

**TRANSITION TO A CASHLESS SOCIETY AND ITS EFFECT ON
CRIME**

By

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The Command College Futures Study Project is a FUTURES study of a particular emerging issue of relevance to law enforcement. Its purpose is NOT to predict the future; rather, to project a variety of possible scenarios useful for strategic planning in anticipation of the emerging landscape facing policing organizations.

This journal article was created using the futures forecasting process of Command College and its outcomes. Defining the future differs from analyzing the past, because it has not yet happened. In this article, methodologies have been used to discern useful alternatives to enhance the success of planners and leaders in their response to a range of possible future environments.

Managing the future means influencing it—creating, constraining and adapting to emerging trends and events in a way that optimizes the opportunities and minimizes the threats of relevance to the profession.

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INTRODUCTION

From William G. Ridgeway's Bold Stroke: "The benefits of replacing cash would...be incalculable. No cash to smuggle. The sale of illegal drugs would stop since no one would want a record of the transaction. The spread of AIDS would be curtailed as drug use fades away. The cost of government would go down as would the cost of private businesses. Tax evasion-payment in cash to avoid sales tax-(or failure) to report cash income-would cease. The national debt would be reduced. Stolen items could not be sold without a trace. Personal security would be assured. Little old ladies could walk in the park again."¹

The Meaning of E-money or Cyber Cash

What is meant by a cashless society? For our purpose, it means that governments and banks no longer mint coins or print currency. That businesses no longer accept standard currency, and it is no longer deemed as legal tender. That all money resides on computers, and moves from account to account in a digital format across the globe via cyberspace.

Cyber money is a monetary form that is rapidly replacing standard currency. Banks have been using e-money for years. It is how credit cards and debit cards work, and it is how inter-bank transfers of funds are done. Here is a basic explanation of how it works. Every time you write a check or use a credit, debit or gift card, the transaction is tracked in electronic dollars that have been created by banks. Each of these electronic

¹ William G. Ridgeway. *The Bold Stroke*. Appeared in the handout material of Dr. Gene Stephens in his presentation on Futuristic. <http://www.socialaffairsunit.org.uk/blog/archives/cat_letters_from_arabia.php> Unable to locate original publication date.

dollars represents a real dollar that eventually moves to take the place of the electronic version.

E-money is very much like real money-it can be stored in a physical “wallet” like a smart card (gift card or debit card)) or token. Credit cards also fit under this definition of e-money. Commercial banks are allowed to create e-money as part of their normal lending process, when they issue loans by crediting the deposit account of the borrower (or the receiver of the loan proceeds). In fact, paper checks have become e-money, thanks to truncation (the actual check is destroyed after being digitally photographed and stored as data).² In a true cashless society, there will no longer be paper currency backing that e-money.³

Are we likely to see a completely cashless society? Consider; U.S. electronic payments (including debit and credit cards) surpassed check payments in December 2004 for the first time in history. In Australia, check usage has fallen from 50 per person in 1998 to 30 per person in 2003. The efforts of software giants like IBM and Microsoft working frantically working at getting versions of e-cash systems ready. If control goes to several large companies, each company stands to generate millions just off of a fractional surcharge for moving the money.⁴ This trend is seen in countries around the world.

Fourteen percent of Britons throw away coins; they report they can’t be bothered to carry them around. Frequent flier miles are now the world's second largest currency according to *The Economist*.⁵ The CEO of VISA, Peter Ayliffe, predicts we could arrive

² “Six Puzzles in Electronic Money and Banking,” IMF Working Paper <www.imf.org/external/pubs/ft/wp/2004/wp0419.pdf>

³ “Get ready to Pass the Cyber-Buck,” L.A. County Bar Association <<http://www.lacba.org/showpage.cfm?pageid=354>>

⁴ “The Future of Money,” Business Week.com <<http://businessweek.com/1995/24/b3428001.htm>>

⁵ IBED, Fastcompany.com

at a cashless society by the year 2012 (he stated that retailers may begin surcharging customers who use cash).⁶ AC Nielsen research says that only 10% of transactions in the US will be cash by the year 2020. PayPal currently has approximately 63 million accounts, making it bigger than most national banks. Similar trends indicating the move to a seamless, cashless future are:

