' increasing success "with secreting fentanyl and related compounds in counterfeit opioid medications will likely result in the emergence of fentanyl and related compounds in a variety of other counterfeit prescription drugs."²²⁶

Third, fentanyl is easy to manufacture. Fentanyl precursor chemicals can be obtained relatively cheaply, and the process to synthesize them into pure fentanyl is simple and quick, especially compared with other drugs. The materials and equipment needed to

²²² Drug Enforcement Administration, 62.

²²³ "Fentanyl Addiction," The Recovery Village, July 7, 2019, <https://www.therecoveryvillage.com/fentanyl-addiction/>.

²²⁴ Recovery Village.

²²⁵ Drug Enforcement Administration, "2017 National Drug Threat Assessment," 60.

²²⁶ Drug Enforcement Administration, 61.

synthesize fentanyl are also inexpensive and easily obtained online.²²⁷ Furthermore, unlike opiates such as heroin, fentanyl is completely synthetic. As such, it can be produced entirely inside clandestine laboratories rather than relying on crops that are susceptible to weather patterns or detection, and that take a much longer time to grow and harvest.²²⁸ According to the DEA, clandestinely produced fentanyl is synthesized using the Siegfried Method, a technique that is inexpensive and relatively simple, so it does not require sophisticated laboratory skills; therefore, cartels need not contract highly specialized or advanced chemists to be able to cook the drug.²²⁹ This method allows cooks to simply combine two precursor chemicals, N-phenethyl-4-piperidone (NPP) and 4-anilino-N-phenethyl-4-piperidone (4-ANPP)—often purchased ready-made from China—in order to synthesize fentanyl.²³⁰ To make fentanyl synthesis less simple and accessible, the DEA has regulated both substances (NPP and 4-ANPP) because they “have no other legitimate purpose other than as precursors to synthesize fentanyl.”²³¹

At the urging of the United States, China recently agreed to treat all variants of fentanyl as controlled substances.²³² A recent RAND study doubts that this will curb the flow of fentanyl into the United States, though, because “fentanyl is not prohibited in China—only its *unauthorized* manufacture and handling is.”²³³ As of now, there is no

²²⁷ United Nations Office on Drugs and Crime, “Global SMART Update,” UNODC 17 (March 2017): 7, https://www.unodc.org/documents/scientific/Global_SMART_Update_17_web.pdf.

²²⁸ Ahmed Azam, “Drug That Killed Prince Is Making Mexican Cartels Richer, U.S. Says,” *New York Times*, June 9, 2016, <https://www.nytimes.com/2016/06/10/world/americas/drug-that-killed-prince-is-making-mexican-cartels-richer-us-says.html>.

²²⁹ United Nations Office on Drugs and Crime, “Global SMART Update,” 7.

²³⁰ Drug Enforcement Administration, “2018 National Drug Threat Assessment,” 32–33.

²³¹ Drug Enforcement Administration, 32.

²³² Sasha Ingber, “China To Close Loophole On Fentanyl After U.S. Calls For Opioid Action,” NPR, April 1, 2019, <https://www.npr.org/2019/04/01/708801717/china-to-close-loophole-on-fentanyl-after-u-s-calls-for-opioid-action>.

²³³ Bryce Pardo and Beau Kilmer, “China’s Ban on Fentanyl Drugs Won’t Likely Stem America’s Opioid Crisis,” *The RAND Blog*, May 22, 2019, <https://www.rand.org/blog/2019/05/chinas-ban-on-fentanyl-drugs-wont-likely-stem-americas.html>.

evidence that cartels are manufacturing fentanyl from scratch in Mexico.²³⁴ However, with the recent imposition of stricter controls in China—which may complicate Mexican TCOs’ efforts to obtain precursor chemicals—there is concern that cartels may attempt to produce the substance entirely from scratch.²³⁵ If they are able to gain control of the complete fentanyl supply line, from production to sale, this could be a major game-changer in the counter-IMF fight.²³⁶ Even despite the current need for Mexican TCOs to get precursor chemicals from China instead of manufacturing them themselves, the cartels can still produce fentanyl much more quickly and cheaply than agricultural products like marijuana, cocaine, and heroin.²³⁷ Considering this, one can see why cartels would choose to incorporate fentanyl into their business model: it is simple and cheap, and the entire process of synthesizing the drug can be done in a small laboratory in under a week. These are significant benefits that no other illicit substance presently offers.

Fourth, fentanyl is easier to obscure and smuggle than other drugs. Traffickers have a range of options for making fentanyl-based products and getting them to the end-user. In addition to manufacturing fentanyl in its purest form, traffickers can also produce what are known as fentanyl-related substances (FRS), or fentanyl analogues. These are substances that are in the fentanyl family but have minor chemical variations that distinguish their structure from that of fentanyl.²³⁸ In experimenting with FRS, traffickers can take advantage of the lack of international consistency and cooperative law enforcement regarding substance regulation to get their products to their customers.²³⁹ By ever-so-slightly altering the chemical makeup of fentanyl, traffickers can circumvent international restrictions on currently controlled substances (specifically those listed in the Controlled

²³⁴ John Holman, “Mexican Drug Cartels, Poppy Farmers and the U.S. Fentanyl Crisis,” *Al Jazeera*, May 7, 2019, <https://www.aljazeera.com/indepth/features/mexican-drug-cartels-poppy-farmers-fentanyl-crisis-190507140632871.html>.

²³⁵ Holman.

²³⁶ Holman.

²³⁷ Realuyo, “The New Opium War: A National Emergency,” 134–36.

²³⁸ Drug Enforcement Administration, “2018 National Drug Threat Assessment,” 22.

²³⁹ Naím, *Illicit*, 5.

Substances Act of 1970) so that fentanyl precursors can be legally transported.²⁴⁰ In other words, once one FRS makes it on the controlled substances list, traffickers modify the chemical composition to create a new substance that must go through a lengthy bureaucratic process before it, too, can be included on the controlled substances list. Certain traffickers have used this to their advantage in order to avoid criminal prosecution; they have done extensive research on controlled substances and have made efforts to avoid those specific compounds which are controlled to ensure that they remain within the law.²⁴¹

While new substances—including numerous fentanyl analogues—are constantly being added to the controlled substances list, it is nearly impossible to keep pace with traffickers' counter-efforts to legally transport fentanyl around the world. This phenomenon of constant chemical alteration to avoid product detection is changing how traffickers approach the drug market. It has given traffickers a significant operational advantage that is unique to fentanyl while at the same time driving law enforcement agencies to change their detection and interdiction tactics as they continuously play catch-up in the ever-changing cat-and-mouse game of modern drug smuggling. Traffickers have yet to fully exploit this advantage (up through 2017, pure fentanyl was still the primary controlled substance found in DEA opioid seizures), but as they incorporate FRS more and more into their business models, the potential effects on the illegal drug trade become daunting.²⁴²

In addition to the myriad chemical alterations that fentanyl offers, traffickers can also ship fentanyl more easily than other drugs. Its high potency allows the product to be smuggled in small amounts that can be shipped by international mail. Distributors order fentanyl online and then have it shipped via express consignment or direct mail, complicating detection efforts through the use of freight forwarders, falsified labels, and

²⁴⁰ Drug Enforcement Administration, “2018 National Drug Threat Assessment,” 24.

