



**STRATEGY
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ARMY AFTER NEXT: A CASHLESS ARMY?

BY

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ARMY AFTER NEXT: A CASHLESS ARMY?

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ABSTRACT

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Some individuals believe the dollar bill will soon be a memory. Indeed smart cards (sometimes called stored value cards), debit cards, Echeck, and digital money are replacing cash. The future most likely will include other unforeseen ways of conducting fiscal affairs. This paper discusses each of these concepts and how the U.S. Army uses currency today--in most Special Forces activities, as well as tactical, peacekeeping and day-to-day operations. This paper argues that while future technologies may replace the use of some currency in the United States it will not replace the use of all currency. The Army After Next (AAN), the Army of 2010-2025, will continue to require currency to support most Special Forces, tactical, and peacekeeping operations. Most likely the AAN will not need currency in day-to-day operations.

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PREFACE

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ARMY AFTER NEXT: A CASHLESS ARMY?

All countries and their armies use currency.¹ Due to the increasing interdependence of nations, currency is used to determine the balance of payments for trade between countries. Nevertheless, looking to the future, some individuals say, "Open your wallet, take out a dollar bill and etch it in your memory."² Indeed smart cards (sometimes called stored value cards), debit cards, and digital money are replacing cash. The future most likely will include other unforeseen ways of conducting fiscal affairs. The U.S. Army currently uses currency in most Special Forces activities, as well as tactical, peacekeeping and day-to-day operations. This study shows how future technologies may replace the use of some currency in the United States but it argues that such technology will not replace all currency. The Army After Next (AAN) will continue to require currency to support most Special Forces, tactical, and peacekeeping operations. Most likely the AAN will not need currency in day-to-day operations.

Currency is "money in use in a country."³ Money is "current medium of exchange in the form of coins and paper currency."⁴ This study addresses the need for currency for the years 2010 to 2025 (AAN time frame)--not the need for money. Obviously we

will need money. Whether that money is traditional currency or digital money is the issue.

The United States has used currency since the early days of this nation. At the time of the American Revolution, Americans used currencies from England, Spain and France. "The Massachusetts Bay Colony issued the first paper money in the colonies which would later form the United States."⁵ The United States has used currency ever since. The United States issued its first national currency notes in 1861.⁶ Not only do we use currency; we use lots of it. "The United States produced over \$9.6 billion dollars in currency in 1997."⁷ It costs approximately four cents to produce a note.⁸ Thus we spend almost one-half a million dollars a year just to produce the currency. This does not address the hundreds of thousands of dollars of costs associated with handling the currency. Additionally there are costs associated with managing currency and deterring counterfeiting of currency. As of 30 September 1998, there was \$494,200,995,178 of currency and coin in circulation.⁹ The average life of a Federal Reserve Note, the official title for U.S. currency varies by note. See Table 1.

DENOMINATION OF BILL	AVERAGE LIFE (YEARS)
\$1	1.5
\$5	2
\$10	3
\$20	4
\$50	9
\$100	9

Table 1: The Average Life of a Federal Reserve Note¹⁰

"Cash is the most common method by number of transactions per day, but the estimated average value of a cash transaction is tiny, \$10, compared to that of a wire transfer, \$4 million."¹¹ One of the major problems associated with use of U.S. currency is counterfeiting. This is not a new problem. "By the end of the Civil War, one-third of all U.S. paper currency in circulation was counterfeit."¹² It is certainly a problem today. "During fiscal year 1997, a total of \$136,205,241 in counterfeit U.S. currency appeared worldwide. Of this amount, 75%, or \$101,516,212, was seized prior to circulation with no loss to the public."¹³ Production methods used in counterfeiting operations have evolved over the years, but so have the methods the Secret Service use to detect counterfeiting and arrest those that counterfeit. The costs of producing currency, managing currency, and deterring counterfeiting have prompted the U.S. Treasury to look at other options for currency.

Some of the options for the future include electronic benefits transfer (EBT), vendor express, smart cards (sometimes called stored value cards), debit cards, electronic checks, and digital money. In the future, unforeseen ways of conducting fiscal affairs will doubtlessly emerge.