- In South Korea, four million banking transactions were carried out via cell phone in June of last year; 300,000 people have bought cell phones into which you can plug a memory card securely encrypted with financial data.
- In Finland and Japan, you can pay for train journeys and restaurant meals by simply waving your phone in front of a payment terminal. And in Australia and Austria, you can pay for a parking space using your phone.⁷
- In London, you can load your Oyster Smart Card with cash to ride any of the public transit systems. You need only swipe the card over the yellow pad at the departing or arriving gates and the system will automatically deduct your fare from the card.⁸
- In Hong Kong, most of the transit customers are using the Octopus Card, with the most up-to-date travelers, wearing a ring that contains an RFID chip.
- In 2001, the French began using an electronic card dubbed “Moneo.” By 2003, there were 850,000 customers using the cards regularly. The card is anonymous and has a maximum limit that can be stored on it of \$107. This way, if the card is

⁶ “Cashless Society by 2012, says Visa Chief,” The Independent
<<http://news.independent.co.uk/business/news/article2347411.ece>>

⁷ IBED, fastcompany.com

⁸ “London Oyster Card Smartcard,” A Traveler’s Toolkit For London
<<http://www.londontoolkit.com/briefing/underground.htm>>

lost or stolen, there are no privacy or identity theft concerns. Moneo can also be incorporated into existing credit cards.

- In Japan, there is a similar card called the “Edy,” although refilling this card requires a laptop and a special ATM like machine.⁹

The examples above support that many people throughout the world prefer e-money over standard currency. As more and more people begin using e-money it will at some point reach a critical mass where businesses will no longer accept cash. This will be the death knell of currency as we know it. How, then, might this transition to electronic currency affect law enforcement operations? What crimes might recede? Which others could take their place?

Of Crime and Currency

Why has E-money become so popular? Well, first of all it’s faster (especially when used with touchless RFID, Radio Frequency Identification technology) and more convenient than using coins or bills. You can access it from anywhere in the world with an Internet Connection. Each transaction automatically generates a record. It is so compact that all the money in the world could be placed on a single computer. This may explain why cyber money has become popular in so many places around the world. Ridgeway’s hypothesis of what the world will be like when we eliminate all cash and transition to e-money may seem overly optimistic. For policing, it could mean a reduction in any crime with a financial incentive, and a near-elimination of theft and property crimes. Let us briefly examine what he has proposed:

⁹ “Cashless Society Gets Mixed Reviews,” [CNN.com](http://www.cnn.com/2003/TECH/ptech/02/08/cash.smart.ap/index.html)
<<http://www.cnn.com/2003/TECH/ptech/02/08/cash.smart.ap/index.html>>

1. Smuggling. People smuggle cash to avoid leaving a trail, be it paper or electronic. With all cash eliminated, people would have to turn to other mediums such as diamonds, gold, drugs, etc.; each with its own drawback. Diamonds are hard to fence. Gold is heavy and easily detected with X-Ray equipment. Drugs can be detected by dogs and can be fatal if concealed inside the human body.
2. Drugs. Like any other commodity, there will always be a supply, as long as a market exists. Criminals will try to come up with some type of exchange medium; an ounce of cocaine for a carton of Marlboros? Again, nothing is as readily acceptable and nearly anonymous like U.S. currency.
3. AIDS. This disease would undoubtedly be curtailed if drug use were to drop due to high infection rates among drug users.¹⁰ However, AIDS is primarily being spread by non IV drug users and may not be significantly impacted by drug reductions.¹¹
4. Reductions in the cost of government and business. The use of e-money is more efficient than the use of cash. You don't need armored cars, bank vaults and armed security. E-money is faster and cheaper to work with and in business that translates to increased profits. This is also why employers are asking employees to sign up for direct deposit.¹² Try to find a bank today that doesn't use electronic money transfers. The downside to e-money? It doesn't really exist, well, not outside of a computer's hard drive. Therefore if all the hard drives that track your money die, your money dies with it. If someone finds a way to access you're the

¹⁰ 2006 CDC Report on AIDS. This report is showing less 31% of the AIDS cases in 2006 were related to IV drug usage. <<http://www.cdc.gov/hiv/topics/surveillance/basic.htm#exposure>>

¹¹ IBID, 2006 CDC Report on AIDS

¹² As explained by Albert Avila, City of Oakdale Finance Manager during NGT (Nominal Group Technique) conducted in Oakdale, Ca. on 10/25/07.

computer and steal your money, you won't be able to follow their footprints or dust for prints.

5. Tax evasion would cease to exist. This sounds plausible but would require law enforcement or security personnel have near transparent access to private financial information. Most certainly something that raises that concern of "big brother" watching our every move.
6. Reduction of the national debt. A higher level of reported income tax would almost certainly increase income tax revenues, but this goal would also on politicians not increasing their spending to be effective.
7. Stolen items could not be sold without being tracked. Success on this point would require access by law enforcement just like point #5.
8. Assurance of personal safety /little old ladies walking the park again.