²⁴¹ Deprez, Hui, and Wills, “Deadly Chinese Fentanyl Is Creating a New Era of Drug Kingpins.”

²⁴² Drug Enforcement Administration, “2018 National Drug Threat Assessment,” 22.

multiple transfers of custody along the way.²⁴³ Its potency also means that fentanyl can be sold in significantly smaller quantities and in differing levels of purity than, for example, heroin, while still reaping a substantial profit. The DEA's Fentanyl Signature Profiling Program (FSPP) analyzes the purity of fentanyl coming into the United States. Their analysis shows a range in purity from 0.1 to 97.8 percent, depending on the source; fentanyl from China is often seized in smaller quantities but frequently rates above 90 percent purity, where fentanyl from Mexico is often seized in larger quantities but typically rates less than 10 percent pure.²⁴⁴ Fentanyl from Mexico is often much lower in purity because it is cut with other drugs like cocaine or heroin, so there is no need to have a pure product in order to achieve an effective high. Even fentanyl that has been broken down into a less pure form can still garner almost 20 times more profit than heroin.²⁴⁵

E. BUT REALLY, WHY FENTANYL?

In spite of its enticing features, one critical question remains: why, if fentanyl is so toxic that it is murdering troves of users, would cartels want to invest in it? Why would they continue to pursue a product that is eliminating their valuable customer base? No good answer to this question yet exists. Only inside access to their decision-making processes, and short- and long-term business objectives, will provide the necessary insight for understanding traffickers' current obsession with fentanyl. Perhaps even more perplexing is that narco-traffickers are now starting to lace products with carfentanil, a substance that is 100 times more potent than fentanyl.²⁴⁶ Cutting drugs with such a lethal substance seems to make very little business sense, considering that repeat customers are what keeps a business profitable. The DEA reports that carfentanil is "10,000 times more potent than morphine and the most potent commercially used opioid."²⁴⁷ It is used as a large animal

²⁴³ Hans von Spakovsky and Peyton Smith, "China Is Poisoning America With Fentanyl," The Heritage Foundation, March 5, 2019, <https://www.heritage.org/crime-and-justice/commentary/china-poisoning-america-fentanyl>.

²⁴⁴ Drug Enforcement Administration, "2018 National Drug Threat Assessment," 24.

²⁴⁵ Azam, "Drug That Killed Prince Is Making Mexican Cartels Richer, U.S. Says."

²⁴⁶ Drug Enforcement Administration, "2017 National Drug Threat Assessment," 63.

²⁴⁷ Drug Enforcement Administration, 63.

tranquilizer and has never been approved for use on humans.²⁴⁸ Why cartels would invest in such deadly business venture is seemingly incomprehensible. However, if looking at fentanyl as a purely profit-driven business decision, it is easier to see why cartels would invest in it: the enormous profitability of fentanyl must mean more to cartels than any of the lives lost to the substance ever will.

²⁴⁸ Drug Enforcement Administration, 63.

V. PLAYERS IN THE COMPLEX FENTANYL GAME

The business of fentanyl is complex. Its stakeholders are not uniform. All have their own interests and motivations for participating in the fentanyl trade, and rarely do those interests or motivations overlap. This can make comprehensive efforts to tackle the fentanyl problem nearly impossible. Even within a group of participants—say, users, for example—the motivations and expected outcomes from fentanyl are different. What follows is a brief investigation into the four primary stakeholders in the fentanyl trade—manufacturers, wholesale buyers, distributors, and users—and their reasons for being involved in the business. Understandably, the higher one goes in the fentanyl trafficking food chain, the fewer details available, so most of the detailed information we currently have is for users and lower-level distributors.

A. MANUFACTURERS

Manufacturers and top-level purveyors are interested first in profits, and second in running a sustainable business. China dominates the world's production and export of manufactured drugs and precursor chemicals.²⁴⁹ It is also the primary source of fentanyl coming into the United States.²⁵⁰ While most of the fentanyl that is produced in China is intended for legitimate use, increasing amounts are being diverted for sale on the illicit market. China's weak regulation of pharmaceutical and chemical companies makes diversion easier than in countries where these industries are heavily monitored.²⁵¹ Some fentanyl is diverted by criminal elements, including Mexican drug trafficking organizations (DTOs), that are operating covertly within China.²⁵² Authorities in China have also recently discovered large and sophisticated illegal factories that are manufacturing fentanyl

²⁴⁹ Realuyo, "The New Opium War: A National Emergency," 139.

²⁵⁰ von Spakovsky and Smith, "China Is Poisoning America With Fentanyl."

²⁵¹ Chris Battiloro, "Fentanyl: How China's Pharmaceutical Loopholes Are Fueling the United States' Opioid Crisis," *Syracuse Journal of International Law & Commerce* 46, no. 2 (Spring 2019): 358, <http://search.ebscohost.com.libproxy.nps.edu/login.aspx?direct=true&db=bth&AN=137622621&site=ehost-live&scope=site>.

²⁵² Realuyo, "The New Opium War: A National Emergency," 139–40.

solely for illicit purposes.²⁵³ Mexican cartels order fentanyl precursor chemicals from China and synthesize them within Mexico, before preparing the pure product for sale to wholesale buyers.²⁵⁴ What is in it for them? First and foremost: profits. With fentanyl, cartels have made a smart business move; they have invested very little money into a new product that generates enormous returns. Second: a guaranteed revenue source in the face of an inadequate supply of natural drugs to meet growing demand. John Miltenburg of the McMaster University School of Business asserts that traffickers have entered into the fentanyl business because it can be used as an additive to naturally produced opiates, extending their supply and helping keep pace with the recent uptick in demand for such drugs.²⁵⁵ Cartels are forward-looking and readily take early steps to keep their business thriving for the long term. By investing in fentanyl, they can manipulate the natural economic cycle by offsetting the effects of an anticipated future of low supply / high demand.