Electronic Benefits Transfer (EBT): EBT replaces checks for individuals entitled to payment or other authorization, but do not have a bank account to receive the funds electronically. The individuals receive an electronic authorization and a plastic magnetic stripe access card. Cash benefits are available from automatic teller machines (ATM) and point of sale (POS) devices. Food benefits are available only through a POS device in eligible grocery stores. The Army is currently providing POS devices for their soldiers in commissaries, this innovation will continue for AAN but it will not impact AAN operations.

Vendor Express: Vendor Express electronically transfers money and payment information through the automated clearing house (ACH) network to vendors and commercial payees of the U.S. Treasury. This expands the electronic funds transfer (EFT) option currently in place. The number of electronic disbursements by the U.S. Treasury increased from 50% in FY 1995 to 63% in FY 1998.¹⁴ While this increase is significant, it is not as large as financial leaders hoped to see. Therefore, the

U.S. Treasury is making payments by EFT mandatory. Effective January 1, 1999, all Federal payments made to U.S. corporations and organizations must be made by EFT. Vendor express will include additional electronic data elements that specify what agency of the federal government is making the payment and what invoice is being paid. One vendor express payment can pay for only one invoice. This program can not transfer funds to foreign corporations and organizations because not all-foreign ACHs systems are compatible with the United States' ACH system.

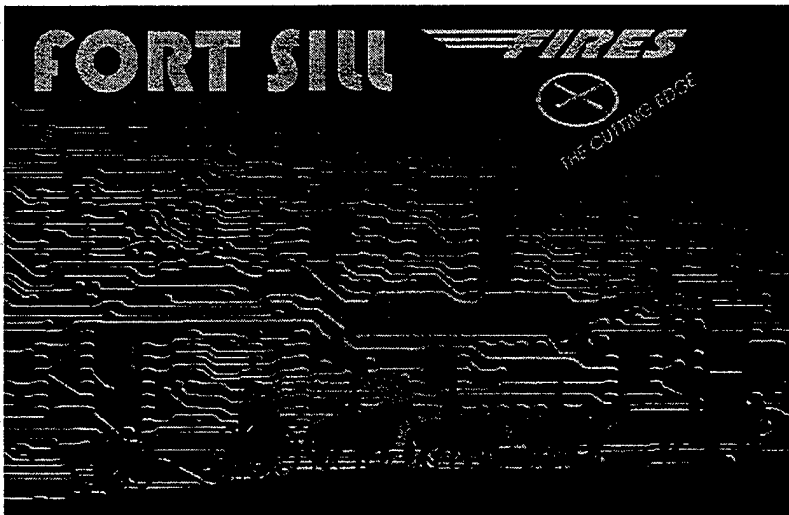


Illustration Number 1: Sample Smart Card

Smart Cards: Smart cards, sometimes called stored value card (SVC), are plastic cards with an embedded microprocessor that holds or "stores" information. These cards are being used in the financial world in lieu of cash, debit cards, and checks.

There are "open system" cards and "closed system" cards. The systems are differentiated by the number of card issuers. In a closed system, there is one card issuer. The U.S. Army is currently testing the stored value card at two locations, Fort Knox and Fort Leonard Wood. "Over 50,000 new recruits will be issued Stored Value Cards in the next year. The SVC is issued to trainees at no cost, and replaces cash and check payment of their initial advance pay. Trainees use the funds...to pay for personal items such as toiletries and haircuts during their eight weeks of basic training. At the end of basic training, the trainee can 'zero out' the smart card at an on-post financial institution."¹⁵ The SVC has demonstrated that "cashiers can process the trainees faster than when they use cash or check--in 30 seconds or less. Unlike cash, cards can be replaced when lost or stolen."¹⁶ The card is tied to a "data base," so merchants dial a 1-800 number at the end of the day and download the data via the automated clearinghouse (ACH) system. The Department of Veterans Affairs is using stored value cards at their cafeterias and retail stores in Bronx, NY and Tampa, FL. Other examples of stored value cards include prepaid phone cards, as well as bus and subway cards.