This last declaration assumes the success of the preceding seven proposals. If all transactions were easily traceable by law enforcement a cashless society might greatly reduce theft, drug sales and many other crimes. Of course, bartering for goods and services predates the concept of "money" and could be the new way those concerned with transaction accountability avoid detection. Many of the answers to these questions lie in the future. Let's ponder the possibilities.

Implications for Law Enforcement

Changing to a cashless society could result in scenarios that could vary from the near elimination of crime to making it nearly impossible to track it. The difference will primarily be determined by the design of future cashless systems and the level of access

allowed to law enforcement by the courts. There are many questions that still need to be answered before we know which direction it will go.

Will the system be public so records are readily accessible by businesses and government, or will it be private so that only the e-cash company can access the records? Clearly, it will have to have a high level of encryption so that no one can learn the code and begin to produce e-cash on their own. Any credible counterfeits of e-cash would be virtually undetectable and would quickly place the entire system in danger of collapse if it is difficult to examine the “money” and determine the fake from the legitimate.¹³ And what about the system design?

Will e-money be centralized, as in an electronic link to your account (think debit card), or distributed, like a phone card that can be reloaded? Or will it be a combination of both; money transferred to your account as a direct deposit where you periodically load small amounts to a cash card that you can use for gas, meals and groceries. If we convert to a centralized cashless society, the effect on crime will probably be different in some respects than if it were a distributed system. Criminals may find it nearly impossible to steal money by common methods, since the money will be stored in the system. The only exposure to loss, then, would be those who share access codes, loan their card or otherwise misplace critical information.

If the system is distributed, the majority of thefts will be limited to the amount that was on the card at the time. Since today’s cash cards generally don’t require the use of an access number, there may be no way of tracing where the money went to unless the hapless thief is caught on a camera at the point of sale. But then again, what’s to stop the

¹³ IBED, “Cybercash”

common street thug from displaying a gun and saying, “hand over your card and no one gets hurt”?

Neither system will affect thieves’ ability to steal personal property, but that crime trend will depend on other factors including technological factors such as serialization of all products and distance scan capability. One example of this is Tier Technology’s pilot program on two college campuses that uses biometric technology as a method of payment. Students at North Texas University and Gonzaga University are piloting the program, which lets them use their fingerprints instead of a debit card to pay expenses on campus.¹⁴ RFID chips are being used for cashless purchases and other applications that can reduce crime. India is looking closely at embedding a radio frequency identification (RFID) chip onto a child’s skin or a vehicle’s frame. This allows parents (and car owners) to constantly monitor locations in case of a kidnapping or theft.¹⁵

David Gorman, the author of Cashless Money states, “In fact, certain crimes would be eliminated altogether. Violent crimes; such as, bank and ATM robberies, store holdups, armed robberies, employee cash theft, armor car heists, kidnap for ransom, armed muggings and purse snatchings would be significantly reduced, if not entirely eliminated because there will be no physical paper cash to steal.”¹⁶ A July 2007 incident exemplifies this emerging reality. Two hapless armed criminals tried to rob a cashless

¹⁴ “Banking on a Cashless Society.” <<http://www.thought-criminal.org/2006/08/08/banking-on-a-cashless-society/>>

¹⁵ “Info Wars.com,” <http://www.infowars.com/articles/bb/redrawing_crime_graph.htm>

¹⁶ Cashless Money.com, <<http://www.cashlessmoney.com/>>

credit union in Benicia, California. The suspects were told there was no cash that could be given to them. They left without anything (except now being wanted for the crime).¹⁷

As the number of people using e-money increases and the number of e-money systems increase, so goes the rate of related thefts.¹⁸ Many of today's fastest rising crimes directly or indirectly involve e-money: identity theft, credit/debit card fraud, counterfeit check schemes, investment fraud, and spoofing or phishing on the internet. Many agencies have responded by developing teams of cyber sleuths within their agencies or in collaboration with federal agencies like HIDTA.¹⁹ The tasks of investigators today run the gamut from identity theft to electronic tracking of murderers via cell phone transmissions. Those of tomorrow may consider the HIDTA format to investigate what could be the most significant crime of the future, cyber-tampering of the cashless system. Beyond crime, though, there are several implications of going cashless that may affect those least able to deal with e-money and other emerging realities.

THE SOCIAL IMPLICATIONS

As illustrated by the trend toward cashlessness, forecasts by industry leaders and Ridgeway's predictions²⁰, changing to a cashless society will complicate the criminal activity of drug dealers, thieves, prostitutes and even white collar criminals. However, what about other elements of society?