B. WHOLESALE BUYERS

Wholesale buyers are merely following demand. Whatever their customers want, they will find a way to get. As one drug trafficker in Sinaloa, Mexico, explains, “Our clients in the U.S. now just ask for fentanyl. They don’t want heroin from poppy plants because they say that fentanyl is stronger, more potent. It means they can cut it and earn more when they distribute it in the streets.”²⁵⁶ Who are the “clients” that want fentanyl, though? Available evidence suggests that the demand at the user level is—overwhelmingly—not for fentanyl. One indication of this is that there are almost no street slang words for the substance.²⁵⁷ Instead, the demand is for the high. Thus, traffickers are finding a more

²⁵³ Realuyo, 140.

²⁵⁴ Drug Enforcement Administration, “2018 National Drug Threat Assessment,” 33.

²⁵⁵ John Miltenburg, “Supply Chains for Illicit Products: Case Study of the Global Opiate Production Networks,” *Cogent Business & Management* 5, no. 1 (January 8, 2018): 1, <https://doi.org/10.1080/23311975.2018.1423871>.

²⁵⁶ Holman, “Mexican Drug Cartels, Poppy Farmers and the U.S. Fentanyl Crisis.”

²⁵⁷ Maggie Fox, “Why Would Anyone Cut Heroin with Fentanyl? It’s Cheap, These Researchers Say,” NBC News, December 4, 2018, <https://www.nbcnews.com/storyline/americas-heroin-epidemic/why-would-anyone-cut-heroin-fentanyl-it-s-cheap-these-n943796>.

efficient and cost-effective way to deliver that high by using fentanyl. As a result, the greatest demand for fentanyl is at the wholesale level. In its 2018 National Drug Threat Assessment, the DEA points out, however, that fentanyl-laced substances are not common at the wholesale level; rather, they are most frequently observed at the distributor level:

According to CBP and DEA reporting, although fentanyl is often seized as a part of poly drug loads (generally cocaine, heroin, and methamphetamine), fentanyl mixtures with other illicit drugs are very uncommon at the wholesale level. This indicates the mixing of fentanyl with other illicit drugs is most frequently done inside the United States and is not representative of any definitive Mexican TCO strategy.²⁵⁸

This suggests that neither the cartels nor the wholesale buyers are lacing fentanyl with other drugs. Instead, cutting seems to be done almost exclusively by distributors. The wholesalers are interested only in buying fentanyl from producers and then pushing the product onto distributors within the United States.

C. DISTRIBUTORS

Suppliers and distributors want to maximize profits and extend product supplies as much as possible, so they are interested in fentanyl for its quality as an additive that can be mixed with other drugs they sell. In most cases, when a substance is cut with another drug, the original drug becomes diluted. With fentanyl, however, the original drug actually becomes exponentially more potent. This benefits distributors in a very big way because they can provide their customers the same, and in some cases a better high, at a substantially reduced cost since they are now using a more efficient product. Distributors' switch to fentanyl can be compared to U.S. Coca-Cola's switch from sugar to high-fructose corn syrup in the 1980s. In 1984, Coca-Cola stopped using sugar in its product and instead began substituting it with high-fructose corn syrup.²⁵⁹ High-fructose corn syrup provided

²⁵⁸ Drug Enforcement Administration, "2018 National Drug Threat Assessment," 33–34.

²⁵⁹ Julie Thomson, "Coca-Cola Taste Test: High Fructose Corn Syrup vs. Sugar," Huffington Post, April 15, 2013, https://www.huffpost.com/entry/coca-cola-taste-test_n_1324282?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xiLmNvbS8&guce_referrer_sig=AQAAALqkqK1sjWEmtOHy6pr1xBGCWa7SeyWzkjXOgHjgkLbpzIIocuWkLHep-PV7vZEde-PTVjDC4kZ0XIWKTIUYS4M2PnDOIV1abWU0wodY08GaHxVLfXSMSz1--xu3clpl38vjqAFTekDCN9xOsb1MVL7iYQDR3I7FrcotOeMXwEau.

customers a similar taste (effect) as sugar but at a lower cost to the manufacturer since, at the time, the U.S. government provided hefty subsidies for corn.²⁶⁰ Fentanyl offers the same benefit to distributors. Since it is many times more potent than heroin, very little fentanyl can be used in heroin's place and will produce the same results. In other words, distributors can lace heroin with miniscule amounts of fentanyl, and users get the same high but at a decreased product quantity (cost) to sellers. As one example of many similar cases, the DEA observed in the Cincinnati, Ohio, area that one distributor of "heroin, fentanyl, and fentanyl-laced heroin" would adjust the potency and purity of his products based on how many customers he had and how much the customers were looking to buy.²⁶¹ "Whenever several customers were seeking to purchase one to two ounces of heroin, the distributor would cut the heroin more to stretch supplies."²⁶² Knowledge of this tactic may not always trickle down to the dealer level, however.

One DEA assessment indicates that low-level dealers may not know that the products they are selling contain fentanyl because suppliers do not always inform them of which substance, or combination of substances, are in the products they vend.²⁶³ A recent article written by a group of colleagues who study drug addiction and policy at the University of California - San Francisco, echoes this sentiment. In the article, the researchers declare that fentanyl is being mixed with other substances at the distributor level, not by dealers who sell directly to users.²⁶⁴ Fentanyl is being mixed not only with heroin but also with other drugs. Several DEA seizures that have tested positive for fentanyl come in the form of counterfeit prescription medications, especially opioid painkillers such as oxycodone and hydrocodone, which vary widely in the amount of fentanyl found in each pill. For instance, laboratory analysis of two seizures in Florida and California shows a wide variation in the dosage of fentanyl across several pills; dosages ranged from 0.6 to 6.9 milligrams (a lethal dose of fentanyl is 2 milligrams), suggesting that the producers

²⁶⁰ Thomson.

²⁶¹ Drug Enforcement Administration, "2018 National Drug Threat Assessment," 27.

²⁶² Drug Enforcement Administration, 27.

²⁶³ Drug Enforcement Administration, 25.

²⁶⁴ Fox, "Why Would Anyone Cut Heroin with Fentanyl?"

were new to pill production and likely amateurs at properly mixing fentanyl with other substances.²⁶⁵ This inconsistency is inevitably one of the main contributing factors in fentanyl overdoses.

D. USERS

Fentanyl is quite the polarizing substance. A few users fervently seek it out while myriad others earnestly seek to avoid it. Those who desire the drug are often attracted to its euphoric qualities, and the short yet intense high it offers. Users who shun fentanyl are put off by its high potency and greater potential for overdose than other drugs on the market. In 2017, Ciccarone et al., conducted a study of heroin users in Massachusetts, specifically focused on the users' identification and perceptions of fentanyl-adulterated heroin being sold in the area.²⁶⁶ In their study, the researchers interviewed users on both ends of the spectrum: those who want fentanyl and those who want nothing to do with it. In addition to understanding how users identify fentanyl in heroin and what their perceptions are of how each drug affects the body, the study provides crucial qualitative evidence as to why users do or do not desire fentanyl.