Debit Cards: Debit cards are plastic cards that look very similar to ATM cards or regular credit cards. See Illustration Number 1. They work like a check, so they merely provide access

to a saving or a checking account. "Debit cards provide consumers with fast and easy access to their checking account when they make purchases. As with the automatic teller machine (ATM) cards, money from the user's account is 'debited' immediately when a debit card is used for purchases."¹⁷ Currently, debit cards have "weak security and high potential liability."¹⁸ Debit cards are cheaper for the financial institutions to use. "Financial institutions realize significant cost savings over customers' use of more labor-intensive checks."¹⁹ Use of the debit card increases each year. In 1996, over 60 million cards were in use. In 1997 the number of vendors accepting the cards doubled. Although the exact number of cards issued in 1997 was not readily available, their use is estimated to increase significantly every year. Debit cards are safer than cash. "Cash can be lost, misplaced, and stolen, without any ability to put a 'stop' on its use by someone else. Checks, while allowing 'stop payment,' also require signature verification and other identification, aren't widely accepted, and can be inconvenient for consumers."²⁰ The liability for most lost debit cards is \$50.00, and most banks waive that charge if the loss is reported immediately.

Electronic Checks: Electronic checks are often called "Echecks." With Echeck the U.S. Treasury makes out a digital check using special software, signs it with an electronic

"signature" and then e-mails it to the vendor. The vendor then verifies the check and endorses it with its own digital signature. The vendor then e-mails the check to its financial institution. The bank then processes it like a paper check. The process is much faster and allows the funds to be credited in one day, cutting down the processing time from a week or longer with today's system of less than two days. "Many existing software packages ... allow consumers to pay bills online. But often these programs simply link you to a service that prints out the checks and mails them the old-fashioned way. In some instances, funds are electronically transferred from your account to a creditor."²¹

Digital Money: Digital money uses the Internet system as a basis for money. This is a fairly new concept, so not a lot of information exists as far as what precisely digital money will be. However, some of the preliminary systems that currently exist will be expanded on. The current systems are CyberCash and DigiCash. These software systems run over the Internet. "For cash transactions, CyberCash doesn't actually accept cash deposits like a bank. Instead it works with the banks to create pointers to cash existing in customer's bank accounts. Basically, money that you've designated for your CyberCash account is held in escrow. In other words, your CyberCash account contains pointers to your money, and payments are

completed by moving pointers, which enables electronic funds transfers among these escrowed accounts."²² DigiCash, like CyberCash, uses software directly linked with banks, but DigiCash works more like a traveler's check than cash. "To use DigiCash, you can send money to a bank through a credit-card or automated-teller-transaction, and the bank sends you an equivalent amount of E-cash as an encrypted E-mail message containing a list of 64 bit numbers (not easily duplicated). Each number corresponds to a specified amount of money, which is recorded by the issuing bank."²³ DigiCash provides for complete anonymity, which is one of DigiCash's rather controversial features. Thus, neither of these are true digital money systems. They use a form of electronic funds transfer. Digital money does not exist today, but it is emerging as the next step in technological development from CyberCash and DigiCash.

Financial leaders are rightly concerned about the potential for fraud with smart cards, debit cards and digital money. In "Electronic Money and Monetary Policy: Separating Fact From Fiction," Bert Ely, President of Ely & Company, cites the example of a \$585 million (63 billion Yen) loss from the issuance of counterfeit stored value cards. With no audit trail, owners of cards are less likely to carry large balances. Advocates of digital money suggest that as "true" digital money is developed, six principles for an ideal digital money system

must be observed: independence, security, privacy, offline payment, transferability, and divisibility. "True" digital money may well be developed by the year 2010. How it will be received and used are the interesting questions.

The Army uses currency today for tactical, peacekeeping, Special Forces, and day-to-day operations. EFT pays soldiers. Special payments (travel payments and casual payments) are paid by check, EFT and cash. Check or EFT pays vendors, and military units use a credit card to purchase most of their supplies.

Tactical Operations: Finance units support the Army wherever it goes. "Support to the logistical system and to contingency contracting efforts is critical to success during all operations. Finance units will provide funds for the purchase of goods and services needed in a more timely manner or are more economical to purchase locally than transport from home station."²⁴ Finance and finance detachments normally provide such support. The finance detachments have modular finance support teams (FST) that can augment other divisions and branches of the battalion or detachment. The number of teams varies according to the type and location of the mission. Types of support include contracting support, commercial vendor support, local procurement, banking and currency support, travel support, military and civilian pay support and non-US pay support.