¹⁷ "Dumb Crooks.com," < <http://www.dumbcrooks.com/robbers-hit-cashless-credit-union>>

¹⁸ "Internet Crime Complaint Center," shows a nearly steady increase in loss by dollars through internet crimes from 2001-2007 (\$239 million reported in 2007)<[http://www.ic3.gov/media/annual report](http://www.ic3.gov/media/annual%20report)>

¹⁹ "High Intensity Drug Trafficking Areas," < <http://www.usdoj.gov/dea/programs/hidta.htm>>

²⁰ IBED, The Bold Stroke.

In the United States, a staggering 25-30% of people don't have bank accounts.²¹ Unless we take steps in to ensure this “bankless minority” is provided access to the cashless system, they will continue to be at a serious disadvantage. They will be completely at the mercy of check cashing companies and money changers that charge exorbitant fees for converting their payments into a medium that can be spent.

According to a June, 2007 ABC News Article, as many as 28 million people in the United States won't use banks due to a lack of trust.²² These people, usually minorities and the poor, can run up big fees cashing checks and paying bills. They also face increased risk of being robbed walking around with large amounts of cash. The problem in some neighborhoods is there are no banks conveniently located. Federal banking regulators just weeks ago identified 3,500 middle-income neighborhoods in rural areas - from parts of Clarke, Ala., to parts of Washakie, Wyo. - they consider to be underserved by financial institutions.²³

What unforeseen and unintended impacts will this have on those honest people that still refuse to deal with e-cash? Many from the “greatest generation” decline to deal with computers and rely on currency. There are those segments of society that still stuff money into the mattress or hide it behind the photo of their grandparents hanging on the wall. What about those situations after we eliminate cash; finding that \$100 bill that was hidden in a book for Christmas gift purchases ten years ago, or the \$35,000 a homeowner

²¹ IBED, fastcompany.com

²² “Bankless in America,” <<http://abclocal.go.com/wtv/story?section=news/local&id=5417404>>

²³ “Many in U.S. Don't Have Bank Accounts,” <<http://money.netscape.cnn.com/story.jsp?floc=FF-APO-1310&idq=/ff/story/0001%2F20070623%2F1505820277.htm&sc=1310>>

finds hidden in a wall during a remodel? The government will have to set a final date for use of cash or the system will never transition to a cashless system.

There is another social issue that will play heavily into this matter – concern the government will gather financial information and misuse it. In July of 2008, U.K. Actor, Chris Jury protested the use of “big brother” control from the principal of the Cidermill Lane school who was using electronic fingerprint scanning to identify the 1200 students for cashless meal catering.²⁴ In a democratic society, the government is always watched with a mistrustful eye. This concern may well be the overarching element that limits how closely government can track the use of e-cash and conversely, how freely can criminals use e-cash for the benefits of their trade.

David Chaum, the founder of the Dutch company *DigiCash b.v.* recognizes this concern, and is marketing a means to deal with it. *Digicash b.v.* holds the patent for *Anonymous Cash* and several other forms of e-cash. Chaum’s versions of e-money allow the banks to authorize digital cash transactions where no one knows who is involved in the transaction.²⁵ It is his belief that where you receive and where you spend your money is no business of the government, as long as you are not involved in criminal activity; and therein lays the problem.

IN CLOSING

The level of effectiveness of law enforcement battling cyber-crimes may depend on the level of access we are granted to account and transaction information. Law enforcement groups such as the IACP need to lobby now for greater access to e-money

²⁴ “Cashless Society-Aftermath News,” < <http://aftermathnews.wordpress.com/category/cashless-society>>

²⁵ “Cybercash,” Netlife <<http://www.hoboes.com/Netlife/Children.Cybercash.html>>

systems by law enforcement. This is not only critical to fighting today's cyber crime but will be critical to remain effective in a cashless society.

Tracking money internationally will also be a critical part of fighting terrorism. We can not afford to sit idle watching criminals develop and refine methods of cyber crime, while hoping that transitioning to a cashless system will be the panacea for crime. We need to develop new technology and adapt existing technologies to help us become more efficient and effect at fighting crime. Many of the steps we take to battle today's criminal will be effective in tomorrow's cashless society. Whatever the form a cashless society takes on, we can be sure of one thing, and that is that criminals will be working day and night trying to come up with ways to cheat the system. Our job will be to try to predict what actions they will take, to design systems that are difficult to cheat, and processes that make it easy to prosecute the crime.