So first, how do users identify fentanyl? They do so primarily through physical appearance, taste, and embodied effects, with their level of confidence in positively identifying the substance ranging from highly confident to completely uncertain.²⁶⁷ Note that these identification techniques are only applicable for users to identify fentanyl in powder form; to identify fentanyl in pill form (e.g., in counterfeit pain killers) is even more difficult and ambiguous. For physical appearance, users note that fentanyl-adulterated heroin takes on a whiter or more yellowish hue as compared to the brown hues of pure heroin.²⁶⁸ For taste, users explain that fentanyl is sweeter than pure heroin, which can be

²⁶⁵ Drug Enforcement Administration, "National Heroin Threat Assessment Summary - Updated," 6.

²⁶⁶ Daniel Ciccarone, Jeff Ondocsin, and Sarah G. Mars, "Heroin Uncertainties: Exploring Users' Perceptions of Fentanyl-Adulterated and -Substituted 'Heroin,'" *International Journal of Drug Policy* 46 (August 2017): 146–55, <https://doi.org/10.1016/j.drugpo.2017.06.004>.

²⁶⁷ Ciccarone, Ondocsin, and Mars, 152.

²⁶⁸ Ciccarone, Ondocsin, and Mars, 151–52.

quite bitter.²⁶⁹ For embodied effects, users report that fentanyl offers a short, intense high as compared to heroin's longer-lasting but less powerful rush.²⁷⁰

Now why do some users actively seek out fentanyl while many others work equally as hard to avoid it? The results are mixed. Some users want fentanyl because of the high, others for the pain relief. Certain users avoid fentanyl because, in their opinion, it is not as good as heroin, while others stay away from fentanyl because of its extreme potency. Surprisingly, economics seem irrelevant to users when deciding between heroin and fentanyl. In fact, only one user mentioned cost as a reason to avoid fentanyl, since its shorter-lasting effects mean that more frequent doses are needed to get the same duration of effects as heroin.²⁷¹ At any rate, while many people may view the opioid crisis as an addiction problem, stemming purely from users' insatiable appetite for getting high, what Ciccarone et al., found is that, actually, users seek out substances (heroin, opioid pills, fentanyl) to stave off or relieve withdrawal symptoms rather than to chase a high.²⁷² As Sam Quinones describes, users addicted to the morphine molecule—with which fentanyl and heroin share their primary embodied characteristics—do not necessarily want to be; ferocious withdrawal symptoms may keep them coming back.²⁷³ They want whichever substance is going to keep away their withdrawal symptoms most effectively.

Looking at substance abuse from this perspective helps to explain why users desire one substance over another. In the case of fentanyl and heroin, for example, Ciccarone et al., found that most users prefer pure heroin over fentanyl-adulterated heroin because it has longer “legs” and keeps withdrawal symptoms away for much longer than fentanyl.²⁷⁴ Others prefer heroin and purposely avoid fentanyl because they fear its high risk for overdose. “Dope in general is killing people, but the fentanyl is something different. It’s a

²⁶⁹ Ciccarone, Ondocsin, and Mars, 149.

²⁷⁰ Ciccarone, Ondocsin, and Mars, 149.

²⁷¹ Ciccarone, Ondocsin, and Mars, 149.

²⁷² Ciccarone, Ondocsin, and Mars, 149–50.

²⁷³ Quinones, *Dreamland: The True Tale of America's Opiate Epidemic*, 39.

²⁷⁴ Ciccarone, Ondocsin, and Mars, “Heroin Uncertainties,” 149.

different animal completely and it really is killing people. One little fuckin', one little mistake and you're fuckin' dead," one loyal heroin user warns.²⁷⁵

On the other hand, users who sought out fentanyl did so because of the intense feeling it gives: "The rush [from fentanyl] is incredible...you really feel like you're King Kong or Godzilla. The rush is 10 times stronger," says Darryl, a man in his 50s who has been using for 15 years.²⁷⁶ Another user, Liz, explains that she prefers fentanyl because it relieves her pain much more effectively than heroin: "Q: We're getting into the high or how it feels in your body, what happens after the rush? A: I get energy. A lot of people nod out and shit but I get energy because I'm not in pain."²⁷⁷ For certain users, fentanyl's pain relief qualities may help explain why they prefer it to heroin. It may also explain, at a larger level, why some users may have transitioned from a prescription opioid (pain killer) addiction to illicit fentanyl abuse.

In addition to users who want fentanyl and users who prefer heroin, there are still others in a middle category, who prefer a mixture of the two substances. These users say that heroin laced with fentanyl is the "best of both worlds," offering the intense, euphoric high of fentanyl that is supplemented by the longer-lasting effects of heroin.²⁷⁸ Fentanyl (if it does not result in an immediate overdose) gives the quick, strong rush of a good high, and heroin mitigates the come-down after the fentanyl wears off, providing extended relief from withdrawal. To illustrate, Angela, a woman in her 30s who has been injecting heroin for two years, describes the effects of a good heroin / fentanyl mixture:

A: It's weird because now with a lot of people the newest thing is the real dope that is actually mixed also with fentanyl. So that way they get the intense feeling with also the shelf life—trying to get the best of both worlds type thing so that you don't get sick so often.

²⁷⁵ Ciccarone, Ondocsin, and Mars, 150.

²⁷⁶ Ciccarone, Ondocsin, and Mars, 149.

²⁷⁷ Ciccarone, Ondocsin, and Mars, 152.

²⁷⁸ Drug Enforcement Administration, "Fentanyl Remains the Most Significant Synthetic Opioid Threat and Poses the Greatest Threat to the Opioid User Market in the United States," 9.

Q: So they're mixing the fentanyl into the heroin to get a good fentanyl rush and the legs of the heroin?

A: Exactly.

Q: How long does it last then?

A: Well you'll feel the fentanyl mixed with just the basic high anyway so it's like intense at first. And then it'll wear off but at least when it does completely wear off and you're just functioning you're not, you know ... you won't be sick after. Versus if it was straight fentanyl you would probably start to feel sick as close as 20 minutes to 30 minutes ... right after.²⁷⁹

E. SUMMARY

Laying out the diverse interests of each of these participants—manufacturers, wholesale buyers, distributors, and users—sheds light on the wide scope of the fentanyl problem. Each actor has his or her own reasons for participating in the illicit fentanyl trade. With few, if any, interests overlapping among actors, the opportunity to comprehensively address the complex problem set is rendered exponentially more difficult.