Peacekeeping Operations: "Peace operations, like contingency operations, will generally allow only minimal or moderate planning time."²⁵ Even so, finance units must be prepared to provide all necessary support to these missions. Often, peacekeeping missions are conducted in nations that are underdeveloped or in turmoil. The state of the host nation determines the need for currency. A fully developed nation is more likely to accept advanced technology than an underdeveloped country or a nation under takeover. These missions are also supported by finance battalions, detachments, and FSTs.

Externally, the Department of Defense deploys soldiers, airmen, sailors and marines to various countries to support peacekeeping operations. The U.S. Army currently has elements of 266th Finance Command deployed in support of Operation Joint Guard, whose mission is to build upon the success of the NATO-led forces that had separated the former warring countries by facilitating the transfer of land, moving heavy weapons into storage areas, and demobilizing troops of the former warring factions. Operation Joint Guard officially started 21 December 1996 and continues today. The finance units supporting Joint Guard seek to make as many payments electronically, as possible. However, during Fiscal Year 1998, they disbursed several million dollars in U.S. currency and another \$227,000.00 in local currency, since local vendors would not accept credit cards,

debit cards, or other methods of electronic payments.²⁶ Army Central Command-Kuwait (ARCENT-K) is currently implementing electronic payment for vendors but predicts it will be years before all their customers can be paid electronically. Thus, while the technological advances are available in the United States, they are still around the corner or awaiting the middle of the 21st Century for some nations.

Special Forces Operations:

"Special operations encompass the use of small units in direct or indirect military actions that are focused on strategic or operational objectives. They require units with combinations of specialized personnel, equipment, training, or tactics that exceed the routine capabilities of conventional military forces. This definition applies to both wartime and peacetime operations. In peacetime operations, the strategic objective is one of restoring stability to a country or a region. This can include humanitarian assistance after a natural or manmade disaster, care of fleeing refugees, or support of peace operations."²⁷

Both peacetime and wartime operations require the Special Forces units to use currency to accomplish their mission. Finance detachments or FSTs may support these missions. The Special Forces personnel may carry their own currency. The circumstances of their operations along with the types of missions determine the need for cash.

Special Operations Command has participated in seven major operations from 1987-1997. In each operation large amounts of currency were used to purchase materials, services, information

and other host nation support. Imagine a Special Operations soldier trying to buy material and information with a U.S. or foreign debit or POS card! It might happen in a few select countries but it will not happen today in most countries especially Bosnia, Croatia, Haiti, or Kuwait. Currency is the best means to accomplish most missions requiring purchases of goods or services.

Day-to-day Operations: The Defense Finance and Accounting Service (DFAS) primarily support day-to-day financial operations in the U.S. The U.S. Army uses finance battalions to augment the DFAS offices that support divisions and corps. The finance battalions are there to support the tactical units for missions other than peacetime, "train as you fight". Overseas finance battalions and detachments provide finance support for all operations. However, DFAS maintains the military pay database, the accounting and disbursing systems to process the documents and update the U.S. Treasury's records. DFAS is the Army's link to the U.S. Treasury. DFAS is implementing many technological advances, some mentioned above, to pay contractors and soldiers. Systems and information operations software are available in the United States to enable the Army to use many of services mentioned above. Most DFAS offices currently use very little cash. DFAS' goal is to minimize cash transactions on all installations in the continental United States. Headquarters,

Department of the Army, and DFAS are working with the U.S. Treasury to continue to dedicate resources for research and development of technology. Overseas finance offices still use a significant amount of cash because of soldiers' requirements for foreign currency. Overseas finance offices cash soldiers' personal checks for dollars or foreign currency. Some soldiers live and shop on the local economy. Currently, differences in currency oblige in-country stores not to accept soldiers' checks and dollars. Even if their dollars and checks are accepted the soldiers normally pay an extra fee.

Now let's look at the international issues associated with currency. Where the U.S. Army is stationed impacts the type and amount of currency the Army uses. As of 30 September 1998, the Army had over 480,000 active duty soldiers of whom 109,447 were stationed outside the U.S. in 123 countries.²⁸ Soldiers are assigned in Germany, Belgium, Bosnia, Great Britain, Italy, Korea, Japan, Kuwait, Saudi Arabia, Canada, Panama, and many more places. The U.S. Army and its soldiers must interact with other countries and their money to accomplish our mission.