²⁷⁹ Ciccarone, Ondocsin, and Mars, "Heroin Uncertainties," 152.

VI. CONCLUSION AND RECOMMENDATIONS

A. CONCLUSION

Illicit fentanyl is a dangerous innovation in the illegal drug business. It is unique in that, unlike many other illicit drugs, fentanyl has a perfectly legitimate and legal use. Traffickers, however, recognize its profitable, addicting characteristics and have capitalized on them to divert the drug for consumption on the illicit market. The transition to fentanyl represents perhaps the singular most lucrative business decision cartels have made to date. The substance has widened cartels' business opportunities beyond their traditional customer base, unlocking access to a particularly alluring market: prescription opioid addicts, a previously unreachable customer pool. Unfortunately, cartels' expansion into fentanyl makes an already complex counter-drug landscape even more impassable.

This research has revealed that, in the narcotrafficking business, the label "cartel" is in fact a misnomer. From a business perspective, narcotrafficking organizations today are not cartels at all. They do not operate as large, vertically integrated syndicates, with orders flowing directly from the top brass who maintain full oversight and control of all operations. Instead, they function as networks (startups), consisting of autonomous and self-sustaining cells that conduct business in support of—but separate from—the larger overarching organization.²⁸⁰ This transition happened after the noteworthy fall of two of the most prominent vertically integrated conglomerates in narcotrafficking, the Cali and Medellín cartels. Operating as a startup has enabled narcotrafficking syndicates to function more autonomously and to compartmentalize operations, making their organizations much more resilient in the event of a compromise.

Still, one critical question about fentanyl remains: why are cartels investing in the product when it is eliminating their most valuable platform for sustainable business: repeat customers? As this research has shown, cartels' most important customers are the wholesale buyers and distributors, not fentanyl users. As such, cartels are unfazed by user

²⁸⁰ Naím, *Illicit*, 228.

deaths due to fentanyl. I surmise that the only situation in which cartels may break away from producing illicit fentanyl is if enough users die that wholesale buyers and distributors begin altering their purchasing habits. Otherwise, cartels will continue to manufacture the product their customers demand most.

B. RECOMMENDATIONS

Fentanyl is admittedly a very complex problem set. Considering the varying motivations driving each participant's involvement with the product, the fentanyl issue cannot be tackled as a cohesive whole. For manufacturers, wholesale buyers, and distributors, profits seem most important. For a few dealers and users, fentanyl is just the product they need. For most dealers and users, however, fentanyl is a deadly nuisance to be avoided. If we are to have any success at arresting the prevalence of illicit fentanyl within the United States, all actors in the fentanyl trade must be addressed individually, according to what motivates them the most. Counter-illicit efforts must also be tailored specifically to fentanyl and its unique supply and demand characteristics.

Counter-drug officials must completely overhaul the way they look at the threat, and how it is approached, if they are to have any chance of diminishing the fentanyl—and wider illicit drug—problem within the United States. How to do this? First, properly understand the antagonist. Drug-trafficking organizations (DTO) must be treated as highly sophisticated businesses and not as a mere gaggle of criminal deviants. To understand their ways of thinking and decision-making processes, one should take on the mindset of an aggressive business innovator or budding entrepreneur, who is tirelessly looking for ways to conduct business better and more efficiently, regardless of the obstacles standing in the way. To traffickers, for example, the need to innovate around government interference is just “the cost of doing business,” and there is no lack of resources or money to help them circumvent the threat environment.²⁸¹

There is little sense in trying to appeal to traffickers' sense of morality because they have no moral compass. As such, threats of long jail sentences, for example, will do next

²⁸¹ Naím, 233.

to nothing to alter their behavior. What they care about most is profits and how best—and most efficiently—to extract them. Second, knowing the threat and that profits are what drive traffickers’ behavior, governments must develop policies that have the greatest negative effect on traffickers’ profits. This means focusing efforts where profits will be hurt the most: demand reduction and sharply focused supply line targeting. Separately, law enforcement officials should tap more heavily into the valuable information that dealers and users can offer for helping identify and track down fentanyl distributors.

1. Demand Reduction

Campaigns to address the demand side of fentanyl—as far as users are concerned—has apparently been quite successful. The drug seems to work for itself in that respect, with its potent dangers keeping the vast majority of users from wanting anything to do with it. Therefore, I believe that little more need be invested in making users aware of fentanyl’s deadly effects. But fentanyl represents an atypical case in that, unlike most illegal drugs, the overwhelming majority of demand comes not from addicts but rather from wholesalers and distributors who want to expand their profit margins. In this way, fentanyl is both a supply side and a demand-side problem, just not in the traditional sense. The greatest demand is coming from within the supply chain.

2. Focused Supply Line Targeting

Years of evidence have proven that the earlier in the supply chain that interdiction efforts are focused, the less of an impact on traffickers’ bottom line. Crop eradication operations, for example, have done next to nothing to impact cartels’ revenues.²⁸² Thankfully, this ineffectual technique is not an option for fentanyl, since it is a completely synthetic drug. Counter-drug efforts done after the single-greatest jump in product value—once the product crosses the U.S. border—are much more impactful. Interdiction and seizure operations within the United States, therefore, have the greatest potential to affect traffickers’ profits more than at any point prior to product entry into the country. This offers hope in the case of fentanyl, where a significant portion of the demand for the product

²⁸² Wainwright, *Narconomics: How to Run a Drug Cartel*, 18.

comes from distributors whom the DEA assesses are located within the United States.²⁸³ Wholesalers vend to distributors, who then cut fentanyl with other substances. Consequently, targeting these two greatest sources of demand—wholesalers and distributors—will offer the most reward for law enforcement and create the greatest risk for cartels: noticeable negative impacts to their bottom line.

3. Dealers and Users

Dealers are the entity most impacted by fentanyl deaths and have the greatest motivation to avoid them. They rely heavily on repeat customers for continued business, so it is in their best interest to avoid products that jeopardize their primary source of income. While some dealers are okay with selling fentanyl since certain customers desire the product, many others express fear of being sold fentanyl-laced substances that may put their source of revenue at risk. Law enforcement can use this to their advantage by developing relationships with dealers who unintentionally sell products that contain fentanyl. Dealers can inform law enforcement of reports from users that their drugs contained fentanyl, as well as information on the distributor from whom the dealer purchased the tainted product, so that a network of potential fentanyl distributors can be developed.

To aid in this process—as well as to educate and keep users safe—addicts should be given fentanyl test kits to verify the presence of fentanyl in their drugs. Fentanyl test kits may also prove beneficial to dealers but will likely have less of an impact on counter-illicit operations than will test kits for users since users are more numerous and less likely to want the lethal drug. As mentioned, dealers are sometimes motivated to sell fentanyl-laced products because a select few customers request them. One might add to the list of recommendations that more users be offered the fentanyl antidote naloxone, to help reverse the drug's lethal effects. However, I do not recommend this as a primary course of action because as some journalists have pointed out, this can lead to more intensive fentanyl abuse

²⁸³ Drug Enforcement Administration, “2018 National Drug Threat Assessment,” 33–34.

by the user population, the exact opposite effect of what counter-trafficking efforts are working to achieve.²⁸⁴

C. OUTLOOK

Cartels' venture into illicit fentanyl is a dangerous development in the illegal drug trade. This research provides a comprehensive baseline of information on the complex inner-workings of the illicit fentanyl trade and its diverse participants. It is my hope that this information will better equip policymakers and law enforcement officials to develop effective counter-strategies that will permanently and substantially disrupt the business of illicit fentanyl both within the United States and globally.

²⁸⁴ Shankar Vedantam et al., "Life, Death And The Lazarus Drug: Confronting America's Opioid Crisis," NPR, June 24, 2019, <https://www.npr.org/2019/06/24/735423620/life-death-and-the-lazarus-drug-confronting-americas-opioid-crisis>.

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LIST OF REFERENCES

- Achenbach, Joel, Lenny Bernstein, Robert O’Harrow, and Shawn Boburg. “An Onslaught of Pills, Hundreds of Thousands of Deaths: Who Is Accountable?” *Washington Post*, July 20, 2019. https://www.washingtonpost.com/investigations/an-onslaught-of-pills-hundreds-of-thousands-of-deaths-who-is-accountable/2019/07/20/8d85e650-aafc-11e9-86dd-d7f0e60391e9_story.html?noredirect=on&utm_term=.8c4496946580.
- Armenian, Patil, Kathy Vo, Jill Barr-Walker, and Kara Lynch. “Fentanyl, Fentanyl Analogs and Novel Synthetic Opioids: A Comprehensive Review.” UC San Francisco, October 1, 2017. <https://escholarship.org/uc/item/8xh0s7nf#author>.
- Azam, Ahmed. “Drug That Killed Prince Is Making Mexican Cartels Richer, U.S. Says.” *New York Times*, June 9, 2016. <https://www.nytimes.com/2016/06/10/world/americas/drug-that-killed-prince-is-making-mexican-cartels-richer-us-says.html>.
- Bagley, Bruce Michael. “US Foreign Policy and the War on Drugs: Analysis of a Policy Failure.” *Journal of Interamerican Studies and World Affairs* 30, no. 2/3 (1988): 189–212. <https://doi.org/10.2307/165986>.
- Battiloro, Chris. “Fentanyl: How China’s Pharmaceutical Loopholes Are Fueling the United States’ Opioid Crisis.” *Syracuse Journal of International Law & Commerce* 46, no. 2 (n.d.). <http://search.ebscohost.com.libproxy.nps.edu/login.aspx?direct=true&db=bth&AN=137622621&site=ehost-live&scope=site>.
- Bernstein, Lenny, and Scott Higham. “Investigation: The DEA Slowed Enforcement While the Opioid Epidemic Grew Out of Control.” *Washington Post*, October 22, 2016. https://www.washingtonpost.com/investigations/the-dea-slowed-enforcement-while-the-opioid-epidemic-grew-out-of-control/2016/10/22/aea2bf8e-7f71-11e6-8d13-d7c704ef9fd9_story.html?utm_term=.6536a5c3b6e4.
- Blank, Steve, and Bob Dorf. *The Startup Owner’s Manual: The Step-by-Step Guide for Building a Great Company*. Pescadero, CA: K and S Ranch, Inc., 2012.
- Brzezinski, Matthew. “Re-Engineering the Drug Business.” *The New York Times*, June 23, 2002. <https://www.nytimes.com/2002/06/23/magazine/re-engineering-the-drug-business.html?mtrref=undefined>.
- Canales, Rodrigo. *The Deadly Genius of Drug Cartels*, 2013. https://www.ted.com/talks/rodrigo_canales_the_deadly_genius_of_drug_cartels.
- Christensen, Clayton M. *The Innovator’s Dilemma: The Revolutionary Book That Will Change the Way You Do Business*. New York: HarperCollins, 2011.

- Christensen, Clayton M., Michael E. Raynor, and Rory McDonald. "What Is Disruptive Innovation?" *Harvard Business Review*, December 1, 2015. <https://hbr.org/2015/12/what-is-disruptive-innovation>.
- Ciccarone, Daniel, Jeff Ondocsin, and Sarah G. Mars. "Heroin Uncertainties: Exploring Users' Perceptions of Fentanyl-Adulterated and -Substituted 'Heroin.'" *International Journal of Drug Policy* 46 (August 2017): 146–55. <https://doi.org/10.1016/j.drugpo.2017.06.004>.
- Cicero, Theodore J., Matthew S. Ellis, Hilary L. Surratt, and Steven P. Kurtz. "The Changing Face of Heroin Use in the United States: A Retrospective Analysis of the Past 50 Years." *JAMA Psychiatry* 71, no. 7 (July 1, 2014): 821–26. <https://doi.org/10.1001/jamapsychiatry.2014.366>.
- Dasgupta, Nabarun, Leo Beletsky, and Daniel Ciccarone. "Opioid Crisis: No Easy Fix to Its Social and Economic Determinants." *American Journal of Public Health* 108, no. 2 (February 2018): 182–86. <http://dx.doi.org.libproxy.nps.edu/10.2105/AJPH.2017.304187>.
- Davis, Kathleen. "Fentanyl: Use, Abuse, Side Effects, and Warnings." *Medical News Today*, January 22, 2019. <https://www.medicalnewstoday.com/articles/308156.php>.
- Deprez, Esmé, Li Hui, and Ken Wills. "Deadly Chinese Fentanyl Is Creating a New Era of Drug Kingpins." Bloomberg. May 22, 2018. <https://www.bloomberg.com/news/features/2018-05-22/deadly-chinese-fentanyl-is-creating-a-new-era-of-drug-kingpins>.
- Dollar Times. "Inflation Calculator." Accessed August 3, 2019. <https://www.dollartimes.com/inflation/>.
- Drug Enforcement Administration. "2013 National Drug Threat Assessment." November 2013. <https://www.dea.gov/sites/default/files/2018-07/DIR-017-13%20NDTA%20Summary%20final.pdf>.
- Drug Enforcement Administration. "2014 National Drug Threat Assessment." November 2014. <https://www.dea.gov/sites/default/files/2018-07/dir-ndta-unclass.pdf>.
- Drug Enforcement Administration. "2015 National Drug Threat Assessment." October 2015. <https://www.dea.gov/sites/default/files/2018-07/2015%20NDTA%20Report.pdf>.
- Drug Enforcement Administration. "2016 National Drug Threat Assessment." November 2016. https://www.dea.gov/sites/default/files/2018-07/DIR-001-17_2016_NDTA_Summary.pdf.