Each country's banking and currency products and use of these products varies. No two nation states' products are exactly the same and no country has the exact same products that the United States has. Most, if not all, countries use credit cards. Some countries have used debit cards for years, even

prior to the U.S., while other countries are just starting to use debit cards. Most countries do not use POS cards, but several are analyzing the concept. A type of Echeck is being tested in Europe. Digital currency is being developed worldwide but CyberCash and DigiCash were developed in the U.S. based on the U.S. dollar. ATM use is expanding. Most, if not all, countries utilize ATMs. Some ATMs accept cards issued by foreign organizations, posting the transaction through their system in currency given to the customer. Multi-currency ATMs are becoming more and more popular, but are not common worldwide. If ATMs are not multi-currency then the money received is normally in the host countries' currency. In Kuwait soldiers using their personal ATM cards will receive Kuwait Dinars but their statement from their U.S. financial organization will show a withdrawal in the dollar equivalent of the Kuwait Dinars received. The bank that owned the ATM billed the U.S. financial organization in Kuwait Dinars but the U.S. financial organization billed the soldier in U.S. currency by using a foreign exchange rate. The study of foreign exchange rates is complex and one of the issues to be resolved prior to the world being cashless. The recent launch of the Euro-currency may cause the world to look at the number of kinds of currency, worldwide. Mondex International Limited recently introduced the first multi-currency smart card. It will carry

the Euro and will simultaneously store the Euro, Deutschemark, French Franc, Pound Sterling and the U.S. Dollar.²⁹

Another international banking issue is control of the cards. In some countries, like the U.S., credit, debit and POS cards are issued by private financial institutions. Other countries, like Israel and Saudi Arabia, governments are much more involved. "From Israel to Bahrain to Saudi Arabia, governments are shedding socialist hang-ups like state-run monopolies, sending banks scurrying to usher forth innovative solutions in highly-competitive and open economies."³⁰

Some countries do have a central system for processing financial information. The U.S. Federal Reserve System uses a standardized ACH format. China is in the process of developing its central networked system. "The regional financial crisis is not stopping China from building a central nervous system linking all the nation's banks to common, standardized electronic payments, funds transfer and financial information networks. ... At the same time, deregulation is driving China's banks to compete with each other in previously protected markets, and to look to Western companies and technology for answers."³¹

One of the major smart card concerns is that the cards of different countries will not communicate with each other. Visa has formed a user' group to test cards. "In a bid to further

develop a standard architecture for smart cards, seven French banks have announced that they will test Visa International's Open Platform as a technology founds for multifunction cards."³²

Government involvement, regulation, and shared interests are important. The U.S. and Ireland recently signed an agreement outlining shared principles and common interest e-commerce points. Additionally, Ireland, has published a framework for national policy to ensure confidentiality of electronic communications.³³ These issues and how they develop will impact how AAN uses currency.

What should US policymakers do to work toward a cashless world and therefore a cashless Army After Next? As the lead agency, the U.S. Treasury must continue to work with the Federal Reserve Banks, the Department of Defense, and other federal agencies to ensure the United States moves toward its vision of a cashless global economy.

The second-and-third order effects indicate that the United States must set aside funds for research dollars to improve our technology and remain on the leading edge of the banking world. Concerns about debit card security and liability must be addressed. Peter Knight, CEO CHECKFREE, believes that by the middle of 2001 a third of the people in the U.S. will pay bills electronically. He concedes that "about a third of all consumers won't want to make the switch."³⁴ The United States

must educate U.S. citizens on a cashless economy. We must alleviate such resistance by informing all Americans of the desirability of electronic transactions. Additionally, we must develop policies and procedures to ensure U.S. citizens feel secure with all possible financial transactions.

Another third-order effect that must be considered is the impact of these trends on the Department of Defense and other federal agencies. A currency-based system requires resources. Most organizations assign people and equipment to support their cash requirements. I believe using less currency will impact the force structure of finance units. The Finance Support Teams referred to above will be modular, based on the type and location of U.S. Forces deploying AND the financial structure of the country the Army is deploying to. Any plans to change the number of people supporting the use of cash in DOD agencies must be linked to the technological changes and those organizations' mission needs. In reality, if we want our Army to succeed in all missions any force structure reductions must be implemented only after global systems support a cashless world.