- Drug Enforcement Administration. “2017 National Drug Threat Assessment.” October 2017. https://www.dea.gov/sites/default/files/2018-07/DIR-040-17_2017-NDTA.pdf.
- Drug Enforcement Administration. “2018 National Drug Threat Assessment.” October 2018. https://www.dea.gov/sites/default/files/2018-11/DIR-032-18_2018_NDTA_final_low_resolution.pdf.
- Drug Enforcement Administration. “Drug Scheduling.” Accessed July 21, 2019. <https://www.dea.gov/drug-scheduling>.
- Drug Enforcement Administration. “Fentanyl.” October 2018. https://www.deadiversion.usdoj.gov/drug_chem_info/fentanyl.pdf.
- Drug Enforcement Administration. “Fentanyl Remains the Most Significant Synthetic Opioid Threat and Poses the Greatest Threat to the Opioid User Market in the United States.” May 2018. <https://www.dea.gov/sites/default/files/2018-07/PRB-DIB-003-18.pdf>.
- Drug Enforcement Administration. “National Heroin Threat Assessment Summary - Updated.” June 2016. https://www.dea.gov/sites/default/files/2018-07/hq062716_attach.pdf.
- Drug Policy Alliance. “Fact Sheet: Fentanyl and Synthetic Opioids.” September 2016. <http://www.drugpolicy.org/sites/default/files/Synthetic-Opioids-Fact-Sheet.pdf>.
- Evans, William, Ethan Lieber, and Patrick Power. “How the Reformulation of OxyContin Ignited the Heroin Epidemic.” National Bureau of Economic Research, April 2018. <https://www.nber.org/papers/w24475.pdf>.
- Featherston, Oliver. “World’s Most Valuable Startups: Top 10.” The CEO Magazine, October 8, 2018. <https://www.theceomagazine.com/business/start-ups-entrepreneurs/worlds-top-10-startups/>.
- Filippone, Robert. “The Medellin Cartel: Why We Can’t Win the Drug War.” *Studies in Conflict & Terrorism* 17, no. 4 (January 1, 1994): 323–44. <https://doi.org/10.1080/10576109408435960>.
- Forbes. “Billionaires 2019: The Richest People in the World.” March 5, 2019. <https://www.forbes.com/billionaires/#3d34f8e9251c>.
- Fox, Maggie. “Why Would Anyone Cut Heroin with Fentanyl? It’s Cheap, These Researchers Say.” NBC News, December 4, 2018. <https://www.nbcnews.com/storyline/americas-heroin-epidemic/why-would-anyone-cut-heroin-fentanyl-it-s-cheap-these-n943796>.

- Gladden, R. Matthew, Pedro Martinez, and Puja Seth. “Fentanyl Law Enforcement Submissions and Increases in Synthetic Opioid–Involved Overdose Deaths — 27 States, 2013–2014.” *Morbidity and Mortality Weekly Report* 65, no. 33 (August 26, 2016): 837–43. <https://doi.org/10.15585/mmwr.mm6533a2>.
- Guerrero, Javier. “Innovation in the War on Drugs: Narcosubs.” *The Maritime Executive*, June 19, 2018. <https://www.maritime-executive.com/editorials/innovation-in-the-war-on-drugs-narcosubs>.
- Hargadon, Andrew, and Robert I. Sutton. “Building an Innovation Factory.” In *Harvard Business Review on Innovation*. Boston, MA: Harvard Business School Publishing Corporation, 2001.
- Healy, Melissa. “Fentanyl Overdose Deaths in the U.S. Have Been Doubling Every Year.” *Los Angeles Times*, March 20, 2019. <https://www.latimes.com/science/sciencenow/la-sci-sn-fentanyl-overdose-deaths-skyrocketing-20190320-story.html>.
- Hedegaard, Holly, Arialdi Miniño, and Margaret Warner. “Drug Overdose Deaths in the United States, 1999–2017.” *NCHS Data Brief*, no. 329 (November 2018): 8.
- Higham, Scott, Sari Horwitz, and Katie Zezima. “The Fentanyl Failure.” *Washington Post*, March 13, 2019. <https://www.washingtonpost.com/graphics/2019/national/fentanyl-epidemic-obama-administration/>.
- Holman, John. “Mexican Drug Cartels, Poppy Farmers and the U.S. Fentanyl Crisis.” *Al Jazeera*, May 7, 2019. <https://www.aljazeera.com/indepth/features/mexican-drug-cartels-poppy-farmers-fentanyl-crisis-190507140632871.html>.
- Horwitz, Sari, Scott Higham, Steven Rich, and Shelby Hanssen. “Fighting Fentanyl.” *Washington Post*, May 22, 2019. https://www.washingtonpost.com/graphics/2019/national/fentanyl-epidemic-trump-administration/?noredirect=on&utm_term=.4329c4338e2b.
- Ingber, Sasha. “China To Close Loophole On Fentanyl After U.S. Calls For Opioid Action.” NPR.org, April 1, 2019. <https://www.npr.org/2019/04/01/708801717/china-to-close-loophole-on-fentanyl-after-u-s-calls-for-opioid-action>.
- Johnson, Mark W., Clayton M. Christensen, and Henning Kagermann. “Reinventing Your Business Model.” *Harvard Business Review*, December 1, 2008. <https://hbr.org/2008/12/reinventing-your-business-model>.
- Jorisch, Avi. “The Drug War at Sea: Rise of the Narco Subs.” *The Daily Beast*, May 13, 2012. <https://www.thedailybeast.com/articles/2012/05/13/the-drug-war-at-sea-rise-of-the-narco-subs>.

- Keefe, Patrick Radden. “Cocaine Incorporated: How a Mexican Drug Cartel Makes Its Billions.” *The New York Times*, June 15, 2012, sec. Magazine. <https://www.nytimes.com/2012/06/17/magazine/how-a-mexican-drug-cartel-makes-its-billions.html>.
- Kim, W. Chan, and Renée Mauborgne. “Creating New Market Space.” In *Harvard Business Review on Innovation*. Boston, MA: Harvard Business School Publishing Corporation, 2001.
- Knierim, Paul E. Stopping the Poison Pills: Combatting the Trafficking of Illegal Fentanyl from China, § Caucus on International Narcotics Control (2018). https://www.dea.gov/sites/default/files/2018-10/DEA%20Testimony%20International%20Drugs%20-%20Senate%20Drug%20Caucus_2Oct18_final.pdf.
- Kuhlman, J. J., R. McCaulley, T. J. Valouch, and G. S. Behonick. “Fentanyl Use, Misuse, and Abuse: A Summary of 23 Postmortem Cases.” *Journal of Analytical Toxicology* 27, no. 7 (October 1, 2003): 499–504. <https://doi.org/10.1093/jat/27.7.499>.
- Liddell, Devin. “3 Business Lessons From The Sinaloa Drug Cartel.” Fast Company, August 1, 2014. <https://www.fastcompany.com/3033847/3-business-lessons-from-the-sinaloa-drug-cartel>.
- Lopez, German. “New Data Shows Drug Overdose Deaths Fell in 2018. But There’s a Big Catch.” *Vox*, July 17, 2019. <https://www.vox.com/science-and-health/2019/7/17/20698040/opioid-epidemic-drug-overdose-deaths-2018>.
- Macias, Amanda. “10 Facts Reveal the Absurdity of Pablo Escobar’s Wealth.” *Business Insider*, December 29, 2017. <https://www.independent.co.uk/news/people/pablo-escobar-worth-wealth-money-how-much-a8133141.html>.
- Magretta, Joan. “Why Business Models Matter.” *Harvard Business Review*, May 1, 2002. <https://hbr.org/2002/05/why-business-models-matter>.
- Mayo Clinic. “How Opioid Addiction Occurs.” February 16, 2018. <https://www.mayoclinic.org/diseases-conditions/prescription-drug-abuse/in-depth/how-opioid-addiction-occurs/art-20360372>.
- Miltenburg, John. “Supply Chains for Illicit Products: Case Study of the Global Opiate Production Networks.” *Cogent Business & Management* 5, no. 1 (January 8, 2018). <https://doi.org/10.1080/23311975.2018.1423871>.
- Naím, Moisés. *Illicit: How Smugglers, Traffickers, and Copycats Are Hijacking the Global Economy*. New York: Anchor Books, 2005.
- National Institute on Drug Abuse. “Drug Facts: Fentanyl.” February 2019. <https://d14rmgtrwzf5a.cloudfront.net/sites/default/files/drugfacts-fentanyl.pdf>.

- Nieto-Gomez, Rodrigo. *How Drug Cartels Operate Like Silicon Valley Startups*. Interview by Rory Smith, September 16, 2016. <http://hdl.handle.net/10945/50770>.
- Osterwalder, Alexander, and Yves Pigneur. *Business Model Generation*. Hoboken, NJ: John Wiley & Sons, Inc., 2010.
- Oxford Treatment Center. "Fentanyl: What Is a Lethal Dosage?" June 24, 2019. <https://www.oxfordtreatment.com/substance-abuse/fentanyl/lethal-dose/>.
- Pardo, Bryce, and Beau Kilmer. "China's Ban on Fentanyl Drugs Won't Likely Stem America's Opioid Crisis." *The RAND Blog* (blog), May 22, 2019. <https://www.rand.org/blog/2019/05/chinas-ban-on-fentanyl-drugs-wont-likely-stem-americas.html>.
- Pasadena Recovery Center. "The Difference Between Opiates and Opioids." May 22, 2018. <https://www.pasadenarecoverycenter.com/the-difference-between-opiates-and-opioids/>.
- Pharmacy Times. "The Connection Between Prescription Opioids and Heroin." September 12, 2016. <https://www.pharmacytimes.com/contributor/shelby-leheny-pharmd-candidate-2017/2016/09/the-connection-between-prescription-opioids-and-heroin>.
- Quinones, Sam. *Dreamland: The True Tale of America's Opiate Epidemic*. New York: Bloomsbury Press, 2015.
- Realuyo, Celina. "The New Opium War: A National Emergency." *PRISM* 8, no. 1 (2019): 132–42.
- Ries, Eric. *The Lean Startup*. New York: Crown Publishing Group, 2011.
- Shortell, David. "Pentagon, DHS Considering Designating Fentanyl a WMD, Memo Says." CNN, April 21, 2019. <https://www.cnn.com/2019/04/21/politics/dhs-fentanyl-wmd/index.html>.
- Spakovsky, Hans von, and Peyton Smith. "China Is Poisoning America With Fentanyl." The Heritage Foundation, March 5, 2019. <https://www.heritage.org/crime-and-justice/commentary/china-poisoning-america-fentanyl>.
- Tate, Nick. "Fentanyl: What You Should Know." WebMD, May 1, 2018. <https://www.webmd.com/mental-health/addiction/news/20180501/fentanyl-what-you-should-know>.
- The Recovery Village. "Fentanyl Addiction." July 7, 2019. <https://www.therecoveryvillage.com/fentanyl-addiction/>.

Thomson, Julie. "Coca-Cola Taste Test: High Fructose Corn Syrup vs. Sugar." HuffPost, April 15, 2013. https://www.huffpost.com/entry/coca-cola-taste-test_n_1324282?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2x1LmNvbS8&guce_referrer_sig=AQAAALqkqK1sjWEmtOHY6pr1xBGCWa7SeyWzkjXOgHjgkLbpzIIOcuWkLHep-PV7vZEdc-PTVjDC4kZ0XIWKTIUYS4M2PnDOIV1abWU0wodY08GaHxVlfXSMSz1--xu3clpl38vjqAFTekDCN9xOsb1MVL7iYQDR3I7FrcotOeMXwEau.

United Nations Office on Drugs and Crime. "Global SMART Update." *UNODC 17* (March 2017). https://www.unodc.org/documents/scientific/GlobalSMART_Update_17_web.pdf.

United States Senate. "Senators Markey and Rubio Introduce Resolution Calling for Cooperation to Stop Trafficking of Illicit Fentanyl from Overseas." July 14, 2016. <https://www.markey.senate.gov/news/press-releases/senators-markey-and-rubio-introduce-resolution-calling-for-cooperation-to-stop-trafficking-of-illicit-fentanyl-from-overseas>.

Vedantam, Shankar, Jennifer Schmidt, Tara Boyle, and Parth Shah. "Life, Death And The Lazarus Drug: Confronting America's Opioid Crisis." NPR.org, June 24, 2019. <https://www.npr.org/2019/06/24/735423620/life-death-and-the-lazarus-drug-confronting-americas-opioid-crisis>.

Wainwright, Tom. *Narconomics: How to Run a Drug Cartel*. New York: PublicAffairs, 2016.

Washington Post. "The Opioid Files: The Post's Investigation of the Opioid Epidemic." July 19, 2019. https://www.washingtonpost.com/national/2019/07/20/opioid-files/?utm_term=.2b9d8160eef9.

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