As mentioned above, the number of electronic disbursements by the U.S. Treasury increased in FY 1998. The U.S. Treasury expects larger increases in the future. As some of the leaders of the U.S. banking and financial communities point out, even though the United States will take a giant leap forward in

technology, the chances of the United States being "fully automated" by 2010 are unlikely.

Dudley Nigg, Vice President, Wells Fargo Bank, nonetheless rejects an all-electronic strategy for his bank. "Increasingly, customers are willing to do transactions remotely," he says, "but when it comes to buying products or talking about investments or getting a loan, many people prefer face-to-face contact." He expects change to come quickly, however: "The ideal bank five to 10 years out will allow me to conduct my entire relationship from the comfort of my home...through an online service that's quick, efficient and hassle-free."³⁵

Ed Jensen, CEO for VISA International, predicts "By 2010, we have to think in terms of everyone who's school age and above having a payment card that can be loaded from a chip-card reader on their computer." For adults, "there will be one card that acts like a bank in your pocket. You can choose whether you want it to access a line of credit, an investment account, stored value or a checking account."³⁶ An example of this development is look at how the use of an ATM has expanded. When ATMs were first used they dispensed one type of currency and in limited dollar amounts and increments (usually \$100.00, consisting of five 20-dollar bills). Now ATMs will allow a customer to obtain multiple currencies, check balances, make

deposits. Further developments include buying airline tickets, stock, stamps and even movie tickets.³⁷

As mentioned above Peter Knight, CEO CHECKFREE predicts that one-third of Americans will not want to switch to paying their bills electronically.³⁸ If one-third of Americans will not switch it is difficult to believe that individuals from countries that do not use some of these products today will be "fully" digital in 2010. I don't see a cashless world in 2010 or by 2025.

What will AAN look like? No one knows for sure. Studies so far indicate the U.S. Army and the world will be connected by faster, more reliable information systems. The AAN soldier may operate on a different battlefield, in different countries and use some different equipment than the soldier of 1999. The U.S. footprint will be smaller. "By 2010, the Army will exploit the Force XXI effort to achieve nothing less than a technological and cultural metamorphosis. ... AAN simply seeks to provide the Army of 2020 with the physical speed and agility to complement the mental agility inherited from Force XXI."³⁹ What countries and how we fight will impact how AAN will use currency.

How will the AAN use currency? The AAN will use some currency for Special Forces, tactical and peacekeeping operations. Soldiers will use POS and debit cards for transactions on the installation (Post Exchange, commissary,

laundry, bowling alley, vending machines, etc.). The U.S. Treasury will pay all U.S. vendors by vendor payment and Echeck. However, a mixture of vendor payments, direct deposit, and check will pay foreign vendors. The mixture will change from today—more payments will be made electronically than today but not all.

In the places where AAN will perform peacekeeping, tactical and Special Forces operations, we cannot rely on the technological advances necessary to operate without currency. Special Forces will always require currency for their missions. Peacekeeping and tactical operations will require currency for their initial procurements and base set up. Once established, their requirements for currency will decrease.

The AAN will not use currency for day-to-day operations in the United States. Headquarters, Department of the Army and DFAS will continue to implement technological changes to ensure that AAN stays on the leading edge of financial management. Soldiers will be paid electronically for travel and military pay; all U.S. vendors will be paid by vendor express; vending machines, Post Exchanges, laundry facilities will use debit cards or POS cards. The AAN soldiers stationed overseas will use digital money and currency. Depending on the country where they serve, AAN soldiers will need more or less currency. Soldiers stationed in Europe will use digital money for paying

rent but they will need foreign debit cards or foreign currency to shop at the local markets. Soldiers stationed in Indonesia, Kuwait, or Qatar may need more currency due to lack of international technological advances in some countries.

We live in an exciting world. As the U.S. changes, so must the Army. As we look to the future, the U.S. Treasury financial innovations must be integrated into the Army After Next, so it can "Be All It Can Be."

Word count 4586

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³⁵ Ibid., 59.

³⁶ Ibid.

³⁷ Beth Kwon, "Need Stamps, Stocks, Plane Tickets? Step Up to an ATM," Newsweek, 25 January 1999, 15.

³⁸ Hamilton, 61.

³⁹ U.S. Department of the Army, "The Annual Report on the Army After Next Project to the Chief of Staff of the Army," Training and Doctrine Command, Washington, D.C.: U.S. Department of the Army, July 1997, 1.

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